SOLAR ORBITER ENERGETIC PARTICLE DETECTOR

EPD Data Product Description Document

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CHANGES RECORD

Iss.	Rev.	Date	Modified by	Section/ Paragraph	Change implemented
1	0	2019-12-16	Francisco Espinosa	All	Initial Release
1	1	2020-09-29	Francisco Espinosa	3, 4, A	Update data product descriptions and add details to the data generation process
1	2	2022-05-09	Francisco Espinosa	4, A	Add EPTHET 1 & 2 L1 single counters product
1	2	2022-05-09	Francisco Espinosa	4, A	Add new versions of EPTHET 1 & 2 L1 nominal products
1	2	2022-05-09	Francisco Espinosa	4, A	Remove unused EPTHET burst products
1	2	2022-05-09	Francisco Espinosa	4, A	Add STEP L1 & L2 main products and L1 aux product

Contents

1 Introduction

1.1 Purpose and scope

This Data Product Definition Document (DPDD) describes the format and content of the Energetic Particle Detector (EPD) Science data. It includes descriptions of the data products and associated metadata, including the data format, content, and generation pipeline. These products will be stored and distributed from the Solar Orbiter Science Archive (SOAR) [RD.04] of the SOC.

The specifications described in this DPDD apply to all EPD Science Products submitted to ESA's Solar Orbiter SOC for further archival and exploitation. This document only includes descriptions of Science products delivered by the Science pipelines run at the EPD Team premises. It does not address the Low Latency data (see [RD.03]) since it will be described in [RD.01] and [RD.02] .

1.2 Applicable documents

Ref.	Document Title
AD.01	SOL-SGS-TN-0009 Metadata Definition for Solar Orbiter Science
AD.02	SOL-SGS-ICD-002 Data Producer to Archive ICD (DPAICD)

1.3 Reference documents

Ref.	Document Title
RD.01	SOL-SGS-ICD-0004 Solar Orbiter Interface Control Document for Low Latency CDF Files
RD.02	SO-EPD-PO-TN-0036 EPD Low Latency Data Product Description Document
RD.03	SOL-SGS-TN-0003 Solar Orbiter Low Latency Data: Concept and Implementation
RD.04	SOL-SGS-PL-0009 Solar Orbiter Archive Plan
RD.05	SO-EPD-PO-IF-0003 EPD TM/TC Interface Control Document

1.4 Acronyms and Abbreviations

SOAR Solar Orbiter Archive
SOC Science Operations Centre

2 Instrument Description

The Energetic Particle Detector (EPD) is an instrument suite comprising different sensors that have been designed to measure the spectra, composition, time variations, and directional distributions of energetic particles. These measurements will be performed over a partly overlapping energy range encompassing a few kiloelectronvolts to 450 MeV/n, with sufficient time, energy, angular, and mass resolution to achieve the mission science goals. The EPD consists of the following units:

- **SupraThermal Electrons and Protons (STEP)**. Designed to measure protons and electrons at supra-thermal energies (between 2 and ∼80 keV). It employs two co-aligned sensor heads with a parallel field of view. One of the sensor heads contains a permanent magnet that deflects electrons out of the nominal field of view, this is referred to as *magnet* channel and measures all types of particles except electrons. The other head measures every particle in the energy range including electrons and is called *integral* channel. Each head contains a solid state detector divided in several pixels to achieve angular resolution. For each channel there are 15 pixels distributed in 3 rows and 5 columns, plus a separate pixel for measuring background.
- **Electron Proton Telescope (EPT)**. EPT measure electrons and ions (mostly protons) in the lower energy part of the energetic particle spectrum (25–500 keV for electrons and from 25 keV to few MeV for ions). It relies on the magnet/foil technique adapted from STEREO/SEPT to separate electrons and ions. EPT consists of 2 double-ended telescopes providing 4 fields of view. Each telescope end has 2 channels, one of them is equipped with a set of magnets deflecting electrons and measures only ions, the other channel contains a foil that stops ions with energies below ∼400 keV while leaving the electron spectrum unchanged in the measured range.
- **Suprathermal Ion Spectrograph (SIS)**. SIS will provide observations of multiple species between H-Fe between energies just above the solar wind to multiple MeV/nucleon energies. SIS consists on 2 telescopes (SIS-A and SIS-B) pointing in different directions and sharing the same electronics box. SIS is able to identify ion species by measuring the time of flight of the particles that enter in the detector, as well as it energy, thus providing an indirect measure of their mass.
- **High Energy Telescope (HET)**. HET measures electrons, protons and heavy ions and covers the upper energy end of the EPD range. There two HET units, each consisting of a double-sided telescope and an electronics box which is shared with EPT. Consequently it provides measurements in 4 distinct fields of view (the same as EPT). Each telescope contains 2 solid state detectors (A and B) for each direction and a shared BGO scintillator (C). Measuring the characteristics of the energy deposition in the different detectors, HET is able to identify particle species in a wide energy range.
- **Instrument Control Unit (ICU)**. The ICU is the interface between the spacecraft and the EPD sensors. All EPD sensors are connected to the ICU, which provides them with a telecommand and telemetry communication link, time synchronization, processing and power. It consists of a common data processing unit (CDPU) and a low-voltage power supply (LVPS), operating in a cold redundant configuration.

The STEP, EPT, and HET were developed by the Christian Albrechts University (CAU) of Kiel. The SIS was developed by the Johns Hopkins University Applied Physics Laboratory (JHU/APL) and CAU. The ICU was developed by the ESA PI institution at the University of Alcalá, Spain. The location of the different EPD sensor units on the spacecraft is shown in Fig. 1. EPT and HET sensors are located

on two almost identical units: EPT-HET1 and EPT-HET2, each covering two opposed fields of view (sun-antisun and north-south respectively). Figures 2 and 3 show the energy coverage and observed fields of view of EPD respectively.

Figure 1: *Solar Orbiter spacecraft showing the location of the different EPD sensor units. In the coordinate system of this figure, +X points towards the Sun and the Y and Z complete the orthogonal basis. The left side shows a view of the -Y panel showing the sensors oriented along the mean Parker spiral direction, and the right side shows the view of the +Y panel.*

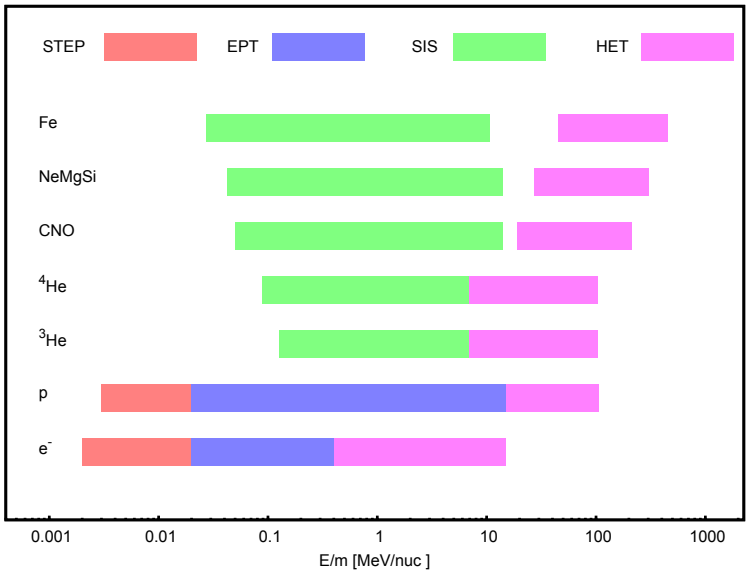

Figure 2: *Energy coverage of the EPD sensors for different species.*

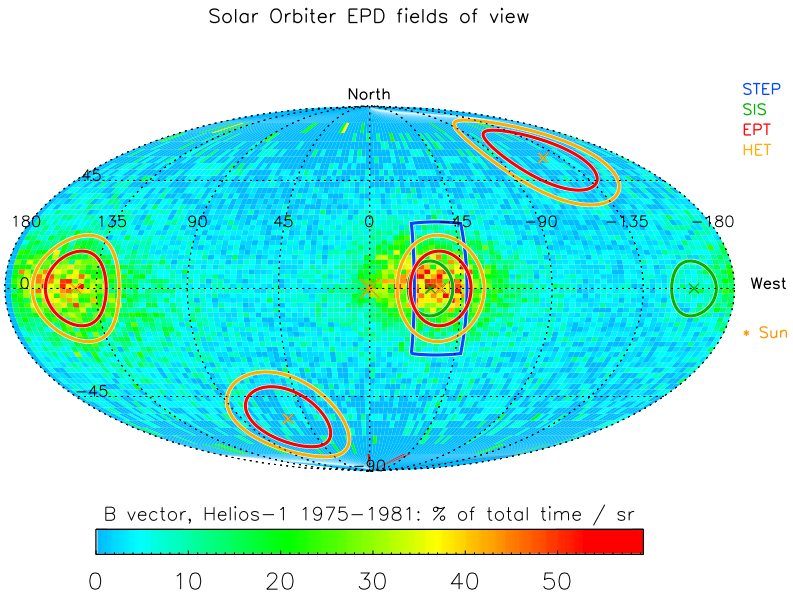

Figure 3: *Fields of view of the EPD sensors in the spacecraft reference frame. The colour-coded plot shows the hourly averaged magnetic-field distribution as observed by HELIOS-1.*

2.1 Science objectives

The objectives of the EPD instrument team is to provide answers to the high priority questions addressed by Solar Orbiter Definition Study Report:

> **How do solar eruptions produce energetic particle radiation that fills the heliosphere?**

That, in turn, can be broken down into three top-level science questions:

1. How and where are energetic particles accelerated at the Sun?
2. How are energetic particles released from their sources and distributed in space and time?
3. What are the seed populations for energetic particles?

To answer these questions, one needs to perform comprehensive measurements of energetic particles such that we can assert the energetic particle sources, acceleration mechanisms, seed populations, and distributions in space and time. Energetic particle sources from high coronal flaring loops, coronal mass ejection (CME), and impulsive processes have signatures that allow general classification. Related to these observational signatures are the theories and models used to explore and understand the mechanisms operating in these different sites. These include Fermi acceleration at various coronal shock waves, stochastic acceleration, resonant wave-particle interactions, and acceleration by direct electric fields. The seed population —the material that is actually energized— may be hot material on loops, bulk or heated solar wind, or suprathermal ions from multiple and currently not understood sources. The distribution in space may be from distinct sources or extended over a broad shock front. Finally, distribution in time is affected by scattering in the interplanetary medium as well as by the time scale of the acceleration itself.

Solar energetic particles (SEP) events are routinely observed by many *in situ* spacecraft near one AU and beyond. These measurements, made at 215 $R_\odot$ from the Sun, can only reveal limited information about the underlying acceleration mechanism since the acceleration (at least those of very high energy particles) is believed to occur close to the Sun, within several $R_\odot$ at flare site and $>$20 $R_\odot$ for coronal shocks. Thus, the large distance of $\sim$200 $R_\odot$ between the acceleration site and 1 AU makes the interpretation of many observations complicated. The complications arise because observations are several particle scattering lengths from the source, and the signal from the source becomes smeared by interplanetary transport effects. By travelling close to the Sun up to 60 $R_\odot$ with an advanced *in situ* and remote sensing payload, Solar Orbiter will revolutionize our understanding of SEPs. Transport effects can be largely removed because Solar Orbiter will be within $\sim$1 scattering mean free path. This allows more accurate source identification and timing studies, and thus to distinguish between various particle acceleration mechanisms that are otherwise impossible to discern.

When energetic particles are released from their acceleration sites, either flares or CME-driven shocks, they propagate along the interplanetary magnetic field (IMF), which is ordered at large spatial scales as Parkers spiral, and random and turbulent fluctuations at smaller spatial scales. Understanding how energetic particles propagate in the solar wind from their sources to the point of observation is not only essential to better understand the acceleration processes at or near the Sun, but also an important problem in its own right. In combination with vector magnetic field and plasma measurements, energetic particles can be utilized as probes to study the large-scale structure of the coronal magnetic fields and the 3-dimensional structure of magnetohydrodynamic (MHD) turbulence in the near-Sun environment. Propagation of charged particles parallel to the IMF is affected by two competing processes, the adiabatic motion along the smooth large scale field and the pitch angle scattering off the small scale irregularities. One crucial parameter is the particles pitch-angle diffusion coefficient $D_{\mu\mu}$, which can be related to particles scattering mean free path if the power spectrum of the turbulence is known. However, because most power spectra are obtained at 1 AU, assumptions on the radial dependence of the turbulent magnetic field must be made. This introduces much of the uncertainties in our understanding of the SEP transport problem. This picture will be altered significantly when Solar Orbiter travels to 0.28 AU. With the help of Solar Orbiters vector magnetic field and plasma measurements, we will be able to map the power spectrum of the turbulent magnetic field as a function of heliocentric distance, thus providing more confinement and guides to all transport models.

It is also appropriate to point out that EPD will also make supportive measurements that will address the other high priority questions:

How and where do the solar wind plasma and magnetic field originate in the corona?

and

How do solar transients drive heliospheric variability?

2.2 Operational modes

EPD will operate continuously during the entire mission, including cruise and science phases, independently of the remote sensing science windows. In order to fulfil the telemetry constraints during different periods of the mission, EPD can switch between 2 observing modes, so-called *far* and *close* modes. The two modes contain essentially the same data products, but in *far* mode the overall

telemetry rate is reduced by using longer cadences and, in some cases, lower energy resolution. Although *close* mode will be preferred when the spacecraft is closer to the Sun, the switching between the two modes will be mainly determined by the available telemetry budget, that will change for different orbits, and not only by the distance from the Sun. SIS does not have different products for *far* and *close* modes.

In addition to the observing modes, there are three different data streams concerning science products:

- Low latency data. A subset of science products with lower cadences and energy resolution that will be the first to be available on ground (typically the same day or the day after the data are collected).
- Nominal data. The main data product of EPD, available through the whole mission.
- Burst data. Consisting in products with the highest time and energy resolution. Burst data will only be produced for short periods during the mission. A burst period can be started from ground by telecommand or by an autonomous trigger on board using data collected by EPD and other Solar Orbiter instruments.

Far and *close* modes affect the nominal and some burst data products, while low latency data products remain unchanged.

2.3 Calibration

TBW

2.3.1 On-ground calibration

TBW

2.3.2 In-flight calibration

TBW

3 Data Generation and Analysis Process

The EPD science products are produced by the EPD Instrument Team. The data generation and analysis process is described in this section.

Science data received by the SOC from the EPD team are made available to end users through the Solar Orbiter archive following the policies described in the Archiving Plan [RD.04] .

The procedure for delivery of the Science data from the EPD Instrument Team to the SOC must be fully compliant with the IT-SOC Science Data Delivery ICD [AD.02] .

3.1 Scientific measurements

EPD will measure energetic particle intensities in a wide range of particle energies for different particle species. Each EPD sensor uses a different technique for particle detection and identification, adapted to the energy range that it is designed to measure.

The following sections describe the measurements done by the EPD sensors.

3.1.1 STEP measurements

STEP is designed to measure electrons and ions in the suprathermal energy range (2–80 keV). To allow for the separation of electrons and ions, STEP has 2 different channels, each equipped with its own solid state detectors for detecting particles:

- *Magnet channel*. Uses a permanent magnet to deflect electrons, measuring only ions (mostly protons).
- *Integral channel*. Measures all incoming particles.

The electron flux is recovered by subtracting the magnet channel measurements from the integral channel ones. Each channel is divided in 15 sectors, disposed in 3 rows of 5 pixels, providing directional information of the incoming particles within the field of view. An additional pixel, not directly exposed to the incoming flux, measures the cosmic ray background.

3.1.2 EPT measurements

EPT will measure electrons and ions in the lower part of the energetic particle spectrum. It will effectuate measurements in 4 different fields of view (see fig. 3):

- *Sun*. Looks in the direction of the mean Parker spiral towards the Sun.
- *Anti-Sun*. Opposite to the *Sun* direction.
- *North*. Looking towards the north ecliptic hemisphere.
- *South*. Looking towards the south ecliptic hemisphere.

Additionally, EPT has 2 channels that separate electrons and ions:

- *Magnet channel*. Uses a permanent magnet to deflect electrons. It measures protons with energies between 25 keV and 6.5 MeV and alpha particles up to 25 MeV.
- *Foil channel*. Equipped with a foil that absorbs ions, it measures electrons in the energy range 25–500 keV. Ions with energies above 400 keV can penetrate the foil, contaminating the electron measurements.

3.1.3 SIS measurements

SIS relies in the time-of-flight technique for identifying ions, providing particle counts for several ion species in the energy range between 14 keV/n and 20 MeV/n. It consists of 2 telescopes: SIS-A looking in the sunward direction, along the mean Parker spiral and SIS-B looking anti-sunward. The main scientific measurements that SIS will provide are:

- *Particle rates*. Count rates of 12 ion species (H, He3, He4, C, N, O, Ne, Mg, Si, S, Ca and Fe) in 21 energy channels.
- *Helium histogram*. Helium events will be collected in a mass histogram for better separation of He3 and He4 intensities.
- PHA data with information about individual events.

3.1.4 HET measurements

HET will measure the upper part of the energetic particle spectrum. It is equipped with several solid state detectors and a BGO crystal to provide identification of particle species from the relative energy deposited in the different detectors. Thus, HET will measure count rates for different ion species, as well as electrons. HET will provide measurements in the same 4 fields of view covered by EPT (*Sun*, *Anti-Sun*, *North* and *South*).

3.1.5 Data compression

In order to maximise the data return, EPD data will be compressed using different algorithms described below.

3.1.5.1 Floating point encoding

Values are encoded using a combination of a mantissa and an exponent. The 16-bit version uses a mantissa of 12 bits and an exponent of 4 bits and is used in the helium histogram of SIS and some products of STEP, EPT and HET.

Exponent	Mantissa
4 bits	12 bits

Table 1: *16-bit float encoding.*

The represented value is:

$$N = \text{mantissa} \qquad \text{if exponent} = 0$$
$$N = \left(\text{mantissa} + 2^{12}\right) \cdot 2^{\text{exponent}-1} \qquad \text{if exponent} > 0$$

An additional correction ($2^{\text{exponent}-2}$) can be applied to put the decoded value in the middle of each interval, thus reducing the encoding error.

A 10-bit variant of this encoding, with a 5-bit mantissa and 5-bit exponent, is used in the particle rates product of SIS.

The relative encoding error for this type of compression is approximately

$$\varepsilon \propto 2^{-m}$$

being m the number of bits used for the mantissa. For 16-bit encoding this error is always smaller than the Poisson error, that is inherent to this type of measurements. In the case of 10-bit encoding, the encoding error will become larger than the Poisson error for large count values.

3.1.5.2 8-bit logarithmic encoding

A variant of the floating point encoding using 5 bits for the exponent and only 3 bits for the mantissa is used for some low-latency products of STEP, EPT and HET. This encoding offers the highest compression ratios, independently of the magnitude of the encoded value, at the expense of larger encoding errors.

In this encoding, the exponent is calculated as the position of the leading "1" bit (least significant bit has position 1). The next 5 bits (padded with 0's if exponent<6) are used to form the 3-bit mantissa using the following table

5 bits following leading "1"	mantissa
0 — 2	000
3 — 5	001
6 — 9	010
10 — 13	011
14 — 17	100
18 — 21	101
22 — 26	110
27 — 31	111

3.1.5.3 Variable length encoding

Variable length encoding has been designed to achieve high compression ratios while keeping the encoding error always below the Poisson error ($\propto \sqrt{N}$). This is the preferred encoding for STEP, EPT and HET products.

Values are encoded in variable length words according to table 2, where `s` is a sign bit (1 if negative), the `x`'s represent bits taken from the original number and dashes represent dropped bits.

Input	Coded value
0	`0`
1-15	`1s0xxxx`
16-31	`1s10xxx-`
32-63	`1s1100xxx--`
64-127	`1s1101xxx---`
128-255	`1s11100xxxx---`
256-511	`1s11101xxxx----`
512-1023	`1s111100xxxxx----`
1024-2047	`1s111101xxxxx-----`
...	...

Table 2: *Variable length encoding.*

For some products, variable length encoding is used in conjunction with a differential compression strategy. The sequence of measurements is divided in cycles of length $n = T_{\rm enc}/T_{\rm sum}$, being $T_{\rm enc}$ the so-called *encoding cadence* and $T_{\rm sum}$ the real cadence of the data. For each cycle, a sequence of

values is generated

$$[C_0, D_1, D_2, \ldots, D_{n-1}, R_{n-1}]$$

where C_0 is the first value of the cycle, encoded using table 2, D_i are differences between consecutive values, encoded using a more aggressive version of the algorithm (table 3) and R_{n-1} is the residual (encoded using table 2) that allows to recover the exact sum of the counts of the whole cycle.

Input	Coded value
0-3	`0`
4-15	`1s0x---`
16-31	`1s10----`
32-63	`1s1100-----`
64-127	`1s1101------`
128-255	`1s11100x------`
256-511	`1s11101x-------`
512-1023	`1s111100xx-------`
1024-2047	`1s111101xx--------`
...	...

Table 3: *Variable length encoding used for differential compression.*

The encoding error produced by differential compression is equivalent to that of the non-differential algorithm, while getting better compression ratios when the count rate is high enough. However, at low count rates, it may produce artifacts in the compressed data.

3.2 Data flow overview

Data collected by the sensors are processed by the EPD ICU, which arranges them in the form of CCSDS packets that are sent to the Solar Orbiter solid state mass memory (SSMM) for storage. The Solar Orbiter MOC retrieves the data from the SSMM in almost daily telemetry passes, storing them in the mission repository, still in the form of CCSDS packets. While low latency and housekeeping data is always downlinked with the minimum delays, the latency of the nominal data can be very variable, depending on the fill state of the SSMM.

Finally, the EPD team retrieve the telemetry packets from the MOC repository and produces the final data products that will be distributed by the Solar Orbiter Archive.

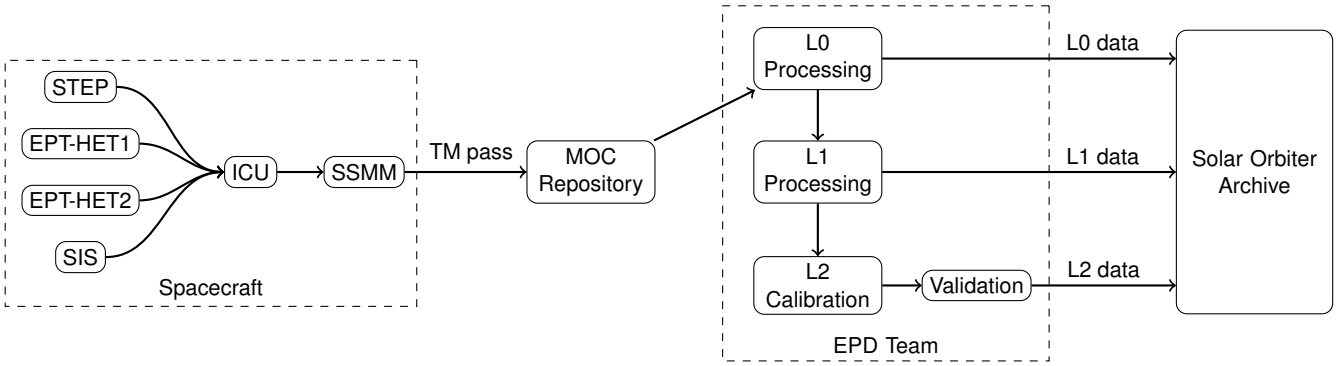

Figure 4: *EPD data flow overview*

3.3 Data Generation

The following sections describe the process used to produce the data products described in section 4.

3.3.1 L0 - Raw data

EDP level 0 data consists of raw telemetry data as they are received from the spacecraft. The telemetry is organised in different categories and stored in binary files containing raw CCSDS packets. The contents of EPD CCSDS packets is detailed in [RD.05] .

Each file covers 1 pseudo-day, defined as 86400 ticks of the spacecraft clock, which corresponds approximately to 1 day, up to the precision of the clock. The files are named according to the following structure

solo_L0_<*descriptor*>_<*timeStart*>-<*timeEnd*>_V<*version*>.bin

The <*descriptor*> field describe the contents of the file (see section 4 below). <*timeStart*> and <*timeEnd*> are timestamps specifying the time range (in units of the spacecraft clock) that is included in the file. Timestamps are written with 10 digits, padded with zeros if necessary.

Version numbers have 2 digits, starting with 01. The version number is incremented when new telemetry is received for the same time range.

3.3.2 L1 - Engineering data (uncalibrated)

EPD L0 data is decoded by an automated pipeline and converted in L1 CDF files. Each L1 file covers 1 natural day (except for *burst* products) and contains samples extracted from the CCSDS packets, timestamped with the beginning of the acquisition time. Thus, one L1 file may depend on one or several L0 files.

L1 files are given in engineering units, which typically correspond to particle counts in the detectors.

The filenames for daily files follow the structure:

solo_L1_<*descriptor*>_<*time*>_V<*version*>.cdf

Where <*descriptor*> identifies each data product (see section 4) an <*time*> is a timestamp in the form *yyyymmdd*. Version numbers have 2 digits, starting with 01.

Burst files have a different naming convention, indicating the start and end time of the file, both in format *yyyymmddThhmmss*.

solo_L1_<*descriptor*>_<*timeStart*>-<*timeEnd*>_V<*version*>.cdf

3.3.3 L2 - Science data (calibrated)

L1 products are calibrated using information from the corresponding calibration files (see below) to produce calibrated L2 files ready for scientific use. The basic calibration involves the conversion from

detector counts to particle intensities (number of particles per unit of time, energy and solid angle), using the expression

$$I = \frac{\text{counts}}{\Delta t \cdot \Delta E \cdot g_{\text{eff}}}$$

where Δt is the accumulation time, ΔE the width of the given energy channel and g_{eff} the effective geometric factor that depends on the geometry and the efficiency of the detector. The values of g_{eff} and ΔE are calibrated from instrument simulations and PHA data acquired in flight, as well as comparison between the different sensors.

Data for L1 products having different cadences for *far* and *close* are included in the same L2 file, resulting in files with variable cadence.

The file naming is similar to L1 files, being for daily files

solo_L2_<*descriptor*>_<*time*>_V<*version*>.cdf

and for burst files

solo_L2_<*descriptor*>_<*timeStart*>-<*timeEnd*>_V<*version*>.cdf

3.3.4 CAL - Calibration data

Calibration files contain the necessary information to convert L1 files to physical units. That includes effective geometric factors and energy bin limits for several types of particles for each possible mode of the instrument.

Some files also include detailed energy and angular responses for the different products included in L1 data files, obtained using simulations of the instrument. The effective geometric factor is then calculated assuming that the incoming particle spectrum follows a power law in the form $I \propto E^{-2}$. Indeed, the average intensity in the energy interval (E_l, E_h) shall be calculated as

$$\bar{I} = \frac{\int_{E_l}^{E_h} I(E)\mathrm{d}E}{E_h - E_l} = \frac{C}{\bar{g}(E_h - E_l)}$$

being $\bar{g}$ the effective geometry factor and $C = \int_0^\infty g(E)I(E)\mathrm{d}E$ the count rate, with $g(E)$ the energy response function. Then

$$\bar{g} = \frac{\int_0^\infty g(E)I(E)\mathrm{d}E}{\int_{E_l}^{E_h} I(E)\mathrm{d}E}$$

and assuming $I \propto E^{-2}$

$$\bar{g} = \frac{1}{E_l^{-1} - E_h^{-1}} \int_0^\infty \frac{g(E)}{E^2}\mathrm{d}E$$

This way we can deal with energy response functions having a long tail in the high energy range (which is typically the case for electrons). The energy limits E_l and E_h are obtained using the width at half-maximum of the energy response.

The file naming follows a convention similar to that of L1 and L2 files

solo_CAL_<*descriptor*>_<*time*>_V<*version*>.cdf

where in this case the timestamp correspond to the start time of validity of the given calibration. A new file (with different timestamp) is only generated if a change on the configuration of the instrument requires a new calibration.

3.4 Validation

The following sections describe the process by which the data products are validated.

3.4.1 Instrument team validation

Level 2 files are reviewed by the EPD team before their publication. The validation process include visual inspection and comparisons between the data of different EPD sensors.

3.4.2 SOC validation

The SOC will check the data types that the EPD team intend to archive. The SOC might also perform spot checks on contents of the files. The exact procedure in which this routine check will take place is still TBD.

4 Data Product Descriptions

EPD data products are formatted in accordance with the [AD.01] document. This section provides details on the formats used for each of the products included in the EPD science data.

4.1 Primary Products Formats

The EPD instrument uses the CDF format for its science data products. This section describes the format and record structure of each of the Science data file types.

The following information is given for each of the data products:

- Product name
- Description
- Descriptor
- Free field
- Level

- Dataset dependencies (if any)
- Associated calibration set (if any)
- Expected cadence and dataset volume

The definitions of these attributes can be found in the Data Products and Filenames Confluence document ([AD.01] , section 2.1).

The definitions below shall include all metadata contained in the product, both Solar Orbiter mandatory metadata [AD.01] and instrument specific metadata if any. A description of the data content organisation (as described in the aforementioned section of [AD.01]) shall be given as well.

4.1.1 L0 - Raw data products

EPD level 0 data products are enumerated in table 4. Telemetry CCSDS packets are separated according to their *Application Process ID* (APID) and, for some cases, to their *Structure ID* (SID).

Descriptor	APID(s)	SID	Description
epd-icu-hk	801, 804, 807, 809, 884, 889, 1605	–	ICU housekeeping
epd-sis-hk	865, 868, 871, 872, 873	–	SIS housekeeping
epd-sis-ll	876	–	SIS low latency science
epd-sis-nom	828	–	SIS nominal science
epd-sis-seldl	844	–	SIS selective downlink science
epd-step-ll	812	0x8-	STEP low latency science
epd-step-nom	892	0x8-	STEP nominal science
epd-step-seldl	1612	–	STEP selective downlink science
epd-epthet1-ll	812	0xa-	EPT-HET1 low latency science
epd-epthet1-nom	892	0xa-	EPT-HET1 nominal science
epd-epthet1-seldl	860	–	EPT-HET1 selective downlink science
epd-epthet2-ll	812	0xb-	EPT-HET2 low latency science
epd-epthet2-nom	892	0xb-	EPT-HET2 nominal science
epd-epthet2-seldl	908	–	EPT-HET2 selective downlink science

Table 4: *EPD level 0 data products.*

4.1.2 L1 - Engineering data products

EPD level 1 data products contain the full set of measurements made by the different EPD units in engineering units (i.e. counts).

STEP data products		
Product	**Descriptor(s)**	**Description / Comments**
STEP L1 Main	epd-step-main-far epd-step-main-close	Since October 22nd, 2021
STEP L1 Auxiliary	epd-step-aux	Since October 22nd, 2021
STEP L1 Nominal	epd-step-nom-far epd-step-nom-close	Only before October 22nd, 2021
STEP L1 Burst	epd-step-burst1-far epd-step-burst1-close	Only before October 22nd, 2021
STEP L1 Quicklook	epd-step-quicklook	
EPT-HET1/2 data products		
Product	**Descriptor(s)**	**Description / Comments**
EPT-HET1/2 L1 Nominal	epd-epthet1-nom-far epd-epthet1-nom-close epd-epthet2-nom-far epd-epthet2-nom-close	Contents changed on March 24th, 2021 (see versions 1 & 2)
EPT-HET1/2 L1 Single Counters	epd-epthet1-sc epd-epthet2-sc	
EPT-HET1/2 L1 Quicklook	epd-epthet1-quicklook epd-epthet2-quicklook	
SIS data products		
Product	**Descriptor(s)**	**Description / Comments**
SIS L1 Rates Medium	epd-sis-a-rates-medium epd-sis-b-rates-medium	
SIS L1 Rates Fast	epd-sis-a-rates-fast epd-sis-b-rates-fast	
SIS L1 Rates Slow	epd-sis-a-rates-slow epd-sis-b-rates-slow	
SIS L1 Helium Histogram	epd-sis-a-hehist epd-sis-b-hehist	

Table 5: *EPD level 1 data products*

4.1.2.1 STEP L1 Main (far mode)

Description: STEP Level 1 main product in *far* mode (started on October 22nd, 2021)

Descriptor: epd-step-main-far

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-step-nom

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files (only in *far* mode, ∼1 MB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-STEP-MAIN-FAR>Energetic Particle Detector, SupraThermal Electrons and Protons, Main product far mode
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-step-main-far
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, SupraThermal Electrons and Protons, Main product far mode
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	MAIN-FAR>Main product far mode
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
STEP_M_0_00	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 0 (background)
STEP_M_0_01	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 1
STEP_M_0_02	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 2
STEP_M_0_03	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 3
STEP_M_0_04	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 4
STEP_M_0_05	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 5
STEP_M_0_06	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 6
STEP_M_0_07	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 7
STEP_M_0_08	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 8
STEP_M_0_09	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 9
STEP_M_0_10	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 10
STEP_M_0_11	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 11
STEP_M_0_12	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 12
STEP_M_0_13	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 13
STEP_M_0_14	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 14
STEP_M_0_15	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 15
STEP_M_1_00	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 0 (background)
STEP_M_1_01	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 1
STEP_M_1_02	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 2
STEP_M_1_03	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 3
STEP_M_1_04	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 4
STEP_M_1_05	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 5

Name	Depend	Dims.	Description
STEP_M_1_06	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 6
STEP_M_1_07	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 7
STEP_M_1_08	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 8
STEP_M_1_09	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 9
STEP_M_1_10	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 10
STEP_M_1_11	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 11
STEP_M_1_12	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 12
STEP_M_1_13	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 13
STEP_M_1_14	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 14
STEP_M_1_15	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 15

Epoch variables

Name	Cadence
EPOCH	10 seconds
EPOCH_1	10 seconds

Support variables

Name	Depend	Dims.	Description
BINS_32		[32]	Energy bin number for 32 bins
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_FLAG_1	EPOCH_1	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
QUALITY_BITMASK_1	EPOCH_1	[]	Computer readable quality parameter
SCET	EPOCH	[]	Elapsed time of the onboard clock

4.1.2.2 STEP L1 Main (close mode)

Description: STEP Level 1 main product in *close* mode (started on October 22nd, 2021)

Descriptor: epd-step-main-close

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-step-nom

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files (only in *far* mode, ∼10 MB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-STEP-MAIN-CLOSE>Energetic Particle Detector, SupraThermal Electrons and Protons, Main product close mode
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-step-main-close
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, SupraThermal Electrons and Protons, Main product close mode
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	MAIN-CLOSE>Main product close mode
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
STEP_M_0_00	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 0 (background)
STEP_M_0_01	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 1
STEP_M_0_02	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 2
STEP_M_0_03	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 3
STEP_M_0_04	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 4
STEP_M_0_05	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 5
STEP_M_0_06	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 6
STEP_M_0_07	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 7
STEP_M_0_08	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 8
STEP_M_0_09	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 9
STEP_M_0_10	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 10
STEP_M_0_11	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 11
STEP_M_0_12	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 12
STEP_M_0_13	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 13
STEP_M_0_14	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 14
STEP_M_0_15	EPOCH BINS_32	[32]	STEP main product, counts in the integral channel (head 0) for pixel 15
STEP_M_1_00	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 0 (background)
STEP_M_1_01	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 1
STEP_M_1_02	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 2
STEP_M_1_03	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 3
STEP_M_1_04	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 4
STEP_M_1_05	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 5

Name	Depend	Dims.	Description
STEP_M_1_06	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 6
STEP_M_1_07	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 7
STEP_M_1_08	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 8
STEP_M_1_09	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 9
STEP_M_1_10	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 10
STEP_M_1_11	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 11
STEP_M_1_12	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 12
STEP_M_1_13	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 13
STEP_M_1_14	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 14
STEP_M_1_15	EPOCH_1 BINS_32	[32]	STEP main product, counts in the magnet channel (head 1) for pixel 15

Epoch variables

Name	Cadence
EPOCH	1 second
EPOCH_1	1 second

Support variables

Name	Depend	Dims.	Description
BINS_32		[32]	Energy bin number for 32 bins
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_FLAG_1	EPOCH_1	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
QUALITY_BITMASK_1	EPOCH_1	[]	Computer readable quality parameter
SCET	EPOCH	[]	Elapsed time of the onboard clock

4.1.2.3 STEP L1 Auxiliary

Description: STEP Level 1 auxiliary product (started on October 22nd, 2021)

Descriptor: epd-step-aux

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-step-nom

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files (only in *far* mode, ∼700 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-STEP-AUX>Energetic Particle Detector, SupraThermal Electrons and Protons, Auxiliary product
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-step-aux
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, SupraThermal Electrons and Protons, Auxiliary product
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	AUX>Auxiliary product
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
STEP_A_0_00	EPOCH BINS_24	[24]	STEP auxiliary product, counts in the integral channel (head 0) for pixel 0 (background)
STEP_A_0_01	EPOCH BINS_24	[24]	STEP auxiliary product, counts in the integral channel (head 0) for pixel 1
STEP_A_0_02	EPOCH BINS_24	[24]	STEP auxiliary product, counts in the integral channel (head 0) for pixel 2
STEP_A_0_03	EPOCH BINS_24	[24]	STEP auxiliary product, counts in the integral channel (head 0) for pixel 3
STEP_A_0_04	EPOCH BINS_24	[24]	STEP auxiliary product, counts in the integral channel (head 0) for pixel 4
STEP_A_0_05	EPOCH BINS_24	[24]	STEP auxiliary product, counts in the integral channel (head 0) for pixel 5
STEP_A_0_06	EPOCH BINS_24	[24]	STEP auxiliary product, counts in the integral channel (head 0) for pixel 6
STEP_A_0_07	EPOCH BINS_24	[24]	STEP auxiliary product, counts in the integral channel (head 0) for pixel 7
STEP_A_0_08	EPOCH BINS_24	[24]	STEP auxiliary product, counts in the integral channel (head 0) for pixel 8
STEP_A_0_09	EPOCH BINS_24	[24]	STEP auxiliary product, counts in the integral channel (head 0) for pixel 9
STEP_A_0_10	EPOCH BINS_24	[24]	STEP auxiliary product, counts in the integral channel (head 0) for pixel 10
STEP_A_0_11	EPOCH BINS_24	[24]	STEP auxiliary product, counts in the integral channel (head 0) for pixel 11
STEP_A_0_12	EPOCH BINS_24	[24]	STEP auxiliary product, counts in the integral channel (head 0) for pixel 12
STEP_A_0_13	EPOCH BINS_24	[24]	STEP auxiliary product, counts in the integral channel (head 0) for pixel 13
STEP_A_0_14	EPOCH BINS_24	[24]	STEP auxiliary product, counts in the integral channel (head 0) for pixel 14
STEP_A_0_15	EPOCH BINS_24	[24]	STEP auxiliary product, counts in the integral channel (head 0) for pixel 15
STEP_A_1_00	EPOCH_1 BINS_24	[24]	STEP auxiliary product, counts in the magnet channel (head 1) for pixel 0 (background)
STEP_A_1_01	EPOCH_1 BINS_24	[24]	STEP auxiliary product, counts in the magnet channel (head 1) for pixel 1
STEP_A_1_02	EPOCH_1 BINS_24	[24]	STEP auxiliary product, counts in the magnet channel (head 1) for pixel 2
STEP_A_1_03	EPOCH_1 BINS_24	[24]	STEP auxiliary product, counts in the magnet channel (head 1) for pixel 3
STEP_A_1_04	EPOCH_1 BINS_24	[24]	STEP auxiliary product, counts in the magnet channel (head 1) for pixel 4
STEP_A_1_05	EPOCH_1 BINS_24	[24]	STEP auxiliary product, counts in the magnet channel (head 1) for pixel 5

Name	Depend	Dims.	Description
STEP_A_1_06	EPOCH_1 BINS_24	[24]	STEP auxiliary product, counts in the magnet channel (head 1) for pixel 6
STEP_A_1_07	EPOCH_1 BINS_24	[24]	STEP auxiliary product, counts in the magnet channel (head 1) for pixel 7
STEP_A_1_08	EPOCH_1 BINS_24	[24]	STEP auxiliary product, counts in the magnet channel (head 1) for pixel 8
STEP_A_1_09	EPOCH_1 BINS_24	[24]	STEP auxiliary product, counts in the magnet channel (head 1) for pixel 9
STEP_A_1_10	EPOCH_1 BINS_24	[24]	STEP auxiliary product, counts in the magnet channel (head 1) for pixel 10
STEP_A_1_11	EPOCH_1 BINS_24	[24]	STEP auxiliary product, counts in the magnet channel (head 1) for pixel 11
STEP_A_1_12	EPOCH_1 BINS_24	[24]	STEP auxiliary product, counts in the magnet channel (head 1) for pixel 12
STEP_A_1_13	EPOCH_1 BINS_24	[24]	STEP auxiliary product, counts in the magnet channel (head 1) for pixel 13
STEP_A_1_14	EPOCH_1 BINS_24	[24]	STEP auxiliary product, counts in the magnet channel (head 1) for pixel 14
STEP_A_1_15	EPOCH_1 BINS_24	[24]	STEP auxiliary product, counts in the magnet channel (head 1) for pixel 15

Epoch variables

Name	Cadence
EPOCH	60 seconds
EPOCH_1	60 seconds

Support variables

Name	Depend	Dims.	Description
BINS_24		[24]	Energy bin number for 24 bins
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_FLAG_1	EPOCH_1	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
QUALITY_BITMASK_1	EPOCH_1	[]	Computer readable quality parameter
SCET	EPOCH	[]	Elapsed time of the onboard clock

4.1.2.4 STEP L1 Nominal (far mode)

Description: STEP Level 1 nominal product in *far* mode (discontinued on October 22nd, 2021)

Descriptor: epd-step-nom-far

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-step-nom

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files (only in *far* mode, ∼1 MB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-STEP-NOM-FAR>Energetic Particle Detector, SupraThermal Electrons and Protons, Nominal product far mode
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-step-nom-far
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, SupraThermal Electrons and Protons, Nominal product far mode
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	NOM-FAR>Nominal product far mode
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
NO_STEP_BASIC_INT	EPOCH_1 BINS_8 PIXELS_ALL_BKGND	[8, 16]	Counts in the integral channel for each pixel
NO_STEP_BASIC_MAG	EPOCH_1 BINS_8 PIXELS_ALL_BKGND	[8, 16]	Counts in the magnet channel for each pixel
NO_STEP_TRES_ROWS_INT	EPOCH BINS_4 PIXELS_ROWS	[4, 3]	Counts in the integral channel for each of the 3 rows of 5 pixels with high cadence
NO_STEP_TRES_ROWS_MAG	EPOCH BINS_4 PIXELS_ROWS	[4, 3]	Counts in the magnet channel for each of the 3 rows of 5 pixels with high cadence
NO_STEP_TRES_COLS_INT	EPOCH BINS_4 PIXELS_COLS	[4, 5]	Counts in the integral channel for each of the 5 columns of 3 pixels with high cadence
NO_STEP_TRES_COLS_MAG	EPOCH BINS_4 PIXELS_COLS	[4, 5]	Counts in the magnet channel for each of the 5 columns of 3 pixels with high cadence
NO_STEP_TRES_BKGND_INT	EPOCH BINS_4	[4]	Counts in the integral channel for the background pixel with high cadence
NO_STEP_TRES_BKGND_MAG	EPOCH BINS_4	[4]	Counts in the magnet channel for the background pixel with high cadence
NO_STEP_ERES_INT	EPOCH_1 BINS_48	[48]	Summed counts for all pixels in the integral channel with high energy resolution
NO_STEP_ERES_MAG	EPOCH_1 BINS_48	[48]	Summed counts for all pixels in the magnet channel with high energy resolution
NO_STEP_MULTI_INT	EPOCH_1 PIXELS_ALL	[15]	Multiple hits in the integral channel
NO_STEP_MULTI_MAG	EPOCH_1 PIXELS_ALL	[15]	Multiple hits in the magnet channel

Epoch variables

Name	Cadence
EPOCH	5 seconds
EPOCH_1	60 seconds

Support variables

Name	Depend	Dims.	Description
BINS_8		[8]	Energy bin number for 8 bins
BINS_4		[4]	Energy bin number for 4 bins
BINS_48		[48]	Energy bin number for 48 bins
PIXELS_ALL_BKGND		[16]	Pixel labels for all pixels including background pixel

Name	Depend	Dims.	Description
PIXELS_ROWS		[3]	Pixel label combinations for rows
PIXELS_COLS		[5]	Pixel label combinations for columns
PIXELS_ALL		[15]	Pixel labels for all pixels
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_FLAG_1	EPOCH_1	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
QUALITY_BITMASK_1	EPOCH_1	[]	Computer readable quality parameter
SCET	EPOCH	[]	Elapsed time of the onboard clock

4.1.2.5 STEP L1 Nominal (close mode)

Description: STEP Level 1 nominal product in *close* mode (discontinued on October 22nd, 2021)

Descriptor: epd-step-nom-close

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-step-nom

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files (only in *close* mode, ∼3 MB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-STEP-NOM-CLOSE>Energetic Particle Detector, SupraThermal Electrons and Protons, Nominal product close mode
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-step-nom-close
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, SupraThermal Electrons and Protons, Nominal product close mode
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	NOM-CLOSE>Nominal product close mode
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
NO_STEP_BASIC_INT	EPOCH_2 BINS_8 PIXELS_ALL_BKGND	[8, 16]	Counts in the integral channel for each pixel
NO_STEP_BASIC_MAG	EPOCH_2 BINS_8 PIXELS_ALL_BKGND	[8, 16]	Counts in the magnet channel for each pixel
NO_STEP_TRES_ROWS_INT	EPOCH BINS_4 PIXELS_ROWS	[4, 3]	Counts in the integral channel for each of the 3 rows of 5 pixels with high cadence
NO_STEP_TRES_ROWS_MAG	EPOCH BINS_4 PIXELS_ROWS	[4, 3]	Counts in the magnet channel for each of the 3 rows of 5 pixels with high cadence
NO_STEP_TRES_COLS_INT	EPOCH BINS_4 PIXELS_COLS	[4, 5]	Counts in the integral channel for each of the 5 columns of 3 pixels with high cadence
NO_STEP_TRES_COLS_MAG	EPOCH BINS_4 PIXELS_COLS	[4, 5]	Counts in the magnet channel for each of the 5 columns of 3 pixels with high cadence
NO_STEP_TRES_BKGND_INT	EPOCH BINS_4	[4]	Counts in the integral channel for the background pixel with high cadence
NO_STEP_TRES_BKGND_MAG	EPOCH BINS_4	[4]	Counts in the magnet channel for the background pixel with high cadence
NO_STEP_ERES_INT	EPOCH_2 BINS_48	[48]	Summed counts for all pixels in the integral channel with high energy resolution
NO_STEP_ERES_MAG	EPOCH_2 BINS_48	[48]	Summed counts for all pixels in the magnet channel with high energy resolution
NO_STEP_MULTI_INT	EPOCH_1 PIXELS_ALL	[15]	Multiple hits in the integral channel
NO_STEP_MULTI_MAG	EPOCH_1 PIXELS_ALL	[15]	Multiple hits in the magnet channel

Epoch variables

Name	Cadence
EPOCH	1 second
EPOCH_1	5 seconds
EPOCH_2	10 seconds

Support variables

Name	Depend	Dims.	Description
BINS_8		[8]	Energy bin number for 8 bins
BINS_4		[4]	Energy bin number for 4 bins
BINS_48		[48]	Energy bin number for 48 bins

Name	Depend	Dims.	Description
PIXELS_ALL_BKGND		[16]	Pixel labels for all pixels including background pixel
PIXELS_ROWS		[3]	Pixel label combinations for rows
PIXELS_COLS		[5]	Pixel label combinations for columns
PIXELS_ALL		[15]	Pixel labels for all pixels
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_FLAG_1	EPOCH_1	[]	Data quality flag
QUALITY_FLAG_2	EPOCH_2	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
QUALITY_BITMASK_1	EPOCH_1	[]	Computer readable quality parameter
QUALITY_BITMASK_2	EPOCH_2	[]	Computer readable quality parameter
SCET	EPOCH	[]	Elapsed time of the onboard clock

4.1.2.6 STEP L1 Burst1 (far mode)

Description: STEP Level 1 burst product in *far* mode (discontinued on October 22nd, 2021)

Descriptor: epd-step-burst1-far

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-step-nom, solo_L0_step-seldl

Associated calibration set: N/A

Expected cadence and dataset volume: One file per burst period (only in *far* mode)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-STEP-BURST1-FAR>Energetic Particle Detector, SupraThermal Electrons and Protons, Burst product 1 far mode
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-step-burst1-far
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, SupraThermal Electrons and Protons, Burst product 1 far mode
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	BURST1-FAR>Burst product 1 far mode
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
B1_STEP_BASIC_INT	EPOCH BINS_16 PIXELS_ALL_BKGND	[16, 16]	Counts in the integral channel for each pixel
B1_STEP_BASIC_MAG	EPOCH BINS_16 PIXELS_ALL_BKGND	[16, 16]	Counts in the magnet channel for each pixel
B1_STEP_ERES_INT	EPOCH BINS_48	[48]	Summed counts for all pixels in the integral channel with high energy resolution
B1_STEP_ERES_MAG	EPOCH BINS_48	[48]	Summed counts for all pixels in the magnet channel with high energy resolution

Epoch variables

Name	Cadence
EPOCH	1 second

Support variables

Name	Depend	Dims.	Description
BINS_16		[16]	Energy bin number for 16 bins
BINS_48		[48]	Energy bin number for 48 bins
PIXELS_ALL_BKGND		[16]	Pixel labels for all pixels including background pixel
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
SCET	EPOCH	[]	Elapsed time of the onboard clock

4.1.2.7 STEP L1 Burst1 (close mode)

Description: STEP Level 1 burst product in *close* mode (discontinued on October 22nd, 2021)

Descriptor: epd-step-burst1-close

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-step-nom, solo_L0_step-seldl

Associated calibration set: N/A

Expected cadence and dataset volume: One file per burst period (only in *close* mode)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-STEP-BURST1-CLOSE>Energetic Particle Detector, SupraThermal Electrons and Protons, Burst product 1 close mode
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-step-burst1-close
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, SupraThermal Electrons and Protons, Burst product 1 close mode
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	BURST1-CLOSE>Burst product 1 close mode
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Variables

Variables coincide with those of STEP L1 Burst1 (far mode)

4.1.2.8 STEP L1 Quicklook

Description: STEP Level 1 quicklook product

Descriptor: epd-step-quicklook

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-step-ll

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files (∼1 MB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-STEP-QUICKLOOK>Energetic Particle Detector, SupraThermal Electrons and Protons, Quicklook product
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-step-quicklook
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, SupraThermal Electrons and Protons, Quicklook product
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	QUICKLOOK>Quicklook product
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
LL_STEP_ENERGY_RES_INT	EPOCH_1 BINS_24	[24]	Counts in the integral channel with high energy resolution
LL_STEP_ENERGY_RES_MAG	EPOCH_1 BINS_24	[24]	Counts in the magnet channel with high energy resolution
LL_STEP_ENERGY_RES_BKGND_INT	EPOCH_1 BINS_24	[24]	Background counts in the integral channel with high energy resolution
LL_STEP_ENERGY_RES_BKGND_MAG	EPOCH_1 BINS_24	[24]	Background counts in the magnet channel with high energy resolution
LL_STEP_TIME_RES_INT	EPOCH BINS_4	[4]	Counts in the integral channel with high time resolution
LL_STEP_TIME_RES_MAG	EPOCH BINS_4	[4]	Counts in the magnet channel with high time resolution
LL_STEP_TIME_RES_BKGND_INT	EPOCH BINS_4	[4]	Background counts in the integral channel with high time resolution
LL_STEP_TIME_RES_BKGND_MAG	EPOCH BINS_4	[4]	Background counts in the magnet channel with high time resolution

Epoch variables

Name	Cadence
EPOCH	1 second
EPOCH_1	60 seconds

Support variables

Name	Depend	Dims.	Description
BINS_24		[24]	Energy bin number for 24 bins
BINS_4		[4]	Energy bin number for 4 bins
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_FLAG_1	EPOCH_1	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
QUALITY_BITMASK_1	EPOCH_1	[]	Computer readable quality parameter
SCET	EPOCH	[]	Elapsed time of the onboard clock

4.1.2.9 EPT-HET1 L1 Nominal (far mode, version 1)

Description: EPT-HET1 Level 1 nominal product in *far* mode (version 1, before March 24th, 2021)

Descriptor: epd-epthet1-nom-far

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-epthet1-nom

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files (only in *far* mode, $\sim$ 300 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-EPTHET1-NOM-FAR>Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, ecliptic unit, Nominal product far mode
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-epthet1-nom-far
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, ecliptic unit, Nominal product far mode
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	NOM-FAR>Nominal product far mode
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
NO_EPT_I_S	EPOCH_1 BINS_64	[64]	EPT stopping particles in magnet channel from sun direction
NO_EPT_I_A	EPOCH_1 BINS_64	[64]	EPT stopping particles in magnet channel from antisun direction
NO_EPT_C_I_S	EPOCH_1 BINS_8	[8]	EPT stopping particles in magnet channel from sun direction
NO_EPT_C_I_A	EPOCH_1 BINS_8	[8]	EPT stopping particles in magnet channel from antisun direction
NO_EPT_T_I_S	EPOCH BINS_12	[12]	EPT stopping particles in magnet channel with high time resolution from sun direction
NO_EPT_T_I_A	EPOCH BINS_12	[12]	EPT stopping particles in magnet channel with high time resolution from antisun direction
NO_EPT_T_E_S	EPOCH BINS_17	[17]	EPT stopping particles in foil channel with high time resolution from sun direction
NO_EPT_T_E_A	EPOCH BINS_17	[17]	EPT stopping particles in foil channel with high time resolution from antisun direction
NO_EPT_E_S	EPOCH_3 BINS_34	[34]	EPT stopping particles in foil channel from sun direction
NO_EPT_E_A	EPOCH_3 BINS_34	[34]	EPT stopping particles in foil channel from antisun direction
NO_EPT_HE_S	EPOCH_1 BINS_8	[8]	EPT high energy stopping particles in magnet channel from sun direction
NO_EPT_HE_A	EPOCH_1 BINS_8	[8]	EPT high energy stopping particles in magnet channel from antisun direction
NO_EPTP_E_S	EPOCH_1 BINS_2	[2]	EPT penetrating electrons from sun direction
NO_EPTP_E_A	EPOCH_1 BINS_2	[2]	EPT penetrating electrons from antisun direction
NO_EPTP_P_S	EPOCH_1 BINS_4	[4]	EPT penetrating Hydrogen from sun direction
NO_EPTP_P_A	EPOCH_1 BINS_4	[4]	EPT penetrating Hydrogen from antisun direction
NO_EPTP_P_E	EPOCH_1 BINS_4	[4]	EPT penetrating relativistic Hydrogen from ecliptic (sun + antisun) direction
NO_EPTP_HE3_S	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-3 from sun direction
NO_EPTP_HE3_A	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-3 from antisun direction
NO_EPTP_HE3_E	EPOCH_2	[]	EPT penetrating relativistic Helium-3 from ecliptic (sun + antisun) direction
NO_EPTP_HE4_S	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-4 from sun direction
NO_EPTP_HE4_A	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-4 from antisun direction
NO_EPTP_HE4_E	EPOCH_2	[]	EPT penetrating relativistic Helium-4 from ecliptic (sun + antisun) direction

Name	Depend	Dims.	Description
NO_EPTP_HE_S	EPOCH_2	[]	EPT penetrating Helium from sun direction
NO_EPTP_HE_A	EPOCH_2	[]	EPT penetrating Helium from antisun direction
NO_EPTP_HE_E	EPOCH_2 BINS_4	[4]	EPT penetrating relativistic Helium from ecliptic (sun + antisun) direction
NO_HETP_BG_S	EPOCH_4	[]	HET penetrating background from sun direction
NO_HETP_BG_A	EPOCH_4	[]	HET penetrating background from antisun direction
NO_HETB_BG_S	EPOCH_4	[]	HET background in AB from sun direction
NO_HETB_BG_A	EPOCH_4	[]	HET background in AB from antisun direction
NO_HETB_P_S	EPOCH_1 BINS_5	[5]	HET Hydrogen stopping in AB from sun direction
NO_HETB_P_A	EPOCH_1 BINS_5	[5]	HET Hydrogen stopping in AB from antisun direction
NO_HETB_TAIL_HIGH_P_S	EPOCH_1	[]	HET Hydrogen stopping in the wrapping from sun direction
NO_HETB_TAIL_HIGH_P_A	EPOCH_1	[]	HET Hydrogen stopping in the wrapping from antisun direction
NO_HETC_P_S	EPOCH_1 BINS_31	[31]	HET Hydrogen stopping in C from sun direction
NO_HETC_P_A	EPOCH_1 BINS_31	[31]	HET Hydrogen stopping in C from antisun direction
NO_HETP_P_S	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from sun direction
NO_HETP_P_A	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from antisun direction
NO_HETP_P_E	EPOCH_2 BINS_3	[3]	HET penetrating relativistic Hydrogen from ecliptic (sun + antisun) direction
NO_HETB_H_P_S	EPOCH	[]	HET Hydrogen stopping in AB with high time resolution from sun direction
NO_HETB_H_P_A	EPOCH	[]	HET Hydrogen stopping in AB with high time resolution from antisun direction
NO_HETC_H_P_S	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from sun direction
NO_HETC_H_P_A	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from antisun direction
NO_HETB_E_S	EPOCH	[]	HET electrons stopping in AB from sun direction
NO_HETB_E_A	EPOCH	[]	HET electrons stopping in AB from antisun direction
NO_HETC_E_S	EPOCH BINS_3	[3]	HET electrons stopping in C from sun direction
NO_HETC_E_A	EPOCH BINS_3	[3]	HET electrons stopping in C from antisun direction
NO_HETC_H_E_S	EPOCH_2	[]	HET high energy electrons stopping in C from sun direction
NO_HETC_H_E_A	EPOCH_2	[]	HET high energy electrons stopping in C from antisun direction
NO_HETB_HE3_S	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in AB from sun direction
NO_HETB_HE3_A	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in AB from antisun direction

Name	Depend	Dims.	Description
NO_HETB_HE4_S	EPOCH_2 BINS_4	[4]	HET Helium-4 stopping in AB from sun direction
NO_HETB_HE4_A	EPOCH_2 BINS_4	[4]	HET Helium-4 stopping in AB from antisun direction
NO_HETC_HE3_S	EPOCH_2 BINS_5	[5]	HET Helium-3 stopping in C from sun direction
NO_HETC_HE3_A	EPOCH_2 BINS_5	[5]	HET Helium-3 stopping in C from antisun direction
NO_HETC_HE4_S	EPOCH_2 BINS_11	[11]	HET Helium-4 stopping in C from sun direction
NO_HETC_HE4_A	EPOCH_2 BINS_11	[11]	HET Helium-4 stopping in C from antisun direction
NO_HETB_HE_S	EPOCH_1 BINS_6	[6]	HET Helium stopping in AB from sun direction
NO_HETB_HE_A	EPOCH_1 BINS_6	[6]	HET Helium stopping in AB from antisun direction
NO_HETP_HE_S	EPOCH_3 BINS_2	[2]	HET penetrating Helium from sun direction
NO_HETP_HE_A	EPOCH_3 BINS_2	[2]	HET penetrating Helium from antisun direction
NO_HETP_HE_E	EPOCH_3 BINS_4	[4]	HET penetrating relativistic Helium from ecliptic (sun + antisun) direction
NO_HETC_C_S	EPOCH_3 BINS_12	[12]	HET Carbon stopping in C from sun direction
NO_HETC_C_A	EPOCH_3 BINS_12	[12]	HET Carbon stopping in C from antisun direction
NO_HETC_N_S	EPOCH_3 BINS_12	[12]	HET Nitrogen stopping in C from sun direction
NO_HETC_N_A	EPOCH_3 BINS_12	[12]	HET Nitrogen stopping in C from antisun direction
NO_HETC_O_S	EPOCH_3 BINS_12	[12]	HET Oxygen stopping in C from sun direction
NO_HETC_O_A	EPOCH_3 BINS_12	[12]	HET Oxygen stopping in C from antisun direction
NO_HETB_C_S	EPOCH_3 BINS_5	[5]	HET Carbon stopping in AB from sun direction
NO_HETB_C_A	EPOCH_3 BINS_5	[5]	HET Carbon stopping in AB from antisun direction
NO_HETB_N_S	EPOCH_3 BINS_5	[5]	HET Nitrogen stopping in AB from sun direction
NO_HETB_N_A	EPOCH_3 BINS_5	[5]	HET Nitrogen stopping in AB from antisun direction
NO_HETB_O_S	EPOCH_3 BINS_5	[5]	HET Oxygen stopping in AB from sun direction
NO_HETB_O_A	EPOCH_3 BINS_5	[5]	HET Oxygen stopping in AB from antisun direction

Name	Depend	Dims.	Description
NO_HETP_CNO_S	EPOCH_4 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from sun direction
NO_HETP_CNO_A	EPOCH_4 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from antisun direction
NO_HETP_CNO_E	EPOCH_4 BINS_6	[6]	HET penetrating relativistic Carbon, Nitrogen and Oxygen from ecliptic (sun + antisun) direction
NO_HETC_FE_S	EPOCH_4 BINS_11	[11]	HET Iron stopping in C from sun direction
NO_HETC_FE_A	EPOCH_4 BINS_11	[11]	HET Iron stopping in C from antisun direction
NO_HETB_FE_S	EPOCH_4 BINS_5	[5]	HET Iron stopping in AB from sun direction
NO_HETB_FE_A	EPOCH_4 BINS_5	[5]	HET Iron stopping in AB from antisun direction
NO_HETP_FE_S	EPOCH_4 BINS_2	[2]	HET penetrating Iron from sun direction
NO_HETP_FE_A	EPOCH_4 BINS_2	[2]	HET penetrating Iron from antisun direction
NO_HETP_FE_E	EPOCH_4 BINS_3	[3]	HET penetrating relativistic Iron from ecliptic (sun + antisun) direction

Epoch variables

Name	Cadence
EPOCH	5 seconds
EPOCH_1	30 seconds
EPOCH_2	60 seconds
EPOCH_3	300 seconds
EPOCH_4	600 seconds

Support variables

Name	Depend	Dims.	Description
BINS_64		[64]	Energy bin number for 64 bins
BINS_8		[8]	Energy bin number for 8 bins
BINS_12		[12]	Energy bin number for 12 bins
BINS_17		[17]	Energy bin number for 17 bins
BINS_34		[34]	Energy bin number for 34 bins
BINS_2		[2]	Energy bin number for 2 bins
BINS_4		[4]	Energy bin number for 4 bins
BINS_5		[5]	Energy bin number for 5 bins
BINS_31		[31]	Energy bin number for 31 bins
BINS_3		[3]	Energy bin number for 3 bins

Name	Depend	Dims.	Description
BINS_11		[11]	Energy bin number for 11 bins
BINS_6		[6]	Energy bin number for 6 bins
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_FLAG_1	EPOCH_1	[]	Data quality flag
QUALITY_FLAG_2	EPOCH_2	[]	Data quality flag
QUALITY_FLAG_3	EPOCH_3	[]	Data quality flag
QUALITY_FLAG_4	EPOCH_4	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
QUALITY_BITMASK_1	EPOCH_1	[]	Computer readable quality parameter
QUALITY_BITMASK_2	EPOCH_2	[]	Computer readable quality parameter
QUALITY_BITMASK_3	EPOCH_3	[]	Computer readable quality parameter
QUALITY_BITMASK_4	EPOCH_4	[]	Computer readable quality parameter
SCET	EPOCH	[]	Elapsed time of the onboard clock

4.1.2.10 EPT-HET1 L1 Nominal (far mode, version 2)

Description: EPT-HET1 Level 1 nominal product in *far* mode (version 2, after March 24th, 2021)

Descriptor: epd-epthet1-nom-far

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-epthet1-nom

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files (only in *far* mode, $\sim$ 300 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-EPTHET1-NOM-FAR>Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, ecliptic unit, Nominal product far mode
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-epthet1-nom-far
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, ecliptic unit, Nominal product far mode
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	NOM-FAR>Nominal product far mode
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
NO_EPT_MAG_S	EPOCH BINS_77	[77]	EPT stopping particles in magnet channel from sun direction
NO_EPT_MAG_A	EPOCH BINS_77	[77]	EPT stopping particles in magnet channel from antisun direction
NO_EPT_FOIL_S	EPOCH BINS_77	[77]	EPT stopping particles in foil channel from sun direction
NO_EPT_FOIL_A	EPOCH BINS_77	[77]	EPT stopping particles in foil channel from antisun direction
NO_EPTP_E_S	EPOCH_1 BINS_2	[2]	EPT penetrating electrons from sun direction
NO_EPTP_E_A	EPOCH_1 BINS_2	[2]	EPT penetrating electrons from antisun direction
NO_EPTP_P_S	EPOCH_1 BINS_4	[4]	EPT penetrating Hydrogen from sun direction
NO_EPTP_P_A	EPOCH_1 BINS_4	[4]	EPT penetrating Hydrogen from antisun direction
NO_EPTP_P_E	EPOCH_1 BINS_4	[4]	EPT penetrating relativistic Hydrogen from ecliptic (sun + antisun) direction
NO_EPTP_HE3_S	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-3 from sun direction
NO_EPTP_HE3_A	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-3 from antisun direction
NO_EPTP_HE3_E	EPOCH_2	[]	EPT penetrating relativistic Helium-3 from ecliptic (sun + antisun) direction
NO_EPTP_HE4_S	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-4 from sun direction
NO_EPTP_HE4_A	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-4 from antisun direction
NO_EPTP_HE4_E	EPOCH_2	[]	EPT penetrating relativistic Helium-4 from ecliptic (sun + antisun) direction
NO_EPTP_HE_S	EPOCH_2	[]	EPT penetrating Helium from sun direction
NO_EPTP_HE_A	EPOCH_2	[]	EPT penetrating Helium from antisun direction
NO_EPTP_HE_E	EPOCH_2 BINS_4	[4]	EPT penetrating relativistic Helium from ecliptic (sun + antisun) direction
NO_HETP_BG_S	EPOCH_4	[]	HET penetrating background from sun direction
NO_HETP_BG_A	EPOCH_4	[]	HET penetrating background from antisun direction
NO_HETB_BG_S	EPOCH_4	[]	HET background in AB from sun direction
NO_HETB_BG_A	EPOCH_4	[]	HET background in AB from antisun direction
NO_HETB_P_S	EPOCH_1 BINS_5	[5]	HET Hydrogen stopping in AB from sun direction
NO_HETB_P_A	EPOCH_1 BINS_5	[5]	HET Hydrogen stopping in AB from antisun direction
NO_HETB_TAIL_HIGH_P_S	EPOCH_1	[]	HET Hydrogen stopping in the wrapping from sun direction
NO_HETB_TAIL_HIGH_P_A	EPOCH_1	[]	HET Hydrogen stopping in the wrapping from antisun direction

Name	Depend	Dims.	Description
NO_HETC_P_S	EPOCH_1 BINS_31	[31]	HET Hydrogen stopping in C from sun direction
NO_HETC_P_A	EPOCH_1 BINS_31	[31]	HET Hydrogen stopping in C from antisun direction
NO_HETP_P_S	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from sun direction
NO_HETP_P_A	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from antisun direction
NO_HETP_P_E	EPOCH_2 BINS_3	[3]	HET penetrating relativistic Hydrogen from ecliptic (sun + antisun) direction
NO_HETB_H_P_S	EPOCH	[]	HET Hydrogen stopping in AB with high time resolution from sun direction
NO_HETB_H_P_A	EPOCH	[]	HET Hydrogen stopping in AB with high time resolution from antisun direction
NO_HETC_H_P_S	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from sun direction
NO_HETC_H_P_A	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from antisun direction
NO_HETB_E_S	EPOCH	[]	HET electrons stopping in AB from sun direction
NO_HETB_E_A	EPOCH	[]	HET electrons stopping in AB from antisun direction
NO_HETC_E_S	EPOCH BINS_3	[3]	HET electrons stopping in C from sun direction
NO_HETC_E_A	EPOCH BINS_3	[3]	HET electrons stopping in C from antisun direction
NO_HETC_H_E_S	EPOCH_2	[]	HET high energy electrons stopping in C from sun direction
NO_HETC_H_E_A	EPOCH_2	[]	HET high energy electrons stopping in C from antisun direction
NO_HETB_HE3_S	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in AB from sun direction
NO_HETB_HE3_A	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in AB from antisun direction
NO_HETB_HE4_S	EPOCH_2 BINS_4	[4]	HET Helium-4 stopping in AB from sun direction
NO_HETB_HE4_A	EPOCH_2 BINS_4	[4]	HET Helium-4 stopping in AB from antisun direction
NO_HETC_HE3_S	EPOCH_2 BINS_5	[5]	HET Helium-3 stopping in C from sun direction
NO_HETC_HE3_A	EPOCH_2 BINS_5	[5]	HET Helium-3 stopping in C from antisun direction
NO_HETC_HE4_S	EPOCH_2 BINS_11	[11]	HET Helium-4 stopping in C from sun direction
NO_HETC_HE4_A	EPOCH_2 BINS_11	[11]	HET Helium-4 stopping in C from antisun direction
NO_HETB_HE_S	EPOCH_1 BINS_6	[6]	HET Helium stopping in AB from sun direction
NO_HETB_HE_A	EPOCH_1 BINS_6	[6]	HET Helium stopping in AB from antisun direction

Name	Depend	Dims.	Description
NO_HETP_HE_S	EPOCH_3 BINS_2	[2]	HET penetrating Helium from sun direction
NO_HETP_HE_A	EPOCH_3 BINS_2	[2]	HET penetrating Helium from antisun direction
NO_HETP_HE_E	EPOCH_3 BINS_4	[4]	HET penetrating relativistic Helium from ecliptic (sun + antisun) direction
NO_HETC_C_S	EPOCH_3 BINS_12	[12]	HET Carbon stopping in C from sun direction
NO_HETC_C_A	EPOCH_3 BINS_12	[12]	HET Carbon stopping in C from antisun direction
NO_HETC_N_S	EPOCH_3 BINS_12	[12]	HET Nitrogen stopping in C from sun direction
NO_HETC_N_A	EPOCH_3 BINS_12	[12]	HET Nitrogen stopping in C from antisun direction
NO_HETC_O_S	EPOCH_3 BINS_12	[12]	HET Oxygen stopping in C from sun direction
NO_HETC_O_A	EPOCH_3 BINS_12	[12]	HET Oxygen stopping in C from antisun direction
NO_HETB_C_S	EPOCH_3 BINS_5	[5]	HET Carbon stopping in AB from sun direction
NO_HETB_C_A	EPOCH_3 BINS_5	[5]	HET Carbon stopping in AB from antisun direction
NO_HETB_N_S	EPOCH_3 BINS_5	[5]	HET Nitrogen stopping in AB from sun direction
NO_HETB_N_A	EPOCH_3 BINS_5	[5]	HET Nitrogen stopping in AB from antisun direction
NO_HETB_O_S	EPOCH_3 BINS_5	[5]	HET Oxygen stopping in AB from sun direction
NO_HETB_O_A	EPOCH_3 BINS_5	[5]	HET Oxygen stopping in AB from antisun direction
NO_HETP_CNO_S	EPOCH_4 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from sun direction
NO_HETP_CNO_A	EPOCH_4 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from antisun direction
NO_HETP_CNO_E	EPOCH_4 BINS_6	[6]	HET penetrating relativistic Carbon, Nitrogen and Oxygen from ecliptic (sun + antisun) direction
NO_HETC_FE_S	EPOCH_4 BINS_11	[11]	HET Iron stopping in C from sun direction
NO_HETC_FE_A	EPOCH_4 BINS_11	[11]	HET Iron stopping in C from antisun direction
NO_HETB_FE_S	EPOCH_4 BINS_5	[5]	HET Iron stopping in AB from sun direction
NO_HETB_FE_A	EPOCH_4 BINS_5	[5]	HET Iron stopping in AB from antisun direction
NO_HETP_FE_S	EPOCH_4 BINS_2	[2]	HET penetrating Iron from sun direction

Name	Depend	Dims.	Description
NO_HETP_FE_A	EPOCH_4 BINS_2	[2]	HET penetrating Iron from antisun direction
NO_HETP_FE_E	EPOCH_4 BINS_3	[3]	HET penetrating relativistic Iron from ecliptic (sun + antisun) direction

Epoch variables

Name	Cadence
EPOCH	5 seconds
EPOCH_1	30 seconds
EPOCH_2	60 seconds
EPOCH_3	300 seconds
EPOCH_4	600 seconds

Support variables

Name	Depend	Dims.	Description
BINS_77		[77]	Energy bin number for 77 bins
BINS_2		[2]	Energy bin number for 2 bins
BINS_4		[4]	Energy bin number for 4 bins
BINS_5		[5]	Energy bin number for 5 bins
BINS_31		[31]	Energy bin number for 31 bins
BINS_3		[3]	Energy bin number for 3 bins
BINS_11		[11]	Energy bin number for 11 bins
BINS_6		[6]	Energy bin number for 6 bins
BINS_12		[12]	Energy bin number for 12 bins
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_FLAG_1	EPOCH_1	[]	Data quality flag
QUALITY_FLAG_2	EPOCH_2	[]	Data quality flag
QUALITY_FLAG_3	EPOCH_3	[]	Data quality flag
QUALITY_FLAG_4	EPOCH_4	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
QUALITY_BITMASK_1	EPOCH_1	[]	Computer readable quality parameter
QUALITY_BITMASK_2	EPOCH_2	[]	Computer readable quality parameter
QUALITY_BITMASK_3	EPOCH_3	[]	Computer readable quality parameter
QUALITY_BITMASK_4	EPOCH_4	[]	Computer readable quality parameter
SCET	EPOCH	[]	Elapsed time of the onboard clock

4.1.2.11 EPT-HET1 L1 Nominal (close mode, version 1)

Description: EPT-HET1 Level 1 nominal product in *close* mode (version 1, before March 24th, 2021)

Descriptor: epd-epthet1-nom-close

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-epthet1-nom

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files (only in *close* mode, $\sim$ 1 MB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-EPTHET1-NOM-CLOSE>Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, ecliptic unit, Nominal product close mode
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-epthet1-nom-close
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, ecliptic unit, Nominal product close mode
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	NOM-CLOSE>Nominal product close mode
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
NO_EPT_I_S	EPOCH_1 BINS_64	[64]	EPT stopping particles in magnet channel from sun direction
NO_EPT_I_A	EPOCH_1 BINS_64	[64]	EPT stopping particles in magnet channel from antisun direction
NO_EPT_C_I_S	EPOCH_1 BINS_8	[8]	EPT stopping particles in magnet channel from sun direction
NO_EPT_C_I_A	EPOCH_1 BINS_8	[8]	EPT stopping particles in magnet channel from antisun direction
NO_EPT_T_I_S	EPOCH BINS_12	[12]	EPT stopping particles in magnet channel with high time resolution from sun direction
NO_EPT_T_I_A	EPOCH BINS_12	[12]	EPT stopping particles in magnet channel with high time resolution from antisun direction
NO_EPT_T_E_S	EPOCH BINS_17	[17]	EPT stopping particles in foil channel with high time resolution from sun direction
NO_EPT_T_E_A	EPOCH BINS_17	[17]	EPT stopping particles in foil channel with high time resolution from antisun direction
NO_EPT_E_S	EPOCH_3 BINS_34	[34]	EPT stopping particles in foil channel from sun direction
NO_EPT_E_A	EPOCH_3 BINS_34	[34]	EPT stopping particles in foil channel from antisun direction
NO_EPT_HE_S	EPOCH_1 BINS_8	[8]	EPT high energy stopping particles in magnet channel from sun direction
NO_EPT_HE_A	EPOCH_1 BINS_8	[8]	EPT high energy stopping particles in magnet channel from antisun direction
NO_EPTP_E_S	EPOCH_1 BINS_2	[2]	EPT penetrating electrons from sun direction
NO_EPTP_E_A	EPOCH_1 BINS_2	[2]	EPT penetrating electrons from antisun direction
NO_EPTP_P_S	EPOCH_1 BINS_4	[4]	EPT penetrating Hydrogen from sun direction
NO_EPTP_P_A	EPOCH_1 BINS_4	[4]	EPT penetrating Hydrogen from antisun direction
NO_EPTP_P_E	EPOCH_1 BINS_4	[4]	EPT penetrating relativistic Hydrogen from ecliptic (sun + antisun) direction
NO_EPTP_HE3_S	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-3 from sun direction
NO_EPTP_HE3_A	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-3 from antisun direction
NO_EPTP_HE3_E	EPOCH_2	[]	EPT penetrating relativistic Helium-3 from ecliptic (sun + antisun) direction
NO_EPTP_HE4_S	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-4 from sun direction
NO_EPTP_HE4_A	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-4 from antisun direction
NO_EPTP_HE4_E	EPOCH_2	[]	EPT penetrating relativistic Helium-4 from ecliptic (sun + antisun) direction

Name	Depend	Dims.	Description
NO_EPTP_HE_S	EPOCH_2	[]	EPT penetrating Helium from sun direction
NO_EPTP_HE_A	EPOCH_2	[]	EPT penetrating Helium from antisun direction
NO_EPTP_HE_E	EPOCH_2 BINS_4	[4]	EPT penetrating relativistic Helium from ecliptic (sun + antisun) direction
NO_HETP_BG_S	EPOCH_5	[]	HET penetrating background from sun direction
NO_HETP_BG_A	EPOCH_5	[]	HET penetrating background from antisun direction
NO_HETB_BG_S	EPOCH_5	[]	HET background in AB from sun direction
NO_HETB_BG_A	EPOCH_5	[]	HET background in AB from antisun direction
NO_HETB_P_S	EPOCH_1 BINS_5	[5]	HET Hydrogen stopping in AB from sun direction
NO_HETB_P_A	EPOCH_1 BINS_5	[5]	HET Hydrogen stopping in AB from antisun direction
NO_HETB_TAIL_HIGH_P_S	EPOCH_1	[]	HET Hydrogen stopping in the wrapping from sun direction
NO_HETB_TAIL_HIGH_P_A	EPOCH_1	[]	HET Hydrogen stopping in the wrapping from antisun direction
NO_HETC_P_S	EPOCH_1 BINS_31	[31]	HET Hydrogen stopping in C from sun direction
NO_HETC_P_A	EPOCH_1 BINS_31	[31]	HET Hydrogen stopping in C from antisun direction
NO_HETP_P_S	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from sun direction
NO_HETP_P_A	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from antisun direction
NO_HETP_P_E	EPOCH_2 BINS_3	[3]	HET penetrating relativistic Hydrogen from ecliptic (sun + antisun) direction
NO_HETB_H_P_S	EPOCH	[]	HET Hydrogen stopping in AB with high time resolution from sun direction
NO_HETB_H_P_A	EPOCH	[]	HET Hydrogen stopping in AB with high time resolution from antisun direction
NO_HETC_H_P_S	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from sun direction
NO_HETC_H_P_A	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from antisun direction
NO_HETB_E_S	EPOCH	[]	HET electrons stopping in AB from sun direction
NO_HETB_E_A	EPOCH	[]	HET electrons stopping in AB from antisun direction
NO_HETC_E_S	EPOCH BINS_3	[3]	HET electrons stopping in C from sun direction
NO_HETC_E_A	EPOCH BINS_3	[3]	HET electrons stopping in C from antisun direction
NO_HETC_H_E_S	EPOCH_2	[]	HET high energy electrons stopping in C from sun direction
NO_HETC_H_E_A	EPOCH_2	[]	HET high energy electrons stopping in C from antisun direction
NO_HETB_HE3_S	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in AB from sun direction
NO_HETB_HE3_A	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in AB from antisun direction

Name	Depend	Dims.	Description
NO_HETB_HE4_S	EPOCH_2 BINS_4	[4]	HET Helium-4 stopping in AB from sun direction
NO_HETB_HE4_A	EPOCH_2 BINS_4	[4]	HET Helium-4 stopping in AB from antisun direction
NO_HETC_HE3_S	EPOCH_2 BINS_5	[5]	HET Helium-3 stopping in C from sun direction
NO_HETC_HE3_A	EPOCH_2 BINS_5	[5]	HET Helium-3 stopping in C from antisun direction
NO_HETC_HE4_S	EPOCH_2 BINS_11	[11]	HET Helium-4 stopping in C from sun direction
NO_HETC_HE4_A	EPOCH_2 BINS_11	[11]	HET Helium-4 stopping in C from antisun direction
NO_HETB_HE_S	EPOCH_1 BINS_6	[6]	HET Helium stopping in AB from sun direction
NO_HETB_HE_A	EPOCH_1 BINS_6	[6]	HET Helium stopping in AB from antisun direction
NO_HETP_HE_S	EPOCH_3 BINS_2	[2]	HET penetrating Helium from sun direction
NO_HETP_HE_A	EPOCH_3 BINS_2	[2]	HET penetrating Helium from antisun direction
NO_HETP_HE_E	EPOCH_3 BINS_4	[4]	HET penetrating relativistic Helium from ecliptic (sun + antisun) direction
NO_HETC_C_S	EPOCH_3 BINS_12	[12]	HET Carbon stopping in C from sun direction
NO_HETC_C_A	EPOCH_3 BINS_12	[12]	HET Carbon stopping in C from antisun direction
NO_HETC_N_S	EPOCH_3 BINS_12	[12]	HET Nitrogen stopping in C from sun direction
NO_HETC_N_A	EPOCH_3 BINS_12	[12]	HET Nitrogen stopping in C from antisun direction
NO_HETC_O_S	EPOCH_3 BINS_12	[12]	HET Oxygen stopping in C from sun direction
NO_HETC_O_A	EPOCH_3 BINS_12	[12]	HET Oxygen stopping in C from antisun direction
NO_HETB_C_S	EPOCH_3 BINS_5	[5]	HET Carbon stopping in AB from sun direction
NO_HETB_C_A	EPOCH_3 BINS_5	[5]	HET Carbon stopping in AB from antisun direction
NO_HETB_N_S	EPOCH_3 BINS_5	[5]	HET Nitrogen stopping in AB from sun direction
NO_HETB_N_A	EPOCH_3 BINS_5	[5]	HET Nitrogen stopping in AB from antisun direction
NO_HETB_O_S	EPOCH_3 BINS_5	[5]	HET Oxygen stopping in AB from sun direction
NO_HETB_O_A	EPOCH_3 BINS_5	[5]	HET Oxygen stopping in AB from antisun direction

Name	Depend	Dims.	Description
NO_HETP_CNO_S	EPOCH_5 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from sun direction
NO_HETP_CNO_A	EPOCH_5 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from antisun direction
NO_HETP_CNO_E	EPOCH_5 BINS_6	[6]	HET penetrating relativistic Carbon, Nitrogen and Oxygen from ecliptic (sun + antisun) direction
NO_HETC_FE_S	EPOCH_4 BINS_11	[11]	HET Iron stopping in C from sun direction
NO_HETC_FE_A	EPOCH_4 BINS_11	[11]	HET Iron stopping in C from antisun direction
NO_HETB_FE_S	EPOCH_4 BINS_5	[5]	HET Iron stopping in AB from sun direction
NO_HETB_FE_A	EPOCH_4 BINS_5	[5]	HET Iron stopping in AB from antisun direction
NO_HETP_FE_S	EPOCH_5 BINS_2	[2]	HET penetrating Iron from sun direction
NO_HETP_FE_A	EPOCH_5 BINS_2	[2]	HET penetrating Iron from antisun direction
NO_HETP_FE_E	EPOCH_5 BINS_3	[3]	HET penetrating relativistic Iron from ecliptic (sun + antisun) direction

Epoch variables

Name	Cadence
EPOCH	1 second
EPOCH_1	5 seconds
EPOCH_2	30 seconds
EPOCH_3	60 seconds
EPOCH_4	300 seconds
EPOCH_5	600 seconds

Support variables

Name	Depend	Dims.	Description
BINS_64		[64]	Energy bin number for 64 bins
BINS_8		[8]	Energy bin number for 8 bins
BINS_12		[12]	Energy bin number for 12 bins
BINS_17		[17]	Energy bin number for 17 bins
BINS_34		[34]	Energy bin number for 34 bins
BINS_2		[2]	Energy bin number for 2 bins
BINS_4		[4]	Energy bin number for 4 bins
BINS_5		[5]	Energy bin number for 5 bins
BINS_31		[31]	Energy bin number for 31 bins

Name	Depend	Dims.	Description
BINS_3		[3]	Energy bin number for 3 bins
BINS_11		[11]	Energy bin number for 11 bins
BINS_6		[6]	Energy bin number for 6 bins
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_FLAG_1	EPOCH_1	[]	Data quality flag
QUALITY_FLAG_2	EPOCH_2	[]	Data quality flag
QUALITY_FLAG_3	EPOCH_3	[]	Data quality flag
QUALITY_FLAG_4	EPOCH_4	[]	Data quality flag
QUALITY_FLAG_5	EPOCH_5	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
QUALITY_BITMASK_1	EPOCH_1	[]	Computer readable quality parameter
QUALITY_BITMASK_2	EPOCH_2	[]	Computer readable quality parameter
QUALITY_BITMASK_3	EPOCH_3	[]	Computer readable quality parameter
QUALITY_BITMASK_4	EPOCH_4	[]	Computer readable quality parameter
QUALITY_BITMASK_5	EPOCH_5	[]	Computer readable quality parameter
SCET	EPOCH	[]	Elapsed time of the onboard clock

4.1.2.12 EPT-HET1 L1 Nominal (close mode, version 2)

Description: EPT-HET1 Level 1 nominal product in *close* mode (version 2, after March 24th, 2021)

Descriptor: epd-epthet1-nom-close

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-epthet1-nom

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files (only in *close* mode, $\sim$ 1.6 MB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-EPTHET1-NOM-CLOSE>Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, ecliptic unit, Nominal product close mode
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-epthet1-nom-close
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, ecliptic unit, Nominal product close mode
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	NOM-CLOSE>Nominal product close mode
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
NO_EPT_MAG_S	EPOCH BINS_77	[77]	EPT stopping particles in magnet channel from sun direction
NO_EPT_MAG_A	EPOCH BINS_77	[77]	EPT stopping particles in magnet channel from antisun direction
NO_EPT_FOIL_S	EPOCH BINS_77	[77]	EPT stopping particles in foil channel from sun direction
NO_EPT_FOIL_A	EPOCH BINS_77	[77]	EPT stopping particles in foil channel from antisun direction
NO_EPTP_E_S	EPOCH_1 BINS_2	[2]	EPT penetrating electrons from sun direction
NO_EPTP_E_A	EPOCH_1 BINS_2	[2]	EPT penetrating electrons from antisun direction
NO_EPTP_P_S	EPOCH_1 BINS_4	[4]	EPT penetrating Hydrogen from sun direction
NO_EPTP_P_A	EPOCH_1 BINS_4	[4]	EPT penetrating Hydrogen from antisun direction
NO_EPTP_P_E	EPOCH_1 BINS_4	[4]	EPT penetrating relativistic Hydrogen from ecliptic (sun + antisun) direction
NO_EPTP_HE3_S	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-3 from sun direction
NO_EPTP_HE3_A	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-3 from antisun direction
NO_EPTP_HE3_E	EPOCH_2	[]	EPT penetrating relativistic Helium-3 from ecliptic (sun + antisun) direction
NO_EPTP_HE4_S	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-4 from sun direction
NO_EPTP_HE4_A	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-4 from antisun direction
NO_EPTP_HE4_E	EPOCH_2	[]	EPT penetrating relativistic Helium-4 from ecliptic (sun + antisun) direction
NO_EPTP_HE_S	EPOCH_2	[]	EPT penetrating Helium from sun direction
NO_EPTP_HE_A	EPOCH_2	[]	EPT penetrating Helium from antisun direction
NO_EPTP_HE_E	EPOCH_2 BINS_4	[4]	EPT penetrating relativistic Helium from ecliptic (sun + antisun) direction
NO_HETP_BG_S	EPOCH_5	[]	HET penetrating background from sun direction
NO_HETP_BG_A	EPOCH_5	[]	HET penetrating background from antisun direction
NO_HETB_BG_S	EPOCH_5	[]	HET background in AB from sun direction
NO_HETB_BG_A	EPOCH_5	[]	HET background in AB from antisun direction
NO_HETB_P_S	EPOCH_1 BINS_5	[5]	HET Hydrogen stopping in AB from sun direction
NO_HETB_P_A	EPOCH_1 BINS_5	[5]	HET Hydrogen stopping in AB from antisun direction
NO_HETB_TAIL_HIGH_P_S	EPOCH_1	[]	HET Hydrogen stopping in the wrapping from sun direction
NO_HETB_TAIL_HIGH_P_A	EPOCH_1	[]	HET Hydrogen stopping in the wrapping from antisun direction

Name	Depend	Dims.	Description
NO_HETC_P_S	EPOCH_1 BINS_31	[31]	HET Hydrogen stopping in C from sun direction
NO_HETC_P_A	EPOCH_1 BINS_31	[31]	HET Hydrogen stopping in C from antisun direction
NO_HETP_P_S	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from sun direction
NO_HETP_P_A	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from antisun direction
NO_HETP_P_E	EPOCH_2 BINS_3	[3]	HET penetrating relativistic Hydrogen from ecliptic (sun + antisun) direction
NO_HETB_H_P_S	EPOCH	[]	HET Hydrogen stopping in AB with high time resolution from sun direction
NO_HETB_H_P_A	EPOCH	[]	HET Hydrogen stopping in AB with high time resolution from antisun direction
NO_HETC_H_P_S	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from sun direction
NO_HETC_H_P_A	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from antisun direction
NO_HETB_E_S	EPOCH	[]	HET electrons stopping in AB from sun direction
NO_HETB_E_A	EPOCH	[]	HET electrons stopping in AB from antisun direction
NO_HETC_E_S	EPOCH BINS_3	[3]	HET electrons stopping in C from sun direction
NO_HETC_E_A	EPOCH BINS_3	[3]	HET electrons stopping in C from antisun direction
NO_HETC_H_E_S	EPOCH_2	[]	HET high energy electrons stopping in C from sun direction
NO_HETC_H_E_A	EPOCH_2	[]	HET high energy electrons stopping in C from antisun direction
NO_HETB_HE3_S	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in AB from sun direction
NO_HETB_HE3_A	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in AB from antisun direction
NO_HETB_HE4_S	EPOCH_2 BINS_4	[4]	HET Helium-4 stopping in AB from sun direction
NO_HETB_HE4_A	EPOCH_2 BINS_4	[4]	HET Helium-4 stopping in AB from antisun direction
NO_HETC_HE3_S	EPOCH_2 BINS_5	[5]	HET Helium-3 stopping in C from sun direction
NO_HETC_HE3_A	EPOCH_2 BINS_5	[5]	HET Helium-3 stopping in C from antisun direction
NO_HETC_HE4_S	EPOCH_2 BINS_11	[11]	HET Helium-4 stopping in C from sun direction
NO_HETC_HE4_A	EPOCH_2 BINS_11	[11]	HET Helium-4 stopping in C from antisun direction
NO_HETB_HE_S	EPOCH_1 BINS_6	[6]	HET Helium stopping in AB from sun direction
NO_HETB_HE_A	EPOCH_1 BINS_6	[6]	HET Helium stopping in AB from antisun direction

Name	Depend	Dims.	Description
NO_HETP_HE_S	EPOCH_3 BINS_2	[2]	HET penetrating Helium from sun direction
NO_HETP_HE_A	EPOCH_3 BINS_2	[2]	HET penetrating Helium from antisun direction
NO_HETP_HE_E	EPOCH_3 BINS_4	[4]	HET penetrating relativistic Helium from ecliptic (sun + antisun) direction
NO_HETC_C_S	EPOCH_3 BINS_12	[12]	HET Carbon stopping in C from sun direction
NO_HETC_C_A	EPOCH_3 BINS_12	[12]	HET Carbon stopping in C from antisun direction
NO_HETC_N_S	EPOCH_3 BINS_12	[12]	HET Nitrogen stopping in C from sun direction
NO_HETC_N_A	EPOCH_3 BINS_12	[12]	HET Nitrogen stopping in C from antisun direction
NO_HETC_O_S	EPOCH_3 BINS_12	[12]	HET Oxygen stopping in C from sun direction
NO_HETC_O_A	EPOCH_3 BINS_12	[12]	HET Oxygen stopping in C from antisun direction
NO_HETB_C_S	EPOCH_3 BINS_5	[5]	HET Carbon stopping in AB from sun direction
NO_HETB_C_A	EPOCH_3 BINS_5	[5]	HET Carbon stopping in AB from antisun direction
NO_HETB_N_S	EPOCH_3 BINS_5	[5]	HET Nitrogen stopping in AB from sun direction
NO_HETB_N_A	EPOCH_3 BINS_5	[5]	HET Nitrogen stopping in AB from antisun direction
NO_HETB_O_S	EPOCH_3 BINS_5	[5]	HET Oxygen stopping in AB from sun direction
NO_HETB_O_A	EPOCH_3 BINS_5	[5]	HET Oxygen stopping in AB from antisun direction
NO_HETP_CNO_S	EPOCH_5 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from sun direction
NO_HETP_CNO_A	EPOCH_5 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from antisun direction
NO_HETP_CNO_E	EPOCH_5 BINS_6	[6]	HET penetrating relativistic Carbon, Nitrogen and Oxygen from ecliptic (sun + antisun) direction
NO_HETC_FE_S	EPOCH_4 BINS_11	[11]	HET Iron stopping in C from sun direction
NO_HETC_FE_A	EPOCH_4 BINS_11	[11]	HET Iron stopping in C from antisun direction
NO_HETB_FE_S	EPOCH_4 BINS_5	[5]	HET Iron stopping in AB from sun direction
NO_HETB_FE_A	EPOCH_4 BINS_5	[5]	HET Iron stopping in AB from antisun direction
NO_HETP_FE_S	EPOCH_5 BINS_2	[2]	HET penetrating Iron from sun direction

Name	Depend	Dims.	Description
NO_HETP_FE_A	EPOCH_5 BINS_2	[2]	HET penetrating Iron from antisun direction
NO_HETP_FE_E	EPOCH_5 BINS_3	[3]	HET penetrating relativistic Iron from ecliptic (sun + antisun) direction

Epoch variables

Name	Cadence
EPOCH	1 second
EPOCH_1	5 seconds
EPOCH_2	30 seconds
EPOCH_3	60 seconds
EPOCH_4	300 seconds
EPOCH_5	600 seconds

Support variables

Name	Depend	Dims.	Description
BINS_77		[77]	Energy bin number for 77 bins
BINS_2		[2]	Energy bin number for 2 bins
BINS_4		[4]	Energy bin number for 4 bins
BINS_5		[5]	Energy bin number for 5 bins
BINS_31		[31]	Energy bin number for 31 bins
BINS_3		[3]	Energy bin number for 3 bins
BINS_11		[11]	Energy bin number for 11 bins
BINS_6		[6]	Energy bin number for 6 bins
BINS_12		[12]	Energy bin number for 12 bins
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_FLAG_1	EPOCH_1	[]	Data quality flag
QUALITY_FLAG_2	EPOCH_2	[]	Data quality flag
QUALITY_FLAG_3	EPOCH_3	[]	Data quality flag
QUALITY_FLAG_4	EPOCH_4	[]	Data quality flag
QUALITY_FLAG_5	EPOCH_5	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
QUALITY_BITMASK_1	EPOCH_1	[]	Computer readable quality parameter
QUALITY_BITMASK_2	EPOCH_2	[]	Computer readable quality parameter
QUALITY_BITMASK_3	EPOCH_3	[]	Computer readable quality parameter
QUALITY_BITMASK_4	EPOCH_4	[]	Computer readable quality parameter
QUALITY_BITMASK_5	EPOCH_5	[]	Computer readable quality parameter
SCET	EPOCH	[]	Elapsed time of the onboard clock

4.1.2.13 EPT-HET1 L1 Quicklook

Description: EPT-HET1 Level 1 quicklook product

Descriptor: epd-epthet1-quicklook

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-epthet1-ll

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files ($\sim$ 250 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-EPTHET1-QUICKLOOK>Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, ecliptic unit, Quicklook product
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-epthet1-quicklook
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, ecliptic unit, Quicklook product
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	QUICKLOOK>Quicklook product
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
LL_EPT_E_S	EPOCH_1 BINS_8	[8]	EPT stopping particles in foil channel from sun direction
LL_EPT_E_A	EPOCH_1 BINS_8	[8]	EPT stopping particles in foil channel from antisun direction
LL_EPT_I_S	EPOCH_1 BINS_18	[18]	EPT stopping particles in magnet channel from sun direction
LL_EPT_I_A	EPOCH_1 BINS_18	[18]	EPT stopping particles in magnet channel from antisun direction
LL_EPT_T_E_S	EPOCH	[]	EPT stopping particles in foil channel with high time resolution from sun direction
LL_EPT_T_E_A	EPOCH	[]	EPT stopping particles in foil channel with high time resolution from antisun direction
LL_EPT_T_I_S	EPOCH BINS_2	[2]	EPT stopping particles in magnet channel with high time resolution from sun direction
LL_EPT_T_I_A	EPOCH BINS_2	[2]	EPT stopping particles in magnet channel with high time resolution from antisun direction
LL_HETB_P_S	EPOCH_1 BINS_2	[2]	HET Hydrogen stopping in AB from sun direction
LL_HETB_P_A	EPOCH_1 BINS_2	[2]	HET Hydrogen stopping in AB from antisun direction
LL_HETC_P_S	EPOCH_1 BINS_10	[10]	HET Hydrogen stopping in C from sun direction
LL_HETC_P_A	EPOCH_1 BINS_10	[10]	HET Hydrogen stopping in C from antisun direction
LL_HETP_P_S	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from sun direction
LL_HETP_P_A	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from antisun direction
LL_HETP_P_E	EPOCH_1 BINS_2	[2]	HET penetrating relativistic Hydrogen from ecliptic (sun + antisun) direction
LL_HETB_E_S	EPOCH_1	[]	HET electrons stopping in AB from sun direction
LL_HETB_E_A	EPOCH_1	[]	HET electrons stopping in AB from antisun direction
LL_HETC_E_S	EPOCH_1 BINS_3	[3]	HET electrons stopping in C from sun direction
LL_HETC_E_A	EPOCH_1 BINS_3	[3]	HET electrons stopping in C from antisun direction
LL_HETB_HE3_S	EPOCH_2 BINS_2	[2]	HET Helium-3 stopping in AB from sun direction
LL_HETB_HE3_A	EPOCH_2 BINS_2	[2]	HET Helium-3 stopping in AB from antisun direction
LL_HETB_HE4_S	EPOCH_2 BINS_2	[2]	HET Helium-4 stopping in AB from sun direction
LL_HETB_HE4_A	EPOCH_2 BINS_2	[2]	HET Helium-4 stopping in AB from antisun direction

Name	Depend	Dims.	Description
LL_HETC_HE3_S	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in C from sun direction
LL_HETC_HE3_A	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in C from antisun direction
LL_HETC_HE4_S	EPOCH_2 BINS_8	[8]	HET Helium-4 stopping in C from sun direction
LL_HETC_HE4_A	EPOCH_2 BINS_8	[8]	HET Helium-4 stopping in C from antisun direction
LL_HETB_HE_S	EPOCH_2 BINS_4	[4]	HET Helium stopping in AB from sun direction
LL_HETB_HE_A	EPOCH_2 BINS_4	[4]	HET Helium stopping in AB from antisun direction
LL_HETP_HE_S	EPOCH_2 BINS_2	[2]	HET penetrating Helium from sun direction
LL_HETP_HE_A	EPOCH_2 BINS_2	[2]	HET penetrating Helium from antisun direction
LL_HETP_HE_E	EPOCH_2 BINS_2	[2]	HET penetrating relativistic Helium from ecliptic (sun + antisun) direction
LL_HETB_CNO_S	EPOCH_3 BINS_6	[6]	HET Carbon, Nitrogen and Oxygen stopping in AB from sun direction
LL_HETB_CNO_A	EPOCH_3 BINS_6	[6]	HET Carbon, Nitrogen and Oxygen stopping in AB from antisun direction
LL_HETC_CNO_S	EPOCH_3 BINS_9	[9]	HET Carbon, Nitrogen and Oxygen stopping in C from sun direction
LL_HETC_CNO_A	EPOCH_3 BINS_9	[9]	HET Carbon, Nitrogen and Oxygen stopping in C from antisun direction
LL_HETP_CNO_S	EPOCH_4 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from sun direction
LL_HETP_CNO_A	EPOCH_4 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from antisun direction
LL_HETP_CNO_E	EPOCH_4 BINS_2	[2]	HET penetrating relativistic Carbon, Nitrogen and Oxygen from ecliptic (sun + antisun) direction
LL_HETB_FE_S	EPOCH_3 BINS_2	[2]	HET Iron stopping in AB from sun direction
LL_HETB_FE_A	EPOCH_3 BINS_2	[2]	HET Iron stopping in AB from antisun direction
LL_HETC_FE_S	EPOCH_4 BINS_3	[3]	HET Iron stopping in C from sun direction
LL_HETC_FE_A	EPOCH_4 BINS_3	[3]	HET Iron stopping in C from antisun direction
LL_HETP_FE_S	EPOCH_4	[]	HET penetrating Iron from sun direction
LL_HETP_FE_A	EPOCH_4	[]	HET penetrating Iron from antisun direction
LL_HETC_T_P_S	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from sun direction
LL_HETC_T_P_A	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from antisun direction

Name	Depend	Dims.	Description
LL_HETC_T_E_S	EPOCH	[]	HET electrons stopping in C from sun direction
LL_HETC_T_E_A	EPOCH	[]	HET electrons stopping in C from antisun direction

Epoch variables

Name	Cadence
EPOCH	5 seconds
EPOCH_1	30 seconds
EPOCH_2	300 seconds
EPOCH_3	600 seconds
EPOCH_4	3600 seconds

Support variables

Name	Depend	Dims.	Description
BINS_8		[8]	Energy bin number for 8 bins
BINS_18		[18]	Energy bin number for 18 bins
BINS_2		[2]	Energy bin number for 2 bins
BINS_10		[10]	Energy bin number for 10 bins
BINS_3		[3]	Energy bin number for 3 bins
BINS_4		[4]	Energy bin number for 4 bins
BINS_6		[6]	Energy bin number for 6 bins
BINS_9		[9]	Energy bin number for 9 bins
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_FLAG_1	EPOCH_1	[]	Data quality flag
QUALITY_FLAG_2	EPOCH_2	[]	Data quality flag
QUALITY_FLAG_3	EPOCH_3	[]	Data quality flag
QUALITY_FLAG_4	EPOCH_4	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
QUALITY_BITMASK_1	EPOCH_1	[]	Computer readable quality parameter
QUALITY_BITMASK_2	EPOCH_2	[]	Computer readable quality parameter
QUALITY_BITMASK_3	EPOCH_3	[]	Computer readable quality parameter
QUALITY_BITMASK_4	EPOCH_4	[]	Computer readable quality parameter
SCET	EPOCH	[]	Elapsed time of the onboard clock

4.1.2.14 EPT-HET1 L1 Single Counters

Description: EPT-HET1 Level 1 single detector counters

Descriptor: epd-epthet1-sc

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-epthet1-ll

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files (∼ 80 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-EPTHET1-SC>Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, ecliptic unit, Single counters
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-epthet1-sc
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, ecliptic unit, Single counters
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	SC>Single counters
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
B11L	EPOCH	[]	HET B sun detector inner segment low gain single counts
B11H	EPOCH	[]	HET B sun detector inner segment high gain single counts
B12H	EPOCH	[]	HET B sun detector middle segment high gain single counts
B12L	EPOCH	[]	HET B sun detector middle segment low gain single counts
C1L	EPOCH	[]	HET C detector photodiode 1 low gain single counts
C1H	EPOCH	[]	HET C detector photodiode 1 high gain single counts
A11H	EPOCH	[]	HET A sun detector inner segment high gain single counts
B13G	EPOCH	[]	HET B sun detector outer segment single gain single counts
A11L	EPOCH	[]	HET A sun detector inner segment low gain single counts
A12L	EPOCH	[]	HET A sun detector outer segment low gain single counts
B21L	EPOCH	[]	HET B antisun detector inner segment low gain single counts
B21H	EPOCH	[]	HET B antisun detector inner segment high gain single counts
B22L	EPOCH	[]	HET B antisun detector middle segment low gain single counts
B22H	EPOCH	[]	HET B antisun detector middle segment high gain single counts
A22L	EPOCH	[]	HET A antisun detector outer segment low gain single counts
A22H	EPOCH	[]	HET A antisun detector outer segment high gain single counts
A21H	EPOCH	[]	HET A antisun detector inner segment high gain single counts
A21L	EPOCH	[]	HET A antisun detector inner segment low gain single counts
C2H	EPOCH	[]	HET C detector photodiode 2 high gain single counts
B23G	EPOCH	[]	HET B antisun detector outer segment single gain single counts
C2L	EPOCH	[]	HET C detector photodiode 2 low gain single counts
A12H	EPOCH	[]	HET A sun detector outer segment high gain single counts
C4	EPOCH	[]	EPT sun detector magnet side inner segment single counts
A4	EPOCH	[]	EPT sun detector magnet side outer segment single counts
C3	EPOCH	[]	EPT antisun detector foil side inner segment single counts
A3	EPOCH	[]	EPT antisun detector foil side outer segment single counts
C2	EPOCH	[]	EPT sun detector foil side inner segment single counts
A2	EPOCH	[]	EPT sun detector foil side outer segment single counts
C1	EPOCH	[]	EPT antisun detector magnet side inner segment single counts
A1	EPOCH	[]	EPT antisun detector magnet side outer segment single counts

Epoch variables

Name	Cadence
EPOCH	60 seconds

Support variables

Name	Depend	Dims.	Description
SCET	EPOCH	[]	Elapsed time of the onboard clock
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
ACC_TIME	EPOCH	[]	Accumulation time in seconds

4.1.2.15 EPT-HET2 L1 Nominal (far mode, version 1)

Description: EPT-HET2 Level 1 nominal product in *far* mode (version 1, before March 24th, 2021)

Descriptor: epd-epthet2-nom-far

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-epthet2-nom

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files (only in *far* mode, $\sim$ 300 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-EPTHET2-NOM-FAR>Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, polar unit, Nominal product far mode
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-epthet2-nom-far
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, polar unit, Nominal product far mode
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	NOM-FAR>Nominal product far mode
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
NO_EPT_I_N	EPOCH_1 BINS_64	[64]	EPT stopping particles in magnet channel from north direction
NO_EPT_I_D	EPOCH_1 BINS_64	[64]	EPT stopping particles in magnet channel from south direction
NO_EPT_C_I_N	EPOCH_1 BINS_8	[8]	EPT stopping particles in magnet channel from north direction
NO_EPT_C_I_D	EPOCH_1 BINS_8	[8]	EPT stopping particles in magnet channel from south direction
NO_EPT_T_I_N	EPOCH BINS_12	[12]	EPT stopping particles in magnet channel with high time resolution from north direction
NO_EPT_T_I_D	EPOCH BINS_12	[12]	EPT stopping particles in magnet channel with high time resolution from south direction
NO_EPT_T_E_N	EPOCH BINS_17	[17]	EPT stopping particles in foil channel with high time resolution from north direction
NO_EPT_T_E_D	EPOCH BINS_17	[17]	EPT stopping particles in foil channel with high time resolution from south direction
NO_EPT_E_N	EPOCH_3 BINS_34	[34]	EPT stopping particles in foil channel from north direction
NO_EPT_E_D	EPOCH_3 BINS_34	[34]	EPT stopping particles in foil channel from south direction
NO_EPT_HE_N	EPOCH_1 BINS_8	[8]	EPT high energy stopping particles in magnet channel from north direction
NO_EPT_HE_D	EPOCH_1 BINS_8	[8]	EPT high energy stopping particles in magnet channel from south direction
NO_EPTP_E_N	EPOCH_1 BINS_2	[2]	EPT penetrating electrons from north direction
NO_EPTP_E_D	EPOCH_1 BINS_2	[2]	EPT penetrating electrons from south direction
NO_EPTP_P_N	EPOCH_1 BINS_4	[4]	EPT penetrating Hydrogen from north direction
NO_EPTP_P_D	EPOCH_1 BINS_4	[4]	EPT penetrating Hydrogen from south direction
NO_EPTP_P_P	EPOCH_1 BINS_4	[4]	EPT penetrating relativistic Hydrogen from polar (north + south) direction
NO_EPTP_HE3_N	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-3 from north direction
NO_EPTP_HE3_D	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-3 from south direction
NO_EPTP_HE3_P	EPOCH_2	[]	EPT penetrating relativistic Helium-3 from polar (north + south) direction
NO_EPTP_HE4_N	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-4 from north direction
NO_EPTP_HE4_D	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-4 from south direction
NO_EPTP_HE4_P	EPOCH_2	[]	EPT penetrating relativistic Helium-4 from polar (north + south) direction

Name	Depend	Dims.	Description
NO_EPTP_HE_N	EPOCH_2	[]	EPT penetrating Helium from north direction
NO_EPTP_HE_D	EPOCH_2	[]	EPT penetrating Helium from south direction
NO_EPTP_HE_P	EPOCH_2 BINS_4	[4]	EPT penetrating relativistic Helium from polar (north + south) direction
NO_HETP_BG_N	EPOCH_4	[]	HET penetrating background from north direction
NO_HETP_BG_D	EPOCH_4	[]	HET penetrating background from south direction
NO_HETB_BG_N	EPOCH_4	[]	HET background in AB from north direction
NO_HETB_BG_D	EPOCH_4	[]	HET background in AB from south direction
NO_HETB_P_N	EPOCH_1 BINS_5	[5]	HET Hydrogen stopping in AB from north direction
NO_HETB_P_D	EPOCH_1 BINS_5	[5]	HET Hydrogen stopping in AB from south direction
NO_HETB_TAIL_HIGH_P_N	EPOCH_1	[]	HET Hydrogen stopping in the wrapping from north direction
NO_HETB_TAIL_HIGH_P_D	EPOCH_1	[]	HET Hydrogen stopping in the wrapping from south direction
NO_HETC_P_N	EPOCH_1 BINS_31	[31]	HET Hydrogen stopping in C from north direction
NO_HETC_P_D	EPOCH_1 BINS_31	[31]	HET Hydrogen stopping in C from south direction
NO_HETP_P_N	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from north direction
NO_HETP_P_D	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from south direction
NO_HETP_P_P	EPOCH_2 BINS_3	[3]	HET penetrating relativistic Hydrogen from polar (north + south) direction
NO_HETB_H_P_N	EPOCH	[]	HET Hydrogen stopping in AB with high time resolution from north direction
NO_HETB_H_P_D	EPOCH	[]	HET Hydrogen stopping in AB with high time resolution from south direction
NO_HETC_H_P_N	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from north direction
NO_HETC_H_P_D	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from south direction
NO_HETB_E_N	EPOCH	[]	HET electrons stopping in AB from north direction
NO_HETB_E_D	EPOCH	[]	HET electrons stopping in AB from south direction
NO_HETC_E_N	EPOCH BINS_3	[3]	HET electrons stopping in C from north direction
NO_HETC_E_D	EPOCH BINS_3	[3]	HET electrons stopping in C from south direction
NO_HETC_H_E_N	EPOCH_2	[]	HET high energy electrons stopping in C from north direction
NO_HETC_H_E_D	EPOCH_2	[]	HET high energy electrons stopping in C from south direction
NO_HETB_HE3_N	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in AB from north direction
NO_HETB_HE3_D	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in AB from south direction

Name	Depend	Dims.	Description
NO_HETB_HE4_N	EPOCH_2 BINS_4	[4]	HET Helium-4 stopping in AB from north direction
NO_HETB_HE4_D	EPOCH_2 BINS_4	[4]	HET Helium-4 stopping in AB from south direction
NO_HETC_HE3_N	EPOCH_2 BINS_5	[5]	HET Helium-3 stopping in C from north direction
NO_HETC_HE3_D	EPOCH_2 BINS_5	[5]	HET Helium-3 stopping in C from south direction
NO_HETC_HE4_N	EPOCH_2 BINS_11	[11]	HET Helium-4 stopping in C from north direction
NO_HETC_HE4_D	EPOCH_2 BINS_11	[11]	HET Helium-4 stopping in C from south direction
NO_HETB_HE_N	EPOCH_1 BINS_6	[6]	HET Helium stopping in AB from north direction
NO_HETB_HE_D	EPOCH_1 BINS_6	[6]	HET Helium stopping in AB from south direction
NO_HETP_HE_N	EPOCH_3 BINS_2	[2]	HET penetrating Helium from north direction
NO_HETP_HE_D	EPOCH_3 BINS_2	[2]	HET penetrating Helium from south direction
NO_HETP_HE_P	EPOCH_3 BINS_4	[4]	HET penetrating relativistic Helium from polar (north + south) direction
NO_HETC_C_N	EPOCH_3 BINS_12	[12]	HET Carbon stopping in C from north direction
NO_HETC_C_D	EPOCH_3 BINS_12	[12]	HET Carbon stopping in C from south direction
NO_HETC_N_N	EPOCH_3 BINS_12	[12]	HET Nitrogen stopping in C from north direction
NO_HETC_N_D	EPOCH_3 BINS_12	[12]	HET Nitrogen stopping in C from south direction
NO_HETC_O_N	EPOCH_3 BINS_12	[12]	HET Oxygen stopping in C from north direction
NO_HETC_O_D	EPOCH_3 BINS_12	[12]	HET Oxygen stopping in C from south direction
NO_HETB_C_N	EPOCH_3 BINS_5	[5]	HET Carbon stopping in AB from north direction
NO_HETB_C_D	EPOCH_3 BINS_5	[5]	HET Carbon stopping in AB from south direction
NO_HETB_N_N	EPOCH_3 BINS_5	[5]	HET Nitrogen stopping in AB from north direction
NO_HETB_N_D	EPOCH_3 BINS_5	[5]	HET Nitrogen stopping in AB from south direction
NO_HETB_O_N	EPOCH_3 BINS_5	[5]	HET Oxygen stopping in AB from north direction
NO_HETB_O_D	EPOCH_3 BINS_5	[5]	HET Oxygen stopping in AB from south direction

Name	Depend	Dims.	Description
NO_HETP_CNO_N	EPOCH_4 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from north direction
NO_HETP_CNO_D	EPOCH_4 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from south direction
NO_HETP_CNO_P	EPOCH_4 BINS_6	[6]	HET penetrating relativistic Carbon, Nitrogen and Oxygen from polar (north + south) direction
NO_HETC_FE_N	EPOCH_4 BINS_11	[11]	HET Iron stopping in C from north direction
NO_HETC_FE_D	EPOCH_4 BINS_11	[11]	HET Iron stopping in C from south direction
NO_HETB_FE_N	EPOCH_4 BINS_5	[5]	HET Iron stopping in AB from north direction
NO_HETB_FE_D	EPOCH_4 BINS_5	[5]	HET Iron stopping in AB from south direction
NO_HETP_FE_N	EPOCH_4 BINS_2	[2]	HET penetrating Iron from north direction
NO_HETP_FE_D	EPOCH_4 BINS_2	[2]	HET penetrating Iron from south direction
NO_HETP_FE_P	EPOCH_4 BINS_3	[3]	HET penetrating relativistic Iron from polar (north + south) direction

Epoch variables

Name	Cadence
EPOCH	5 seconds
EPOCH_1	30 seconds
EPOCH_2	60 seconds
EPOCH_3	300 seconds
EPOCH_4	600 seconds

Support variables

Name	Depend	Dims.	Description
BINS_64		[64]	Energy bin number for 64 bins
BINS_8		[8]	Energy bin number for 8 bins
BINS_12		[12]	Energy bin number for 12 bins
BINS_17		[17]	Energy bin number for 17 bins
BINS_34		[34]	Energy bin number for 34 bins
BINS_2		[2]	Energy bin number for 2 bins
BINS_4		[4]	Energy bin number for 4 bins
BINS_5		[5]	Energy bin number for 5 bins
BINS_31		[31]	Energy bin number for 31 bins
BINS_3		[3]	Energy bin number for 3 bins

Name	Depend	Dims.	Description
BINS_11		[11]	Energy bin number for 11 bins
BINS_6		[6]	Energy bin number for 6 bins
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_FLAG_1	EPOCH_1	[]	Data quality flag
QUALITY_FLAG_2	EPOCH_2	[]	Data quality flag
QUALITY_FLAG_3	EPOCH_3	[]	Data quality flag
QUALITY_FLAG_4	EPOCH_4	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
QUALITY_BITMASK_1	EPOCH_1	[]	Computer readable quality parameter
QUALITY_BITMASK_2	EPOCH_2	[]	Computer readable quality parameter
QUALITY_BITMASK_3	EPOCH_3	[]	Computer readable quality parameter
QUALITY_BITMASK_4	EPOCH_4	[]	Computer readable quality parameter
SCET	EPOCH	[]	Elapsed time of the onboard clock

4.1.2.16 EPT-HET2 L1 Nominal (far mode, version 2)

Description: EPT-HET2 Level 1 nominal product in *far* mode (version 2, after March 24th, 2021)

Descriptor: epd-epthet2-nom-far

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-epthet2-nom

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files (only in *far* mode, $\sim$ 300 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-EPTHET2-NOM-FAR>Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, polar unit, Nominal product far mode
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-epthet2-nom-far
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, polar unit, Nominal product far mode
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	NOM-FAR>Nominal product far mode
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
NO_EPT_MAG_N	EPOCH BINS_77	[77]	EPT stopping particles in magnet channel from north direction
NO_EPT_MAG_D	EPOCH BINS_77	[77]	EPT stopping particles in magnet channel from south direction
NO_EPT_FOIL_N	EPOCH BINS_77	[77]	EPT stopping particles in foil channel from north direction
NO_EPT_FOIL_D	EPOCH BINS_77	[77]	EPT stopping particles in foil channel from south direction
NO_EPTP_E_N	EPOCH_1 BINS_2	[2]	EPT penetrating electrons from north direction
NO_EPTP_E_D	EPOCH_1 BINS_2	[2]	EPT penetrating electrons from south direction
NO_EPTP_P_N	EPOCH_1 BINS_4	[4]	EPT penetrating Hydrogen from north direction
NO_EPTP_P_D	EPOCH_1 BINS_4	[4]	EPT penetrating Hydrogen from south direction
NO_EPTP_P_P	EPOCH_1 BINS_4	[4]	EPT penetrating relativistic Hydrogen from polar (north + south) direction
NO_EPTP_HE3_N	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-3 from north direction
NO_EPTP_HE3_D	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-3 from south direction
NO_EPTP_HE3_P	EPOCH_2	[]	EPT penetrating relativistic Helium-3 from polar (north + south) direction
NO_EPTP_HE4_N	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-4 from north direction
NO_EPTP_HE4_D	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-4 from south direction
NO_EPTP_HE4_P	EPOCH_2	[]	EPT penetrating relativistic Helium-4 from polar (north + south) direction
NO_EPTP_HE_N	EPOCH_2	[]	EPT penetrating Helium from north direction
NO_EPTP_HE_D	EPOCH_2	[]	EPT penetrating Helium from south direction
NO_EPTP_HE_P	EPOCH_2 BINS_4	[4]	EPT penetrating relativistic Helium from polar (north + south) direction
NO_HETP_BG_N	EPOCH_4	[]	HET penetrating background from north direction
NO_HETP_BG_D	EPOCH_4	[]	HET penetrating background from south direction
NO_HETB_BG_N	EPOCH_4	[]	HET background in AB from north direction
NO_HETB_BG_D	EPOCH_4	[]	HET background in AB from south direction
NO_HETB_P_N	EPOCH_1 BINS_5	[5]	HET Hydrogen stopping in AB from north direction
NO_HETB_P_D	EPOCH_1 BINS_5	[5]	HET Hydrogen stopping in AB from south direction
NO_HETB_TAIL_HIGH_P_N	EPOCH_1	[]	HET Hydrogen stopping in the wrapping from north direction
NO_HETB_TAIL_HIGH_P_D	EPOCH_1	[]	HET Hydrogen stopping in the wrapping from south direction

Name	Depend	Dims.	Description
NO_HETC_P_N	EPOCH_1 BINS_31	[31]	HET Hydrogen stopping in C from north direction
NO_HETC_P_D	EPOCH_1 BINS_31	[31]	HET Hydrogen stopping in C from south direction
NO_HETP_P_N	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from north direction
NO_HETP_P_D	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from south direction
NO_HETP_P_P	EPOCH_2 BINS_3	[3]	HET penetrating relativistic Hydrogen from polar (north + south) direction
NO_HETB_H_P_N	EPOCH	[]	HET Hydrogen stopping in AB with high time resolution from north direction
NO_HETB_H_P_D	EPOCH	[]	HET Hydrogen stopping in AB with high time resolution from south direction
NO_HETC_H_P_N	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from north direction
NO_HETC_H_P_D	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from south direction
NO_HETB_E_N	EPOCH	[]	HET electrons stopping in AB from north direction
NO_HETB_E_D	EPOCH	[]	HET electrons stopping in AB from south direction
NO_HETC_E_N	EPOCH BINS_3	[3]	HET electrons stopping in C from north direction
NO_HETC_E_D	EPOCH BINS_3	[3]	HET electrons stopping in C from south direction
NO_HETC_H_E_N	EPOCH_2	[]	HET high energy electrons stopping in C from north direction
NO_HETC_H_E_D	EPOCH_2	[]	HET high energy electrons stopping in C from south direction
NO_HETB_HE3_N	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in AB from north direction
NO_HETB_HE3_D	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in AB from south direction
NO_HETB_HE4_N	EPOCH_2 BINS_4	[4]	HET Helium-4 stopping in AB from north direction
NO_HETB_HE4_D	EPOCH_2 BINS_4	[4]	HET Helium-4 stopping in AB from south direction
NO_HETC_HE3_N	EPOCH_2 BINS_5	[5]	HET Helium-3 stopping in C from north direction
NO_HETC_HE3_D	EPOCH_2 BINS_5	[5]	HET Helium-3 stopping in C from south direction
NO_HETC_HE4_N	EPOCH_2 BINS_11	[11]	HET Helium-4 stopping in C from north direction
NO_HETC_HE4_D	EPOCH_2 BINS_11	[11]	HET Helium-4 stopping in C from south direction
NO_HETB_HE_N	EPOCH_1 BINS_6	[6]	HET Helium stopping in AB from north direction
NO_HETB_HE_D	EPOCH_1 BINS_6	[6]	HET Helium stopping in AB from south direction

Name	Depend	Dims.	Description
NO_HETP_HE_N	EPOCH_3 BINS_2	[2]	HET penetrating Helium from north direction
NO_HETP_HE_D	EPOCH_3 BINS_2	[2]	HET penetrating Helium from south direction
NO_HETP_HE_P	EPOCH_3 BINS_4	[4]	HET penetrating relativistic Helium from polar (north + south) direction
NO_HETC_C_N	EPOCH_3 BINS_12	[12]	HET Carbon stopping in C from north direction
NO_HETC_C_D	EPOCH_3 BINS_12	[12]	HET Carbon stopping in C from south direction
NO_HETC_N_N	EPOCH_3 BINS_12	[12]	HET Nitrogen stopping in C from north direction
NO_HETC_N_D	EPOCH_3 BINS_12	[12]	HET Nitrogen stopping in C from south direction
NO_HETC_O_N	EPOCH_3 BINS_12	[12]	HET Oxygen stopping in C from north direction
NO_HETC_O_D	EPOCH_3 BINS_12	[12]	HET Oxygen stopping in C from south direction
NO_HETB_C_N	EPOCH_3 BINS_5	[5]	HET Carbon stopping in AB from north direction
NO_HETB_C_D	EPOCH_3 BINS_5	[5]	HET Carbon stopping in AB from south direction
NO_HETB_N_N	EPOCH_3 BINS_5	[5]	HET Nitrogen stopping in AB from north direction
NO_HETB_N_D	EPOCH_3 BINS_5	[5]	HET Nitrogen stopping in AB from south direction
NO_HETB_O_N	EPOCH_3 BINS_5	[5]	HET Oxygen stopping in AB from north direction
NO_HETB_O_D	EPOCH_3 BINS_5	[5]	HET Oxygen stopping in AB from south direction
NO_HETP_CNO_N	EPOCH_4 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from north direction
NO_HETP_CNO_D	EPOCH_4 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from south direction
NO_HETP_CNO_P	EPOCH_4 BINS_6	[6]	HET penetrating relativistic Carbon, Nitrogen and Oxygen from polar (north + south) direction
NO_HETC_FE_N	EPOCH_4 BINS_11	[11]	HET Iron stopping in C from north direction
NO_HETC_FE_D	EPOCH_4 BINS_11	[11]	HET Iron stopping in C from south direction
NO_HETB_FE_N	EPOCH_4 BINS_5	[5]	HET Iron stopping in AB from north direction
NO_HETB_FE_D	EPOCH_4 BINS_5	[5]	HET Iron stopping in AB from south direction
NO_HETP_FE_N	EPOCH_4 BINS_2	[2]	HET penetrating Iron from north direction

Name	Depend	Dims.	Description
NO_HETP_FE_D	EPOCH_4 BINS_2	[2]	HET penetrating Iron from south direction
NO_HETP_FE_P	EPOCH_4 BINS_3	[3]	HET penetrating relativistic Iron from polar (north + south) direction

Epoch variables

Name	Cadence
EPOCH	5 seconds
EPOCH_1	30 seconds
EPOCH_2	60 seconds
EPOCH_3	300 seconds
EPOCH_4	600 seconds

Support variables

Name	Depend	Dims.	Description
BINS_77		[77]	Energy bin number for 77 bins
BINS_2		[2]	Energy bin number for 2 bins
BINS_4		[4]	Energy bin number for 4 bins
BINS_5		[5]	Energy bin number for 5 bins
BINS_31		[31]	Energy bin number for 31 bins
BINS_3		[3]	Energy bin number for 3 bins
BINS_11		[11]	Energy bin number for 11 bins
BINS_6		[6]	Energy bin number for 6 bins
BINS_12		[12]	Energy bin number for 12 bins
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_FLAG_1	EPOCH_1	[]	Data quality flag
QUALITY_FLAG_2	EPOCH_2	[]	Data quality flag
QUALITY_FLAG_3	EPOCH_3	[]	Data quality flag
QUALITY_FLAG_4	EPOCH_4	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
QUALITY_BITMASK_1	EPOCH_1	[]	Computer readable quality parameter
QUALITY_BITMASK_2	EPOCH_2	[]	Computer readable quality parameter
QUALITY_BITMASK_3	EPOCH_3	[]	Computer readable quality parameter
QUALITY_BITMASK_4	EPOCH_4	[]	Computer readable quality parameter
SCET	EPOCH	[]	Elapsed time of the onboard clock

4.1.2.17 EPT-HET2 L1 Nominal (close mode, version 1)

Description: EPT-HET1 Level 1 nominal product in *close* mode (version 1, before March 24th, 2021)

Descriptor: epd-epthet2-nom-close

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-epthet2-nom

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files (only in *close* mode, $\sim$ 1 MB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-EPTHET2-NOM-CLOSE>Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, polar unit, Nominal product close mode
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-epthet2-nom-close
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, polar unit, Nominal product close mode
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	NOM-CLOSE>Nominal product close mode
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
NO_EPT_I_N	EPOCH_1 BINS_64	[64]	EPT stopping particles in magnet channel from north direction
NO_EPT_I_D	EPOCH_1 BINS_64	[64]	EPT stopping particles in magnet channel from south direction
NO_EPT_C_I_N	EPOCH_1 BINS_8	[8]	EPT stopping particles in magnet channel from north direction
NO_EPT_C_I_D	EPOCH_1 BINS_8	[8]	EPT stopping particles in magnet channel from south direction
NO_EPT_T_I_N	EPOCH BINS_12	[12]	EPT stopping particles in magnet channel with high time resolution from north direction
NO_EPT_T_I_D	EPOCH BINS_12	[12]	EPT stopping particles in magnet channel with high time resolution from south direction
NO_EPT_T_E_N	EPOCH BINS_17	[17]	EPT stopping particles in foil channel with high time resolution from north direction
NO_EPT_T_E_D	EPOCH BINS_17	[17]	EPT stopping particles in foil channel with high time resolution from south direction
NO_EPT_E_N	EPOCH_3 BINS_34	[34]	EPT stopping particles in foil channel from north direction
NO_EPT_E_D	EPOCH_3 BINS_34	[34]	EPT stopping particles in foil channel from south direction
NO_EPT_HE_N	EPOCH_1 BINS_8	[8]	EPT high energy stopping particles in magnet channel from north direction
NO_EPT_HE_D	EPOCH_1 BINS_8	[8]	EPT high energy stopping particles in magnet channel from south direction
NO_EPTP_E_N	EPOCH_1 BINS_2	[2]	EPT penetrating electrons from north direction
NO_EPTP_E_D	EPOCH_1 BINS_2	[2]	EPT penetrating electrons from south direction
NO_EPTP_P_N	EPOCH_1 BINS_4	[4]	EPT penetrating Hydrogen from north direction
NO_EPTP_P_D	EPOCH_1 BINS_4	[4]	EPT penetrating Hydrogen from south direction
NO_EPTP_P_P	EPOCH_1 BINS_4	[4]	EPT penetrating relativistic Hydrogen from polar (north + south) direction
NO_EPTP_HE3_N	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-3 from north direction
NO_EPTP_HE3_D	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-3 from south direction
NO_EPTP_HE3_P	EPOCH_2	[]	EPT penetrating relativistic Helium-3 from polar (north + south) direction
NO_EPTP_HE4_N	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-4 from north direction
NO_EPTP_HE4_D	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-4 from south direction
NO_EPTP_HE4_P	EPOCH_2	[]	EPT penetrating relativistic Helium-4 from polar (north + south) direction

Name	Depend	Dims.	Description
NO_EPTP_HE_N	EPOCH_2	[]	EPT penetrating Helium from north direction
NO_EPTP_HE_D	EPOCH_2	[]	EPT penetrating Helium from south direction
NO_EPTP_HE_P	EPOCH_2 BINS_4	[4]	EPT penetrating relativistic Helium from polar (north + south) direction
NO_HETP_BG_N	EPOCH_5	[]	HET penetrating background from north direction
NO_HETP_BG_D	EPOCH_5	[]	HET penetrating background from south direction
NO_HETB_BG_N	EPOCH_5	[]	HET background in AB from north direction
NO_HETB_BG_D	EPOCH_5	[]	HET background in AB from south direction
NO_HETB_P_N	EPOCH_1 BINS_5	[5]	HET Hydrogen stopping in AB from north direction
NO_HETB_P_D	EPOCH_1 BINS_5	[5]	HET Hydrogen stopping in AB from south direction
NO_HETB_TAIL_HIGH_P_N	EPOCH_1	[]	HET Hydrogen stopping in the wrapping from north direction
NO_HETB_TAIL_HIGH_P_D	EPOCH_1	[]	HET Hydrogen stopping in the wrapping from south direction
NO_HETC_P_N	EPOCH_1 BINS_31	[31]	HET Hydrogen stopping in C from north direction
NO_HETC_P_D	EPOCH_1 BINS_31	[31]	HET Hydrogen stopping in C from south direction
NO_HETP_P_N	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from north direction
NO_HETP_P_D	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from south direction
NO_HETP_P_P	EPOCH_2 BINS_3	[3]	HET penetrating relativistic Hydrogen from polar (north + south) direction
NO_HETB_H_P_N	EPOCH	[]	HET Hydrogen stopping in AB with high time resolution from north direction
NO_HETB_H_P_D	EPOCH	[]	HET Hydrogen stopping in AB with high time resolution from south direction
NO_HETC_H_P_N	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from north direction
NO_HETC_H_P_D	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from south direction
NO_HETB_E_N	EPOCH	[]	HET electrons stopping in AB from north direction
NO_HETB_E_D	EPOCH	[]	HET electrons stopping in AB from south direction
NO_HETC_E_N	EPOCH BINS_3	[3]	HET electrons stopping in C from north direction
NO_HETC_E_D	EPOCH BINS_3	[3]	HET electrons stopping in C from south direction
NO_HETC_H_E_N	EPOCH_2	[]	HET high energy electrons stopping in C from north direction
NO_HETC_H_E_D	EPOCH_2	[]	HET high energy electrons stopping in C from south direction
NO_HETB_HE3_N	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in AB from north direction
NO_HETB_HE3_D	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in AB from south direction

Name	Depend	Dims.	Description
NO_HETB_HE4_N	EPOCH_2 BINS_4	[4]	HET Helium-4 stopping in AB from north direction
NO_HETB_HE4_D	EPOCH_2 BINS_4	[4]	HET Helium-4 stopping in AB from south direction
NO_HETC_HE3_N	EPOCH_2 BINS_5	[5]	HET Helium-3 stopping in C from north direction
NO_HETC_HE3_D	EPOCH_2 BINS_5	[5]	HET Helium-3 stopping in C from south direction
NO_HETC_HE4_N	EPOCH_2 BINS_11	[11]	HET Helium-4 stopping in C from north direction
NO_HETC_HE4_D	EPOCH_2 BINS_11	[11]	HET Helium-4 stopping in C from south direction
NO_HETB_HE_N	EPOCH_1 BINS_6	[6]	HET Helium stopping in AB from north direction
NO_HETB_HE_D	EPOCH_1 BINS_6	[6]	HET Helium stopping in AB from south direction
NO_HETP_HE_N	EPOCH_3 BINS_2	[2]	HET penetrating Helium from north direction
NO_HETP_HE_D	EPOCH_3 BINS_2	[2]	HET penetrating Helium from south direction
NO_HETP_HE_P	EPOCH_3 BINS_4	[4]	HET penetrating relativistic Helium from polar (north + south) direction
NO_HETC_C_N	EPOCH_3 BINS_12	[12]	HET Carbon stopping in C from north direction
NO_HETC_C_D	EPOCH_3 BINS_12	[12]	HET Carbon stopping in C from south direction
NO_HETC_N_N	EPOCH_3 BINS_12	[12]	HET Nitrogen stopping in C from north direction
NO_HETC_N_D	EPOCH_3 BINS_12	[12]	HET Nitrogen stopping in C from south direction
NO_HETC_O_N	EPOCH_3 BINS_12	[12]	HET Oxygen stopping in C from north direction
NO_HETC_O_D	EPOCH_3 BINS_12	[12]	HET Oxygen stopping in C from south direction
NO_HETB_C_N	EPOCH_3 BINS_5	[5]	HET Carbon stopping in AB from north direction
NO_HETB_C_D	EPOCH_3 BINS_5	[5]	HET Carbon stopping in AB from south direction
NO_HETB_N_N	EPOCH_3 BINS_5	[5]	HET Nitrogen stopping in AB from north direction
NO_HETB_N_D	EPOCH_3 BINS_5	[5]	HET Nitrogen stopping in AB from south direction
NO_HETB_O_N	EPOCH_3 BINS_5	[5]	HET Oxygen stopping in AB from north direction
NO_HETB_O_D	EPOCH_3 BINS_5	[5]	HET Oxygen stopping in AB from south direction

Name	Depend	Dims.	Description
NO_HETP_CNO_N	EPOCH_5 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from north direction
NO_HETP_CNO_D	EPOCH_5 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from south direction
NO_HETP_CNO_P	EPOCH_5 BINS_6	[6]	HET penetrating relativistic Carbon, Nitrogen and Oxygen from polar (north + south) direction
NO_HETC_FE_N	EPOCH_4 BINS_11	[11]	HET Iron stopping in C from north direction
NO_HETC_FE_D	EPOCH_4 BINS_11	[11]	HET Iron stopping in C from south direction
NO_HETB_FE_N	EPOCH_4 BINS_5	[5]	HET Iron stopping in AB from north direction
NO_HETB_FE_D	EPOCH_4 BINS_5	[5]	HET Iron stopping in AB from south direction
NO_HETP_FE_N	EPOCH_5 BINS_2	[2]	HET penetrating Iron from north direction
NO_HETP_FE_D	EPOCH_5 BINS_2	[2]	HET penetrating Iron from south direction
NO_HETP_FE_P	EPOCH_5 BINS_3	[3]	HET penetrating relativistic Iron from polar (north + south) direction

Epoch variables

Name	Cadence
EPOCH	1 second
EPOCH_1	5 seconds
EPOCH_2	30 seconds
EPOCH_3	60 seconds
EPOCH_4	300 seconds
EPOCH_5	600 seconds

Support variables

Name	Depend	Dims.	Description
BINS_64		[64]	Energy bin number for 64 bins
BINS_8		[8]	Energy bin number for 8 bins
BINS_12		[12]	Energy bin number for 12 bins
BINS_17		[17]	Energy bin number for 17 bins
BINS_34		[34]	Energy bin number for 34 bins
BINS_2		[2]	Energy bin number for 2 bins
BINS_4		[4]	Energy bin number for 4 bins
BINS_5		[5]	Energy bin number for 5 bins
BINS_31		[31]	Energy bin number for 31 bins

Name	Depend	Dims.	Description
BINS_3		[3]	Energy bin number for 3 bins
BINS_11		[11]	Energy bin number for 11 bins
BINS_6		[6]	Energy bin number for 6 bins
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_FLAG_1	EPOCH_1	[]	Data quality flag
QUALITY_FLAG_2	EPOCH_2	[]	Data quality flag
QUALITY_FLAG_3	EPOCH_3	[]	Data quality flag
QUALITY_FLAG_4	EPOCH_4	[]	Data quality flag
QUALITY_FLAG_5	EPOCH_5	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
QUALITY_BITMASK_1	EPOCH_1	[]	Computer readable quality parameter
QUALITY_BITMASK_2	EPOCH_2	[]	Computer readable quality parameter
QUALITY_BITMASK_3	EPOCH_3	[]	Computer readable quality parameter
QUALITY_BITMASK_4	EPOCH_4	[]	Computer readable quality parameter
QUALITY_BITMASK_5	EPOCH_5	[]	Computer readable quality parameter
SCET	EPOCH	[]	Elapsed time of the onboard clock

4.1.2.18 EPT-HET2 L1 Nominal (close mode, version 2)

Description: EPT-HET1 Level 1 nominal product in *close* mode (version 2, after March 24th, 2021)

Descriptor: epd-epthet2-nom-close

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-epthet2-nom

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files (only in *close* mode, $\sim$ 1.6 MB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-EPTHET2-NOM-CLOSE>Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, polar unit, Nominal product close mode
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-epthet2-nom-close
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, polar unit, Nominal product close mode
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	NOM-CLOSE>Nominal product close mode
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
NO_EPT_MAG_N	EPOCH BINS_77	[77]	EPT stopping particles in magnet channel from north direction
NO_EPT_MAG_D	EPOCH BINS_77	[77]	EPT stopping particles in magnet channel from south direction
NO_EPT_FOIL_N	EPOCH BINS_77	[77]	EPT stopping particles in foil channel from north direction
NO_EPT_FOIL_D	EPOCH BINS_77	[77]	EPT stopping particles in foil channel from south direction
NO_EPTP_E_N	EPOCH_1 BINS_2	[2]	EPT penetrating electrons from north direction
NO_EPTP_E_D	EPOCH_1 BINS_2	[2]	EPT penetrating electrons from south direction
NO_EPTP_P_N	EPOCH_1 BINS_4	[4]	EPT penetrating Hydrogen from north direction
NO_EPTP_P_D	EPOCH_1 BINS_4	[4]	EPT penetrating Hydrogen from south direction
NO_EPTP_P_P	EPOCH_1 BINS_4	[4]	EPT penetrating relativistic Hydrogen from polar (north + south) direction
NO_EPTP_HE3_N	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-3 from north direction
NO_EPTP_HE3_D	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-3 from south direction
NO_EPTP_HE3_P	EPOCH_2	[]	EPT penetrating relativistic Helium-3 from polar (north + south) direction
NO_EPTP_HE4_N	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-4 from north direction
NO_EPTP_HE4_D	EPOCH_2 BINS_2	[2]	EPT penetrating Helium-4 from south direction
NO_EPTP_HE4_P	EPOCH_2	[]	EPT penetrating relativistic Helium-4 from polar (north + south) direction
NO_EPTP_HE_N	EPOCH_2	[]	EPT penetrating Helium from north direction
NO_EPTP_HE_D	EPOCH_2	[]	EPT penetrating Helium from south direction
NO_EPTP_HE_P	EPOCH_2 BINS_4	[4]	EPT penetrating relativistic Helium from polar (north + south) direction
NO_HETP_BG_N	EPOCH_5	[]	HET penetrating background from north direction
NO_HETP_BG_D	EPOCH_5	[]	HET penetrating background from south direction
NO_HETB_BG_N	EPOCH_5	[]	HET background in AB from north direction
NO_HETB_BG_D	EPOCH_5	[]	HET background in AB from south direction
NO_HETB_P_N	EPOCH_1 BINS_5	[5]	HET Hydrogen stopping in AB from north direction
NO_HETB_P_D	EPOCH_1 BINS_5	[5]	HET Hydrogen stopping in AB from south direction
NO_HETB_TAIL_HIGH_P_N	EPOCH_1	[]	HET Hydrogen stopping in the wrapping from north direction
NO_HETB_TAIL_HIGH_P_D	EPOCH_1	[]	HET Hydrogen stopping in the wrapping from south direction

Name	Depend	Dims.	Description
NO_HETC_P_N	EPOCH_1 BINS_31	[31]	HET Hydrogen stopping in C from north direction
NO_HETC_P_D	EPOCH_1 BINS_31	[31]	HET Hydrogen stopping in C from south direction
NO_HETP_P_N	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from north direction
NO_HETP_P_D	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from south direction
NO_HETP_P_P	EPOCH_2 BINS_3	[3]	HET penetrating relativistic Hydrogen from polar (north + south) direction
NO_HETB_H_P_N	EPOCH	[]	HET Hydrogen stopping in AB with high time resolution from north direction
NO_HETB_H_P_D	EPOCH	[]	HET Hydrogen stopping in AB with high time resolution from south direction
NO_HETC_H_P_N	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from north direction
NO_HETC_H_P_D	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from south direction
NO_HETB_E_N	EPOCH	[]	HET electrons stopping in AB from north direction
NO_HETB_E_D	EPOCH	[]	HET electrons stopping in AB from south direction
NO_HETC_E_N	EPOCH BINS_3	[3]	HET electrons stopping in C from north direction
NO_HETC_E_D	EPOCH BINS_3	[3]	HET electrons stopping in C from south direction
NO_HETC_H_E_N	EPOCH_2	[]	HET high energy electrons stopping in C from north direction
NO_HETC_H_E_D	EPOCH_2	[]	HET high energy electrons stopping in C from south direction
NO_HETB_HE3_N	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in AB from north direction
NO_HETB_HE3_D	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in AB from south direction
NO_HETB_HE4_N	EPOCH_2 BINS_4	[4]	HET Helium-4 stopping in AB from north direction
NO_HETB_HE4_D	EPOCH_2 BINS_4	[4]	HET Helium-4 stopping in AB from south direction
NO_HETC_HE3_N	EPOCH_2 BINS_5	[5]	HET Helium-3 stopping in C from north direction
NO_HETC_HE3_D	EPOCH_2 BINS_5	[5]	HET Helium-3 stopping in C from south direction
NO_HETC_HE4_N	EPOCH_2 BINS_11	[11]	HET Helium-4 stopping in C from north direction
NO_HETC_HE4_D	EPOCH_2 BINS_11	[11]	HET Helium-4 stopping in C from south direction
NO_HETB_HE_N	EPOCH_1 BINS_6	[6]	HET Helium stopping in AB from north direction
NO_HETB_HE_D	EPOCH_1 BINS_6	[6]	HET Helium stopping in AB from south direction

Name	Depend	Dims.	Description
NO_HETP_HE_N	EPOCH_3 BINS_2	[2]	HET penetrating Helium from north direction
NO_HETP_HE_D	EPOCH_3 BINS_2	[2]	HET penetrating Helium from south direction
NO_HETP_HE_P	EPOCH_3 BINS_4	[4]	HET penetrating relativistic Helium from polar (north + south) direction
NO_HETC_C_N	EPOCH_3 BINS_12	[12]	HET Carbon stopping in C from north direction
NO_HETC_C_D	EPOCH_3 BINS_12	[12]	HET Carbon stopping in C from south direction
NO_HETC_N_N	EPOCH_3 BINS_12	[12]	HET Nitrogen stopping in C from north direction
NO_HETC_N_D	EPOCH_3 BINS_12	[12]	HET Nitrogen stopping in C from south direction
NO_HETC_O_N	EPOCH_3 BINS_12	[12]	HET Oxygen stopping in C from north direction
NO_HETC_O_D	EPOCH_3 BINS_12	[12]	HET Oxygen stopping in C from south direction
NO_HETB_C_N	EPOCH_3 BINS_5	[5]	HET Carbon stopping in AB from north direction
NO_HETB_C_D	EPOCH_3 BINS_5	[5]	HET Carbon stopping in AB from south direction
NO_HETB_N_N	EPOCH_3 BINS_5	[5]	HET Nitrogen stopping in AB from north direction
NO_HETB_N_D	EPOCH_3 BINS_5	[5]	HET Nitrogen stopping in AB from south direction
NO_HETB_O_N	EPOCH_3 BINS_5	[5]	HET Oxygen stopping in AB from north direction
NO_HETB_O_D	EPOCH_3 BINS_5	[5]	HET Oxygen stopping in AB from south direction
NO_HETP_CNO_N	EPOCH_5 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from north direction
NO_HETP_CNO_D	EPOCH_5 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from south direction
NO_HETP_CNO_P	EPOCH_5 BINS_6	[6]	HET penetrating relativistic Carbon, Nitrogen and Oxygen from polar (north + south) direction
NO_HETC_FE_N	EPOCH_4 BINS_11	[11]	HET Iron stopping in C from north direction
NO_HETC_FE_D	EPOCH_4 BINS_11	[11]	HET Iron stopping in C from south direction
NO_HETB_FE_N	EPOCH_4 BINS_5	[5]	HET Iron stopping in AB from north direction
NO_HETB_FE_D	EPOCH_4 BINS_5	[5]	HET Iron stopping in AB from south direction
NO_HETP_FE_N	EPOCH_5 BINS_2	[2]	HET penetrating Iron from north direction

Name	Depend	Dims.	Description
NO_HETP_FE_D	EPOCH_5 BINS_2	[2]	HET penetrating Iron from south direction
NO_HETP_FE_P	EPOCH_5 BINS_3	[3]	HET penetrating relativistic Iron from polar (north + south) direction

Epoch variables

Name	Cadence
EPOCH	1 second
EPOCH_1	5 seconds
EPOCH_2	30 seconds
EPOCH_3	60 seconds
EPOCH_4	300 seconds
EPOCH_5	600 seconds

Support variables

Name	Depend	Dims.	Description
BINS_77		[77]	Energy bin number for 77 bins
BINS_2		[2]	Energy bin number for 2 bins
BINS_4		[4]	Energy bin number for 4 bins
BINS_5		[5]	Energy bin number for 5 bins
BINS_31		[31]	Energy bin number for 31 bins
BINS_3		[3]	Energy bin number for 3 bins
BINS_11		[11]	Energy bin number for 11 bins
BINS_6		[6]	Energy bin number for 6 bins
BINS_12		[12]	Energy bin number for 12 bins
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_FLAG_1	EPOCH_1	[]	Data quality flag
QUALITY_FLAG_2	EPOCH_2	[]	Data quality flag
QUALITY_FLAG_3	EPOCH_3	[]	Data quality flag
QUALITY_FLAG_4	EPOCH_4	[]	Data quality flag
QUALITY_FLAG_5	EPOCH_5	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
QUALITY_BITMASK_1	EPOCH_1	[]	Computer readable quality parameter
QUALITY_BITMASK_2	EPOCH_2	[]	Computer readable quality parameter
QUALITY_BITMASK_3	EPOCH_3	[]	Computer readable quality parameter
QUALITY_BITMASK_4	EPOCH_4	[]	Computer readable quality parameter
QUALITY_BITMASK_5	EPOCH_5	[]	Computer readable quality parameter
SCET	EPOCH	[]	Elapsed time of the onboard clock

4.1.2.19 EPT-HET2 L1 Quicklook

Description: EPT-HET2 Level 1 quicklook product

Descriptor: epd-epthet2-quicklook

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-epthet2-ll

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files ($\sim$ 250 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-EPTHET2-QUICKLOOK>Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, polar unit, Quicklook product
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-epthet2-quicklook
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, polar unit, Quicklook product
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	QUICKLOOK>Quicklook product
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
LL_EPT_E_N	EPOCH_1 BINS_8	[8]	EPT stopping particles in foil channel from north direction
LL_EPT_E_D	EPOCH_1 BINS_8	[8]	EPT stopping particles in foil channel from south direction
LL_EPT_I_N	EPOCH_1 BINS_18	[18]	EPT stopping particles in magnet channel from north direction
LL_EPT_I_D	EPOCH_1 BINS_18	[18]	EPT stopping particles in magnet channel from south direction
LL_EPT_T_E_N	EPOCH	[]	EPT stopping particles in foil channel with high time resolution from north direction
LL_EPT_T_E_D	EPOCH	[]	EPT stopping particles in foil channel with high time resolution from south direction
LL_EPT_T_I_N	EPOCH BINS_2	[2]	EPT stopping particles in magnet channel with high time resolution from north direction
LL_EPT_T_I_D	EPOCH BINS_2	[2]	EPT stopping particles in magnet channel with high time resolution from south direction
LL_HETB_P_N	EPOCH_1 BINS_2	[2]	HET Hydrogen stopping in AB from north direction
LL_HETB_P_D	EPOCH_1 BINS_2	[2]	HET Hydrogen stopping in AB from south direction
LL_HETC_P_N	EPOCH_1 BINS_10	[10]	HET Hydrogen stopping in C from north direction
LL_HETC_P_D	EPOCH_1 BINS_10	[10]	HET Hydrogen stopping in C from south direction
LL_HETP_P_N	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from north direction
LL_HETP_P_D	EPOCH_1 BINS_2	[2]	HET penetrating Hydrogen from south direction
LL_HETP_P_P	EPOCH_1 BINS_2	[2]	HET penetrating relativistic Hydrogen from polar (north + south) direction
LL_HETB_E_N	EPOCH_1	[]	HET electrons stopping in AB from north direction
LL_HETB_E_D	EPOCH_1	[]	HET electrons stopping in AB from south direction
LL_HETC_E_N	EPOCH_1 BINS_3	[3]	HET electrons stopping in C from north direction
LL_HETC_E_D	EPOCH_1 BINS_3	[3]	HET electrons stopping in C from south direction
LL_HETB_HE3_N	EPOCH_2 BINS_2	[2]	HET Helium-3 stopping in AB from north direction
LL_HETB_HE3_D	EPOCH_2 BINS_2	[2]	HET Helium-3 stopping in AB from south direction
LL_HETB_HE4_N	EPOCH_2 BINS_2	[2]	HET Helium-4 stopping in AB from north direction
LL_HETB_HE4_D	EPOCH_2 BINS_2	[2]	HET Helium-4 stopping in AB from south direction

Name	Depend	Dims.	Description
LL_HETC_HE3_N	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in C from north direction
LL_HETC_HE3_D	EPOCH_2 BINS_4	[4]	HET Helium-3 stopping in C from south direction
LL_HETC_HE4_N	EPOCH_2 BINS_8	[8]	HET Helium-4 stopping in C from north direction
LL_HETC_HE4_D	EPOCH_2 BINS_8	[8]	HET Helium-4 stopping in C from south direction
LL_HETB_HE_N	EPOCH_2 BINS_4	[4]	HET Helium stopping in AB from north direction
LL_HETB_HE_D	EPOCH_2 BINS_4	[4]	HET Helium stopping in AB from south direction
LL_HETP_HE_N	EPOCH_2 BINS_2	[2]	HET penetrating Helium from north direction
LL_HETP_HE_D	EPOCH_2 BINS_2	[2]	HET penetrating Helium from south direction
LL_HETP_HE_P	EPOCH_2 BINS_2	[2]	HET penetrating relativistic Helium from polar (north + south) direction
LL_HETB_CNO_N	EPOCH_3 BINS_6	[6]	HET Carbon, Nitrogen and Oxygen stopping in AB from north direction
LL_HETB_CNO_D	EPOCH_3 BINS_6	[6]	HET Carbon, Nitrogen and Oxygen stopping in AB from south direction
LL_HETC_CNO_N	EPOCH_3 BINS_9	[9]	HET Carbon, Nitrogen and Oxygen stopping in C from north direction
LL_HETC_CNO_D	EPOCH_3 BINS_9	[9]	HET Carbon, Nitrogen and Oxygen stopping in C from south direction
LL_HETP_CNO_N	EPOCH_4 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from north direction
LL_HETP_CNO_D	EPOCH_4 BINS_2	[2]	HET penetrating Carbon, Nitrogen and Oxygen from south direction
LL_HETP_CNO_P	EPOCH_4 BINS_2	[2]	HET penetrating relativistic Carbon, Nitrogen and Oxygen from polar (north + south) direction
LL_HETB_FE_N	EPOCH_3 BINS_2	[2]	HET Iron stopping in AB from north direction
LL_HETB_FE_D	EPOCH_3 BINS_2	[2]	HET Iron stopping in AB from south direction
LL_HETC_FE_N	EPOCH_4 BINS_3	[3]	HET Iron stopping in C from north direction
LL_HETC_FE_D	EPOCH_4 BINS_3	[3]	HET Iron stopping in C from south direction
LL_HETP_FE_N	EPOCH_4	[]	HET penetrating Iron from north direction
LL_HETP_FE_D	EPOCH_4	[]	HET penetrating Iron from south direction
LL_HETC_T_P_N	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from north direction
LL_HETC_T_P_D	EPOCH BINS_3	[3]	HET Hydrogen stopping in C with high time resolution from south direction

Name	Depend	Dims.	Description
LL_HETC_T_E_N	EPOCH	[]	HET electrons stopping in C from north direction
LL_HETC_T_E_D	EPOCH	[]	HET electrons stopping in C from south direction

Epoch variables

Name	Cadence
EPOCH	5 seconds
EPOCH_1	30 seconds
EPOCH_2	300 seconds
EPOCH_3	600 seconds
EPOCH_4	3600 seconds

Support variables

Name	Depend	Dims.	Description
BINS_8		[8]	Energy bin number for 8 bins
BINS_18		[18]	Energy bin number for 18 bins
BINS_2		[2]	Energy bin number for 2 bins
BINS_10		[10]	Energy bin number for 10 bins
BINS_3		[3]	Energy bin number for 3 bins
BINS_4		[4]	Energy bin number for 4 bins
BINS_6		[6]	Energy bin number for 6 bins
BINS_9		[9]	Energy bin number for 9 bins
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_FLAG_1	EPOCH_1	[]	Data quality flag
QUALITY_FLAG_2	EPOCH_2	[]	Data quality flag
QUALITY_FLAG_3	EPOCH_3	[]	Data quality flag
QUALITY_FLAG_4	EPOCH_4	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
QUALITY_BITMASK_1	EPOCH_1	[]	Computer readable quality parameter
QUALITY_BITMASK_2	EPOCH_2	[]	Computer readable quality parameter
QUALITY_BITMASK_3	EPOCH_3	[]	Computer readable quality parameter
QUALITY_BITMASK_4	EPOCH_4	[]	Computer readable quality parameter
SCET	EPOCH	[]	Elapsed time of the onboard clock

4.1.2.20 EPT-HET2 L1 Single Counters

Description: EPT-HET2 Level 1 single detector counters

Descriptor: epd-epthet2-sc

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-epthet2-ll

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files ($\sim$ 80 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-EPTHET2-SC>Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, polar unit, Single counters
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-epthet2-sc
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, polar unit, Single counters
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	SC>Single counters
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
B11L	EPOCH	[]	HET B south detector inner segment low gain single counts
B11H	EPOCH	[]	HET B south detector inner segment high gain single counts
B12H	EPOCH	[]	HET B south detector middle segment high gain single counts
B12L	EPOCH	[]	HET B south detector middle segment low gain single counts
C1L	EPOCH	[]	HET C detector photodiode 1 low gain single counts
C1H	EPOCH	[]	HET C detector photodiode 1 high gain single counts
A11H	EPOCH	[]	HET A south detector inner segment high gain single counts
B13G	EPOCH	[]	HET B south detector outer segment single gain single counts
A11L	EPOCH	[]	HET A south detector inner segment low gain single counts
A12L	EPOCH	[]	HET A south detector outer segment low gain single counts
B21L	EPOCH	[]	HET B north detector inner segment low gain single counts
B21H	EPOCH	[]	HET B north detector inner segment high gain single counts
B22L	EPOCH	[]	HET B north detector middle segment low gain single counts
B22H	EPOCH	[]	HET B north detector middle segment high gain single counts
A22L	EPOCH	[]	HET A north detector outer segment low gain single counts
A22H	EPOCH	[]	HET A north detector outer segment high gain single counts
A21H	EPOCH	[]	HET A north detector inner segment high gain single counts
A21L	EPOCH	[]	HET A north detector inner segment low gain single counts
C2H	EPOCH	[]	HET C detector photodiode 2 high gain single counts
B23G	EPOCH	[]	HET B north detector outer segment single gain single counts
C2L	EPOCH	[]	HET C detector photodiode 2 low gain single counts
A12H	EPOCH	[]	HET A south detector outer segment high gain single counts
C4	EPOCH	[]	EPT south detector magnet side inner segment single counts
A4	EPOCH	[]	EPT south detector magnet side outer segment single counts
C3	EPOCH	[]	EPT north detector foil side inner segment single counts
A3	EPOCH	[]	EPT north detector foil side outer segment single counts
C2	EPOCH	[]	EPT south detector foil side inner segment single counts
A2	EPOCH	[]	EPT south detector foil side outer segment single counts
C1	EPOCH	[]	EPT north detector magnet side inner segment single counts
A1	EPOCH	[]	EPT north detector magnet side outer segment single counts

Epoch variables

Name	Cadence
EPOCH	60 seconds

Support variables

Name	Depend	Dims.	Description
SCET	EPOCH	[]	Elapsed time of the onboard clock
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
ACC_TIME	EPOCH	[]	Accumulation time in seconds

4.1.2.21 SIS A L1 Rates medium

Description: SIS A Level 1 particle rates with medium cadence

Descriptor: epd-sis-a-rates-medium

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-sis-nom

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files (∼ 40 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-SIS-A-RATES-MEDIUM>Energetic Particle Detector, Suprathermal Ion Spectrograph, A Telescope, Particle rates, medium cadence
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-sis-a-rates-medium
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Suprathermal Ion Spectrograph, A Telescope, Particle rates, medium cadence
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES-MEDIUM>Particle rates, medium cadence
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
H_COUNTS	EPOCH ENERGY_BINS	[21]	Hydrogen counts in 21 energy bins
HE3_COUNTS	EPOCH ENERGY_BINS	[21]	Helium-3 counts in 21 energy bins
HE4_COUNTS	EPOCH ENERGY_BINS	[21]	Helium-4 counts in 21 energy bins
C_COUNTS	EPOCH ENERGY_BINS	[21]	Carbon counts in 21 energy bins
N_COUNTS	EPOCH ENERGY_BINS	[21]	Nitrogen counts in 21 energy bins
O_COUNTS	EPOCH ENERGY_BINS	[21]	Oxygen counts in 21 energy bins
NE_COUNTS	EPOCH ENERGY_BINS	[21]	Neon counts in 21 energy bins
MG_COUNTS	EPOCH ENERGY_BINS	[21]	Magnesium counts in 21 energy bins
SI_COUNTS	EPOCH ENERGY_BINS	[21]	Silicon counts in 21 energy bins
S_COUNTS	EPOCH ENERGY_BINS	[21]	Sulfur counts in 21 energy bins
CA_COUNTS	EPOCH ENERGY_BINS	[21]	Calcium counts in 21 energy bins
FE_COUNTS	EPOCH ENERGY_BINS	[21]	Iron counts in 21 energy bins
PRI0_EVENTS	EPOCH	[]	Number of events assigned to priority 0(lowest)
PRI1_EVENTS	EPOCH	[]	Number of events assigned to priority 1
PRI2_EVENTS	EPOCH	[]	Number of events assigned to priority 2
PRI3_EVENTS	EPOCH	[]	Number of events assigned to priority 3(highest)
HE_HIST_EVENTS	EPOCH	[]	Number of events included in Helium histogram
UH_EVENTS	EPOCH	[]	Number of events identified as ultra-heavy events
TEST_PULSE_BOX_EVENTS	EPOCH	[]	Number of hardware generated test pulse events with energy and TOF within expected range
TEST_PULSE_NO_BOX_EVENTS	EPOCH	[]	Number of hardware generated test pulse events with energy and TOF not within expected range

Epoch variables

Name	Cadence
EPOCH	30 seconds

Support variables

Name	Depend	Dims.	Description
SCET		[]	Elapsed time of the onboard clock
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
IRIS_POSITION	EPOCH	[]	Iris position in steps
INTEGRATION_TIME	EPOCH	[]	Integration time in seconds
ENERGY_BINS		[21]	Energy bin number for 21 bins

4.1.2.22 SIS B L1 Rates medium

Description: SIS B Level 1 particle rates with medium cadence

Descriptor: epd-sis-b-rates-medium

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-sis-nom

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files ($\sim$ 40 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-SIS-B-RATES-MEDIUM>Energetic Particle Detector, Suprathermal Ion Spectrograph, B Telescope, Particle rates, medium cadence
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-sis-b-rates-medium
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Suprathermal Ion Spectrograph, B Telescope, Particle rates, medium cadence
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES-MEDIUM>Particle rates, medium cadence
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Variables

Variables coincide with those of SIS A L1 Rates medium

4.1.2.23 SIS A L1 Rates slow

Description: SIS A Level 1 particle rates with slow cadence

Descriptor: epd-sis-a-rates-slow

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-sis-ll

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files ($\sim$ 12 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-SIS-A-RATES-SLOW>Energetic Particle Detector, Suprathermal Ion Spectrograph, A Telescope, Particle rates, slow cadence
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-sis-a-rates-slow
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Suprathermal Ion Spectrograph, A Telescope, Particle rates, slow cadence
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES-SLOW>Particle rates, slow cadence
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
H_COUNTS	EPOCH ENERGY_BINS	[21]	Hydrogen counts in 21 energy bins
HE3_COUNTS	EPOCH ENERGY_BINS	[21]	Helium-3 counts in 21 energy bins
HE4_COUNTS	EPOCH ENERGY_BINS	[21]	Helium-4 counts in 21 energy bins
C_COUNTS	EPOCH ENERGY_BINS	[21]	Carbon counts in 21 energy bins
N_COUNTS	EPOCH ENERGY_BINS	[21]	Nitrogen counts in 21 energy bins
O_COUNTS	EPOCH ENERGY_BINS	[21]	Oxygen counts in 21 energy bins
NE_COUNTS	EPOCH ENERGY_BINS	[21]	Neon counts in 21 energy bins
MG_COUNTS	EPOCH ENERGY_BINS	[21]	Magnesium counts in 21 energy bins
SI_COUNTS	EPOCH ENERGY_BINS	[21]	Silicon counts in 21 energy bins
S_COUNTS	EPOCH ENERGY_BINS	[21]	Sulfur counts in 21 energy bins
CA_COUNTS	EPOCH ENERGY_BINS	[21]	Calcium counts in 21 energy bins
FE_COUNTS	EPOCH ENERGY_BINS	[21]	Iron counts in 21 energy bins
PRI0_EVENTS	EPOCH	[]	Number of events assigned to priority 0(lowest)
PRI1_EVENTS	EPOCH	[]	Number of events assigned to priority 1
PRI2_EVENTS	EPOCH	[]	Number of events assigned to priority 2
PRI3_EVENTS	EPOCH	[]	Number of events assigned to priority 3(highest)
HE_HIST_EVENTS	EPOCH	[]	Number of events included in Helium histogram
UH_EVENTS	EPOCH	[]	Number of events identified as ultra-heavy events
TEST_PULSE_BOX_EVENTS	EPOCH	[]	Number of hardware generated test pulse events with energy and TOF within expected range
TEST_PULSE_NO_BOX_EVENTS	EPOCH	[]	Number of hardware generated test pulse events with energy and TOF not within expected range

Epoch variables

Name	Cadence
EPOCH	1800 seconds

Support variables

Name	Depend	Dims.	Description
SCET		[]	Elapsed time of the onboard clock
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
IRIS_POSITION	EPOCH	[]	Iris position in steps
INTEGRATION_TIME	EPOCH	[]	Integration time in seconds
ENERGY_BINS		[21]	Energy bin number for 21 bins

4.1.2.24 SIS B L1 Rates slow

Description: SIS B Level 1 particle rates with slow cadence

Descriptor: epd-sis-b-rates-slow

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-sis-ll

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files ($\sim$ 12 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-SIS-B-RATES-SLOW>Energetic Particle Detector, Suprathermal Ion Spectrograph, B Telescope, Particle rates, slow cadence
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-sis-b-rates-slow
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Suprathermal Ion Spectrograph, B Telescope, Particle rates, slow cadence
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES-SLOW>Particle rates, slow cadence
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Variables

Variables coincide with those of SIS A L1 Rates slow

4.1.2.25 SIS A L1 Rates fast

Description: SIS A Level 1 particle rates with fast cadence

Descriptor: epd-sis-a-rates-fast

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-sis-seldl

Associated calibration set: N/A

Expected cadence and dataset volume: One file per burst period

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-SIS-A-RATES-FAST>Energetic Particle Detector, Suprathermal Ion Spectrograph, A Telescope, Particle rates, fast cadence
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-sis-a-rates-fast
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Suprathermal Ion Spectrograph, A Telescope, Particle rates, fast cadence
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES-FAST>Particle rates, fast cadence
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
H_COUNTS	EPOCH ENERGY_BINS	[21]	Hydrogen counts in 21 energy bins
HE3_COUNTS	EPOCH ENERGY_BINS	[21]	Helium-3 counts in 21 energy bins
HE4_COUNTS	EPOCH ENERGY_BINS	[21]	Helium-4 counts in 21 energy bins
C_COUNTS	EPOCH ENERGY_BINS	[21]	Carbon counts in 21 energy bins
N_COUNTS	EPOCH ENERGY_BINS	[21]	Nitrogen counts in 21 energy bins
O_COUNTS	EPOCH ENERGY_BINS	[21]	Oxygen counts in 21 energy bins
NE_COUNTS	EPOCH ENERGY_BINS	[21]	Neon counts in 21 energy bins
MG_COUNTS	EPOCH ENERGY_BINS	[21]	Magnesium counts in 21 energy bins
SI_COUNTS	EPOCH ENERGY_BINS	[21]	Silicon counts in 21 energy bins
S_COUNTS	EPOCH ENERGY_BINS	[21]	Sulfur counts in 21 energy bins
CA_COUNTS	EPOCH ENERGY_BINS	[21]	Calcium counts in 21 energy bins
FE_COUNTS	EPOCH ENERGY_BINS	[21]	Iron counts in 21 energy bins
PRI0_EVENTS	EPOCH	[]	Number of events assigned to priority 0(lowest)
PRI1_EVENTS	EPOCH	[]	Number of events assigned to priority 1
PRI2_EVENTS	EPOCH	[]	Number of events assigned to priority 2
PRI3_EVENTS	EPOCH	[]	Number of events assigned to priority 3(highest)
HE_HIST_EVENTS	EPOCH	[]	Number of events included in Helium histogram
UH_EVENTS	EPOCH	[]	Number of events identified as ultra-heavy events
TEST_PULSE_BOX_EVENTS	EPOCH	[]	Number of hardware generated test pulse events with energy and TOF within expected range
TEST_PULSE_NO_BOX_EVENTS	EPOCH	[]	Number of hardware generated test pulse events with energy and TOF not within expected range

Epoch variables

Name	Cadence
EPOCH	3 seconds

Support variables

Name	Depend	Dims.	Description
SCET		[]	Elapsed time of the onboard clock
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
IRIS_POSITION	EPOCH	[]	Iris position in steps
INTEGRATION_TIME	EPOCH	[]	Integration time in seconds
ENERGY_BINS		[21]	Energy bin number for 21 bins

4.1.2.26 SIS B L1 Rates fast

Description: SIS B Level 1 particle rates with fast cadence

Descriptor: epd-sis-b-rates-fast

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-sis-seldl

Associated calibration set: N/A

Expected cadence and dataset volume: One file per burst period

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-SIS-B-RATES-FAST>Energetic Particle Detector, Suprathermal Ion Spectrograph, B Telescope, Particle rates, fast cadence
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-sis-b-rates-fast
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Suprathermal Ion Spectrograph, B Telescope, Particle rates, fast cadence
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES-FAST>Particle rates, fast cadence
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Variables

Variables coincide with those of SIS A L1 Rates fast

4.1.2.27 SIS A L1 Helium Histogram

Description: SIS A Level 1 helium histogram

Descriptor: epd-sis-a-hehist

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-sis-ll

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files (∼ 5 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-SIS-A-HEHIST>Energetic Particle Detector, Suprathermal Ion Spectrograph, A Telescope, Helium histogram
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-sis-a-hehist
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Suprathermal Ion Spectrograph, A Telescope, Helium histogram
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	HEHIST>Helium histogram
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
HE_HISTOGRAM	EPOCH MASS_BINS	[80]	Particle counts in Helium mass range for each mass interval

Epoch variables

Name	Cadence
EPOCH	1800 seconds

Support variables

Name	Depend	Dims.	Description
SCET		[]	Elapsed time of the onboard clock
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
IRIS_POSITION	EPOCH	[]	Iris position in steps
INTEGRATION_TIME	EPOCH	[]	Integration time in seconds
MASS_BINS		[80]	Mass bin number for 80 bins

4.1.2.28 SIS B L1 Helium Histogram

Description: SIS B Level 1 helium histogram

Descriptor: epd-sis-b-hehist

Free field: None

Level: L1

Dataset dependencies: solo_L0_epd-sis-ll

Associated calibration set: N/A

Expected cadence and dataset volume: Daily files (∼ 5 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L1>Level 1 Data
Descriptor	EPD-SIS-B-HEHIST>Energetic Particle Detector, Suprathermal Ion Spectrograph, B Telescope, Helium histogram
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L1_epd-sis-b-hehist
Logical_source_description	Solar Orbiter, Level 1 Data, Energetic Particle Detector, Suprathermal Ion Spectrograph, B Telescope, Helium histogram
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	HEHIST>Helium histogram
LEVEL	L1>Level 1 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Variables

Variables coincide with those of SIS A L1 Helium Histogram

4.1.3 L2 - Science data products

EPD level 2 data products contain a comprehensive of calibrated and validated EPD measurements in scientific units.

STEP data products		
Product	**Descriptor(s)**	**Description / Comments**
STEP L2 Main	epd-step-main	Since October 22nd, 2021
STEP L2 Rates	epd-step-rates	Only before October 22nd, 2021
STEP L2 High Cadence	epd-step-hcad	Only before October 22nd, 2021
STEP L2 Burst	epd-step-burst1	Only before October 22nd, 2021
EPT-HET1/2 data products		
Product	**Descriptor(s)**	**Description / Comments**
EPT Sun/Anti-Sun/North/South L2 Rates	epd-ept-sun-rates epd-ept-asun-rates epd-ept-north-rates epd-ept-south-rates	Cadence changed to 1s on March 24th, 2021
EPT Sun/Anti-Sun/North/South L2 High Cadence	epd-ept-sun-hcad epd-ept-asun-hcad epd-ept-north-hcad epd-ept-south-hcad	Only before March 24th, 2021
HET Sun/Anti-Sun/North/South L2 Rates	epd-het-sun-rates epd-het-asun-rates epd-het-north-rates epd-het-south-rates	
SIS data products		
Product	**Descriptor(s)**	**Description / Comments**
SIS L2 Rates Medium	epd-sis-a-rates-medium epd-sis-b-rates-medium	
SIS L2 Rates Fast	epd-sis-a-rates-fast epd-sis-b-rates-fast	
SIS L2 Rates Slow	epd-sis-a-rates-slow epd-sis-b-rates-slow	
SIS L2 Helium Histogram	epd-sis-a-hehist epd-sis-b-hehist	

Table 52: *EPD level 2 data products*

4.1.3.1 STEP L2 Main

Description: STEP Level 2 main product (started on October 22nd, 2021)

Descriptor: epd-step-main

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-step-main-far, solo_L1_epd-step-main-close

Associated calibration set: solo_CAL_epd-step-main

Expected cadence and dataset volume: Daily files (∼40 MB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-STEP-MAIN>Energetic Particle Detector, SupraThermal Electrons and Protons, Main product
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-step-main
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, SupraThermal Electrons and Protons, Main product
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	MAIN>Main product
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
Integral_01_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in integral channel (ions + electrons) for pixel 1
Integral_02_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in integral channel (ions + electrons) for pixel 2
Integral_03_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in integral channel (ions + electrons) for pixel 3
Integral_04_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in integral channel (ions + electrons) for pixel 4
Integral_05_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in integral channel (ions + electrons) for pixel 5
Integral_06_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in integral channel (ions + electrons) for pixel 6
Integral_07_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in integral channel (ions + electrons) for pixel 7
Integral_08_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in integral channel (ions + electrons) for pixel 8
Integral_09_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in integral channel (ions + electrons) for pixel 9
Integral_10_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in integral channel (ions + electrons) for pixel 10
Integral_11_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in integral channel (ions + electrons) for pixel 11
Integral_12_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in integral channel (ions + electrons) for pixel 12
Integral_13_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in integral channel (ions + electrons) for pixel 13
Integral_14_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in integral channel (ions + electrons) for pixel 14
Integral_15_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in integral channel (ions + electrons) for pixel 15
Integral_Avg_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in integral channel (ions + electrons) averaged for all pixels
Magnet_01_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in magnet channel (ions) for pixel 1
Magnet_02_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in magnet channel (ions) for pixel 2
Magnet_03_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in magnet channel (ions) for pixel 3
Magnet_04_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in magnet channel (ions) for pixel 4
Magnet_05_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in magnet channel (ions) for pixel 5
Magnet_06_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in magnet channel (ions) for pixel 6

Name	Depend	Dims.	Description
Magnet_07_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in magnet channel (ions) for pixel 7
Magnet_08_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in magnet channel (ions) for pixel 8
Magnet_09_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in magnet channel (ions) for pixel 9
Magnet_10_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in magnet channel (ions) for pixel 10
Magnet_11_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in magnet channel (ions) for pixel 11
Magnet_12_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in magnet channel (ions) for pixel 12
Magnet_13_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in magnet channel (ions) for pixel 13
Magnet_14_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in magnet channel (ions) for pixel 14
Magnet_15_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in magnet channel (ions) for pixel 15
Magnet_Avg_Flux	EPOCH Bins_Low_Energy	[32]	Particle intensities in magnet channel (ions) averaged for all pixels

Epoch variables

Name	Cadence
EPOCH	(Variable) 1 second, 10 seconds
EPOCH_1	60 seconds
EPOCH_2	1 hour

Support variables

Name	Depend	Dims.	Description
DELTA_EPOCH	EPOCH	[]	Accumulation period in seconds
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
SMALL_PIXELS_FLAG	EPOCH	[]	Flag indicating when small pixels are used (0: Regular pixels, 1: Small pixels)
Integral_01_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in integral channel flux for pixel 1
Integral_01_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in integral channel (ions + electrons) for pixel 1
Integral_02_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in integral channel flux for pixel 2
Integral_02_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in integral channel (ions + electrons) for pixel 2

Name	Depend	Dims.	Description
Integral_03_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in integral channel flux for pixel 3
Integral_03_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in integral channel (ions + electrons) for pixel 3
Integral_04_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in integral channel flux for pixel 4
Integral_04_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in integral channel (ions + electrons) for pixel 4
Integral_05_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in integral channel flux for pixel 5
Integral_05_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in integral channel (ions + electrons) for pixel 5
Integral_06_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in integral channel flux for pixel 6
Integral_06_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in integral channel (ions + electrons) for pixel 6
Integral_07_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in integral channel flux for pixel 7
Integral_07_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in integral channel (ions + electrons) for pixel 7
Integral_08_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in integral channel flux for pixel 8
Integral_08_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in integral channel (ions + electrons) for pixel 8
Integral_09_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in integral channel flux for pixel 9
Integral_09_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in integral channel (ions + electrons) for pixel 9
Integral_10_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in integral channel flux for pixel 10
Integral_10_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in integral channel (ions + electrons) for pixel 10
Integral_11_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in integral channel flux for pixel 11
Integral_11_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in integral channel (ions + electrons) for pixel 11
Integral_12_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in integral channel flux for pixel 12
Integral_12_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in integral channel (ions + electrons) for pixel 12
Integral_13_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in integral channel flux for pixel 13
Integral_13_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in integral channel (ions + electrons) for pixel 13

Name	Depend	Dims.	Description
Integral_14_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in integral channel flux for pixel 14
Integral_14_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in integral channel (ions + electrons) for pixel 14
Integral_15_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in integral channel flux for pixel 15
Integral_15_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in integral channel (ions + electrons) for pixel 15
Integral_Avg_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in integral channel flux averaged for all pixels
Magnet_01_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in magnet channel flux for pixel 1
Magnet_01_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in magnet channel (ions) for pixel 1
Magnet_02_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in magnet channel flux for pixel 2
Magnet_02_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in magnet channel (ions) for pixel 2
Magnet_03_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in magnet channel flux for pixel 3
Magnet_03_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in magnet channel (ions) for pixel 3
Magnet_04_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in magnet channel flux for pixel 4
Magnet_04_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in magnet channel (ions) for pixel 4
Magnet_05_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in magnet channel flux for pixel 5
Magnet_05_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in magnet channel (ions) for pixel 5
Magnet_06_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in magnet channel flux for pixel 6
Magnet_06_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in magnet channel (ions) for pixel 6
Magnet_07_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in magnet channel flux for pixel 7
Magnet_07_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in magnet channel (ions) for pixel 7
Magnet_08_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in magnet channel flux for pixel 8
Magnet_08_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in magnet channel (ions) for pixel 8
Magnet_09_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in magnet channel flux for pixel 9

Name	Depend	Dims.	Description
Magnet_09_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in magnet channel (ions) for pixel 9
Magnet_10_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in magnet channel flux for pixel 10
Magnet_10_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in magnet channel (ions) for pixel 10
Magnet_11_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in magnet channel flux for pixel 11
Magnet_11_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in magnet channel (ions) for pixel 11
Magnet_12_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in magnet channel flux for pixel 12
Magnet_12_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in magnet channel (ions) for pixel 12
Magnet_13_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in magnet channel flux for pixel 13
Magnet_13_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in magnet channel (ions) for pixel 13
Magnet_14_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in magnet channel flux for pixel 14
Magnet_14_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in magnet channel (ions) for pixel 14
Magnet_15_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in magnet channel flux for pixel 15
Magnet_15_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in magnet channel (ions) for pixel 15
Magnet_Avg_Uncertainty	EPOCH Bins_Low_Energy	[32]	Uncertainty in magnet channel flux averaged for all pixels
Integral_00_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in the background pixel (0) for the integral channel
Magnet_00_Rate	EPOCH Bins_Low_Energy	[32]	Count rate in the background pixel (0) for the magnet channel
Bins_Low_Energy		[32]	Lowest energy of each bin
Bins_Width		[32]	Width of each energy bin
Bins_Text		[32]	Text description of each energy bin
Electron_01_Flux_Mult	Electron_Bins_Low_Energy	[32]	Conversion factors for computing electron intensities from integral-magnet flux excess for pixel 1
Electron_02_Flux_Mult	Electron_Bins_Low_Energy	[32]	Conversion factors for computing electron intensities from integral-magnet flux excess for pixel 2
Electron_03_Flux_Mult	Electron_Bins_Low_Energy	[32]	Conversion factors for computing electron intensities from integral-magnet flux excess for pixel 3

Name	Depend	Dims.	Description
Electron_04_Flux_Mult	Electron_Bins_Low_Energy	[32]	Conversion factors for computing electron intensities from integral-magnet flux excess for pixel 4
Electron_05_Flux_Mult	Electron_Bins_Low_Energy	[32]	Conversion factors for computing electron intensities from integral-magnet flux excess for pixel 5
Electron_06_Flux_Mult	Electron_Bins_Low_Energy	[32]	Conversion factors for computing electron intensities from integral-magnet flux excess for pixel 6
Electron_07_Flux_Mult	Electron_Bins_Low_Energy	[32]	Conversion factors for computing electron intensities from integral-magnet flux excess for pixel 7
Electron_08_Flux_Mult	Electron_Bins_Low_Energy	[32]	Conversion factors for computing electron intensities from integral-magnet flux excess for pixel 8
Electron_09_Flux_Mult	Electron_Bins_Low_Energy	[32]	Conversion factors for computing electron intensities from integral-magnet flux excess for pixel 9
Electron_10_Flux_Mult	Electron_Bins_Low_Energy	[32]	Conversion factors for computing electron intensities from integral-magnet flux excess for pixel 10
Electron_11_Flux_Mult	Electron_Bins_Low_Energy	[32]	Conversion factors for computing electron intensities from integral-magnet flux excess for pixel 11
Electron_12_Flux_Mult	Electron_Bins_Low_Energy	[32]	Conversion factors for computing electron intensities from integral-magnet flux excess for pixel 12
Electron_13_Flux_Mult	Electron_Bins_Low_Energy	[32]	Conversion factors for computing electron intensities from integral-magnet flux excess for pixel 13
Electron_14_Flux_Mult	Electron_Bins_Low_Energy	[32]	Conversion factors for computing electron intensities from integral-magnet flux excess for pixel 14
Electron_15_Flux_Mult	Electron_Bins_Low_Energy	[32]	Conversion factors for computing electron intensities from integral-magnet flux excess for pixel 15
Electron_Avg_Flux_Mult	Electron_Bins_Low_Energy	[32]	Conversion factors for computing pixel averaged electron intensities from integral-magnet flux excess
Electron_Bins_Low_Energy		[32]	Lowest energy of each bin for electrons
Electron_Bins_Width		[32]	Width of each energy bin for electrons
Electron_Bins_Text		[32]	Text description of each energy bin for electrons
RTN	EPOCH_1	[3]	Particle flow direction (unit vector) in RTN coordinates averaged for all pixels
XYZ		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates averaged for all pixels
Pixels		[15]	Pixels

Name	Depend	Dims.	Description
Pixel_Labels		[15]	Pixel labels
RTN_Pixels	EPOCH_1 Pixels	[15, 3]	Particle flow direction (unit vector) in RTN coordinates for each pixel
XYZ_Pixels	Pixels	[15, 3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates for each pixel
HCI_R	EPOCH_2	[]	Spacecraft radial distance from the Sun
HCI_Lat	EPOCH_2	[]	Spacecraft heliocentric latitude (HCI)
HCI_Lon	EPOCH_2	[]	Spacecraft heliocentric longitude (HCI)
RTN_Labels		[3]	Labels for vector components in RTN coordinates
XYZ_Labels		[3]	Labels for vector components in spacecraft XYZ coordinates

4.1.3.2 STEP L2 Rates

Description: STEP Level 2 particle rates (discontinued on October 22nd, 2021)

Descriptor: epd-step-rates

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-step-nom-far, solo_L1_epd-step-nom-close

Associated calibration set: solo_CAL_epd-step-nom

Expected cadence and dataset volume: Daily files (∼2.5 MB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-STEP-RATES>Energetic Particle Detector, SupraThermal Electrons and Protons, Rates
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-step-rates
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, SupraThermal Electrons and Protons, Rates
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES>Rates
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
Magnet_Flux	EPOCH Bins_Low_Energy	[48]	Sector averaged magnet channel flux
Integral_Flux	EPOCH Bins_Low_Energy	[48]	Sector averaged integral channel flux
Sector_Magnet_Flux	EPOCH Sector_Bins_Low_Energy Sectors	[8, 15]	Sectored magnet channel flux
Sector_Integral_Flux	EPOCH Sector_Bins_Low_Energy Sectors	[8, 15]	Sectored integral channel flux

Epoch variables

Name	Cadence
EPOCH	(Variable) 10 seconds, 1 minute
EPOCH_1	60 seconds
EPOCH_2	1 hour

Support variables

Name	Depend	Dims.	Description
DELTA_EPOCH	EPOCH	[]	Accumulation period in seconds
Magnet_Uncertainty	EPOCH Bins_Low_Energy	[48]	Uncertainty in sector averaged magnet channel flux
Magnet_Rate	EPOCH Bins_Low_Energy	[48]	Sector averaged magnet channel count rate
Integral_Uncertainty	EPOCH Bins_Low_Energy	[48]	Uncertainty in sector averaged integral channel flux
Integral_Rate	EPOCH Bins_Low_Energy	[48]	Sector averaged integral channel count rate
Bins_Low_Energy		[48]	Lowest energy of each bin for sector averaged flux
Bins_Width		[48]	Width of each energy bin for sector averaged flux
Bins_Text		[48]	Text description of each energy bin for sector averaged flux
RTN	EPOCH_1	[3]	Particle flow direction (unit vector) in RTN coordinates
XYZ		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates
Sector_Magnet_Uncertainty	EPOCH Sector_Bins_Low_Energy Sectors	[8, 15]	Uncertainty in sectored magnet channel flux
Sector_Magnet_Rate	EPOCH Sector_Bins_Low_Energy Sectors	[8, 15]	Sectored magnet channel count rate

Name	Depend	Dims.	Description
Sector_Integral_Uncertainty	EPOCH Sector_Bins_Low_Energy Sectors	[8, 15]	Uncertainty in sectored integral channel flux
Sector_Integral_Rate	EPOCH Sector_Bins_Low_Energy Sectors	[8, 15]	Sectored integral channel count rate
Sector_Bins_Low_Energy		[8]	Lowest energy of each bin for sectored flux
Sector_Bins_Width		[8]	Width of each energy bin for sectored flux
Sector_Bins_Text		[8]	Text description of each energy bin for sectored flux
Sectors		[15]	Sectors
RTN_Sectors	EPOCH_1 Sectors	[15, 3]	Particle flow direction (unit vector) in RTN coordinates
XYZ_Sectors	Sectors	[15, 3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates
HCI_R	EPOCH_2	[]	Spacecraft radial distance from the Sun
HCI_Lat	EPOCH_2	[]	Spacecraft heliocentric latitude (HCI)
HCI_Lon	EPOCH_2	[]	Spacecraft heliocentric longitude (HCI)
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
RTN_Labels		[3]	Labels for vector components in RTN coordinates
XYZ_Labels		[3]	Labels for vector components in spacecraft XYZ coordinates

4.1.3.3 STEP L2 High Cadence

Description: STEP Level 2 high cadence particle rates (discontinued on October 22nd, 2021)

Descriptor: epd-step-hcad

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-step-nom-far, solo_L1_epd-step-nom-close

Associated calibration set: solo_CAL_epd-step-nom

Expected cadence and dataset volume: Daily files (∼3.5 MB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-STEP-HCAD>Energetic Particle Detector, SupraThermal Electrons and Protons, High Cadence
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-step-hcad
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, SupraThermal Electrons and Protons, High Cadence
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	HCAD>High Cadence
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
Magnet_Rows_Flux	EPOCH Bins_Low_Energy Sector_Rows	[4, 3]	Magnet channel flux for each row of pixels
Integral_Rows_Flux	EPOCH Bins_Low_Energy Sector_Rows	[4, 3]	Integral channel flux for each row of pixels
Magnet_Cols_Flux	EPOCH Bins_Low_Energy Sector_Columns	[4, 5]	Magnet channel flux for each column of pixels
Integral_Cols_Flux	EPOCH Bins_Low_Energy Sector_Columns	[4, 5]	Integral channel flux for each column of pixels

Epoch variables

Name	Cadence
EPOCH	(Variable) 1 second, 5 seconds
EPOCH_1	60 seconds
EPOCH_2	1 hour

Support variables

Name	Depend	Dims.	Description
DELTA_EPOCH	EPOCH	[]	Accumulation period in seconds
Magnet_Rows_Uncertainty	EPOCH Bins_Low_Energy Sector_Rows	[4, 3]	Uncertainty in magnet channel flux for each row of pixels
Magnet_Rows_Rate	EPOCH Bins_Low_Energy Sector_Rows	[4, 3]	Magnet channel count rate for each row of pixels
Integral_Rows_Uncertainty	EPOCH Bins_Low_Energy Sector_Rows	[4, 3]	Uncertainty in integral channel flux for each row of pixels
Integral_Rows_Rate	EPOCH Bins_Low_Energy Sector_Rows	[4, 3]	Integral channel count rate for each row of pixels
Magnet_Cols_Uncertainty	EPOCH Bins_Low_Energy Sector_Columns	[4, 5]	Uncertainty in magnet channel flux for each column of pixels
Magnet_Cols_Rate	EPOCH Bins_Low_Energy Sector_Columns	[4, 5]	Magnet channel count rate for each column of pixels
Integral_Cols_Uncertainty	EPOCH Bins_Low_Energy Sector_Columns	[4, 5]	Uncertainty in integral channel flux for each column of pixels

Name	Depend	Dims.	Description
Integral_Cols_Rate	EPOCH Bins_Low_Energy Sector_Columns	[4, 5]	Integral channel count rate for each column of pixels
Bins_Low_Energy		[4]	Lowest energy of each bin
Bins_Width		[4]	Width of each energy bin
Bins_Text		[4]	Text description of each energy bin
Sector_Rows		[3]	Sector Rows
Sector_Columns		[5]	Sector Columns
RTN_Sector_Rows	EPOCH_1 Sector_Rows	[3, 3]	Particle flow direction (unit vector) in RTN coordinates
XYZ_Sector_Rows	Sector_Rows	[3, 3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates
RTN_Sector_Columns	EPOCH_1 Sector_Columns	[5, 3]	Particle flow direction (unit vector) in RTN coordinates
XYZ_Sector_Columns	Sector_Columns	[5, 3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates
HCI_R	EPOCH_2	[]	Spacecraft radial distance from the Sun
HCI_Lat	EPOCH_2	[]	Spacecraft heliocentric latitude (HCI)
HCI_Lon	EPOCH_2	[]	Spacecraft heliocentric longitude (HCI)
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
RTN_Labels		[3]	Labels for vector components in RTN coordinates
XYZ_Labels		[3]	Labels for vector components in spacecraft XYZ coordinates

4.1.3.4 STEP L2 Burst

Description: STEP Level 2 particle rates in burst mode (discontinued on October 22nd, 2021)

Descriptor: epd-step-burst

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-step-burst1-far, solo_L1_epd-step-burst1-close

Associated calibration set: solo_CAL_epd-step-burst1

Expected cadence and dataset volume: One file per burst period

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-STEP-BURST>Energetic Particle Detector, SupraThermal Electrons and Protons, Burst
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-step-burst
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, SupraThermal Electrons and Protons, Burst
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	BURST>Burst
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
Magnet_Flux	EPOCH Bins_Low_Energy	[48]	Sector averaged magnet channel flux
Integral_Flux	EPOCH Bins_Low_Energy	[48]	Sector averaged integral channel flux
Sector_Magnet_Flux	EPOCH Sector_Bins_Low_Energy Sectors	[16, 15]	Sectored magnet channel flux
Sector_Integral_Flux	EPOCH Sector_Bins_Low_Energy Sectors	[16, 15]	Sectored integral channel flux

Epoch variables

Name	Cadence
EPOCH	1 second

Support variables

Name	Depend	Dims.	Description
DELTA_EPOCH	EPOCH	[]	Accumulation period in seconds
Magnet_Uncertainty	EPOCH Bins_Low_Energy	[48]	Uncertainty in sector averaged magnet channel flux
Magnet_Rate	EPOCH Bins_Low_Energy	[48]	Sector averaged magnet channel count rate
Integral_Uncertainty	EPOCH Bins_Low_Energy	[48]	Uncertainty in sector averaged integral channel flux
Integral_Rate	EPOCH Bins_Low_Energy	[48]	Sector averaged integral channel count rate
Bins_Low_Energy		[48]	Lowest energy of each bin for sector averaged flux
Bins_Width		[48]	Width of each energy bin for sector averaged flux
Bins_Text		[48]	Text description of each energy bin for sector averaged flux
Sector_Magnet_Uncertainty	EPOCH Sector_Bins_Low_Energy Sectors	[16, 15]	Uncertainty in sectored magnet channel flux
Sector_Magnet_Rate	EPOCH Sector_Bins_Low_Energy Sectors	[16, 15]	Sectored magnet channel count rate
Sector_Integral_Uncertainty	EPOCH Sector_Bins_Low_Energy Sectors	[16, 15]	Uncertainty in sectored integral channel flux
Sector_Integral_Rate	EPOCH Sector_Bins_Low_Energy Sectors	[16, 15]	Sectored integral channel count rate

Name	Depend	Dims.	Description
Sector_Bins_Low_Energy		[16]	Lowest energy of each bin for sectored flux
Sector_Bins_Width		[16]	Width of each energy bin for sectored flux
Sector_Bins_Text		[16]	Text description of each energy bin for sectored flux
Sectors		[15]	Sectors
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter

4.1.3.5 EPT Sun L2 Rates

Description: EPT Level 2 particle rates from *sun* direction

Descriptor: epd-ept-sun-rates

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-epthet1-nom-far, solo_L1_epd-epthet1-nom-close

Associated calibration set: solo_CAL_epd-epthet1-nom

Expected cadence and dataset volume: Daily files (∼250 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-EPT-SUN-RATES>Energetic Particle Detector, Electron Proton Telescope, Sun direction, Rates
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-ept-sun-rates
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, Electron Proton Telescope, Sun direction, Rates
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES>Rates
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
Ion_Flux	EPOCH Ion_Bins_Low_Energy	[64]	Particle flux in magnet channel
Alpha_Flux	EPOCH Alpha_Bins_Low_Energy	[8]	High energy particle flux in magnet channel
Electron_Flux	EPOCH_1 Electron_Bins_Low_Energy	[34]	Particle flux in foil channel

Epoch variables

Name	Cadence
EPOCH	(Variable) 5 seconds, 30 seconds
EPOCH_1	(Variable) 1 minute, 5 minutes
EPOCH_2	60 seconds
EPOCH_3	3600 seconds

Support variables

Name	Depend	Dims.	Description
DELTA_EPOCH	EPOCH	[]	Accumulation period in seconds
Ion_Uncertainty	EPOCH Ion_Bins_Low_Energy	[64]	Uncertainty in ion flux
Ion_Rate	EPOCH Ion_Bins_Low_Energy	[64]	Particle count rate in magnet channel
Ion_Bins_Low_Energy		[64]	Lowest energy of each bin for ion flux
Ion_Bins_Width		[64]	Width of each energy bin for ion flux
Ion_Bins_Text		[64]	Text description of each energy bin for ion flux
Alpha_Uncertainty	EPOCH Alpha_Bins_Low_Energy	[8]	Uncertainty in alpha flux
Alpha_Rate	EPOCH Alpha_Bins_Low_Energy	[8]	High energy particle count rate in magnet channel
Alpha_Bins_Low_Energy		[8]	Lowest energy of each bin for alpha flux
Alpha_Bins_Width		[8]	Width of each energy bin for alpha flux
Alpha_Bins_Text		[8]	Text description of each energy bin for alpha flux
DELTA_EPOCH_1	EPOCH_1	[]	Accumulation period in seconds
Electron_Uncertainty	EPOCH_1 Electron_Bins_Low_Energy	[34]	Uncertainty in electron flux
Electron_Rate	EPOCH_1 Electron_Bins_Low_Energy	[34]	Particle count rate in foil channel
Electron_Bins_Low_Energy		[34]	Lowest energy of each bin for electron flux
Electron_Bins_Width		[34]	Width of each energy bin for electron flux
Electron_Bins_Text		[34]	Text description of each energy bin for electron flux

Name	Depend	Dims.	Description
RTN	EPOCH_2	[3]	Particle flow direction (unit vector) in RTN coordinates
XYZ		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates
HCI_R	EPOCH_3	[]	Spacecraft radial distance from the Sun
HCI_Lat	EPOCH_3	[]	Spacecraft heliocentric latitude (HCI)
HCI_Lon	EPOCH_3	[]	Spacecraft heliocentric longitude (HCI)
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
QUALITY_FLAG_1	EPOCH_1	[]	Data quality flag
QUALITY_BITMASK_1	EPOCH_1	[]	Computer readable quality parameter
RTN_Labels		[3]	Labels for vector components in RTN coordinates
XYZ_Labels		[3]	Labels for vector components in spacecraft XYZ coordinates

4.1.3.6 EPT Anti-Sun L2 Rates

Description: EPT Level 2 particle rates from *anti-sun* direction

Descriptor: epd-ept-asun-rates

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-epthet1-nom-far, solo_L1_epd-epthet1-nom-close

Associated calibration set: solo_CAL_epd-epthet1-nom

Expected cadence and dataset volume: Daily files (∼250 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-EPT-ASUN-RATES>Energetic Particle Detector, Electron Proton Telescope, Anti-Sun direction, Rates
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-ept-asun-rates
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, Electron Proton Telescope, Anti-Sun direction, Rates
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES>Rates
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Variables

Variables coincide with those of EPT Sun L2 Rates

4.1.3.7 EPT North L2 Rates

Description: EPT Level 2 particle rates from *north* direction

Descriptor: epd-ept-north-rates

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-epthet2-nom-far, solo_L1_epd-epthet2-nom-close

Associated calibration set: solo_CAL_epd-epthet2-nom

Expected cadence and dataset volume: Daily files (∼250 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-EPT-NORTH-RATES>Energetic Particle Detector, Electron Proton Telescope, North direction, Rates
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-ept-north-rates
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, Electron Proton Telescope, North direction, Rates
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES>Rates
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Variables

Variables coincide with those of EPT Sun L2 Rates

4.1.3.8 EPT South L2 Rates

Description: EPT Level 2 particle rates from *south* direction

Descriptor: epd-ept-south-rates

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-epthet2-nom-far, solo_L1_epd-epthet2-nom-close

Associated calibration set: solo_CAL_epd-epthet2-nom

Expected cadence and dataset volume: Daily files (∼250 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-EPT-SOUTH-RATES>Energetic Particle Detector, Electron Proton Telescope, South direction, Rates
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-ept-south-rates
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, Electron Proton Telescope, South direction, Rates
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES>Rates
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Variables

Variables coincide with those of EPT Sun L2 Rates

4.1.3.9 EPT Sun L2 High Cadence

Description: EPT Level 2 high cadence particle rates from *sun* direction (discontinued on March 24th, 2021)

Descriptor: epd-ept-sun-hcad

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-epthet1-nom-far, solo_L1_epd-epthet1-nom-close

Associated calibration set: solo_CAL_epd-epthet1-nom

Expected cadence and dataset volume: Daily files (∼500 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-EPT-SUN-HCAD>Energetic Particle Detector, Electron Proton Telescope, Sun direction, High Cadence
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-ept-sun-hcad
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, Electron Proton Telescope, Sun direction, High Cadence
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	HCAD>High Cadence
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
Ion_Flux	EPOCH Ion_Bins_Low_Energy	[12]	Particle flux in magnet channel
Electron_Flux	EPOCH Electron_Bins_Low_Energy	[17]	Particle flux in foil channel

Epoch variables

Name	Cadence
EPOCH	(Variable) 1 second, 5 seconds
EPOCH_1	60 seconds
EPOCH_2	1 hour

Support variables

Name	Depend	Dims.	Description
DELTA_EPOCH	EPOCH	[]	Accumulation period in seconds
Ion_Uncertainty	EPOCH Ion_Bins_Low_Energy	[12]	Uncertainty in ion flux
Ion_Rate	EPOCH Ion_Bins_Low_Energy	[12]	Particle count rate in magnet channel
Ion_Bins_Low_Energy		[12]	Lowest energy of each bin for ion flux
Ion_Bins_Width		[12]	Width of each energy bin for ion flux
Ion_Bins_Text		[12]	Text description of each energy bin for ion flux
Electron_Uncertainty	EPOCH Electron_Bins_Low_Energy	[17]	Uncertainty in electron flux
Electron_Rate	EPOCH Electron_Bins_Low_Energy	[17]	Particle count rate in foil channel
Electron_Bins_Low_Energy		[17]	Lowest energy of each bin for electron flux
Electron_Bins_Width		[17]	Width of each energy bin for electron flux
Electron_Bins_Text		[17]	Text description of each energy bin for electron flux
RTN	EPOCH_1	[3]	Particle flow direction (unit vector) in RTN coordinates
XYZ		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates
HCI_R	EPOCH_2	[]	Spacecraft radial distance from the Sun
HCI_Lat	EPOCH_2	[]	Spacecraft heliocentric latitude (HCI)
HCI_Lon	EPOCH_2	[]	Spacecraft heliocentric longitude (HCI)
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
RTN_Labels		[3]	Labels for vector components in RTN coordinates

Name	Depend	Dims.	Description
XYZ_Labels		[3]	Labels for vector components in spacecraft XYZ coordinates

4.1.3.10 EPT Anti-Sun L2 High Cadence

Description: EPT Level 2 high cadence particle rates from *anti-sun* direction (discontinued on March 24th, 2021)

Descriptor: epd-ept-asun-hcad

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-epthet1-nom-far, solo_L1_epd-epthet1-nom-close

Associated calibration set: solo_CAL_epd-epthet1-nom

Expected cadence and dataset volume: Daily files (∼500 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-EPT-ASUN-HCAD>Energetic Particle Detector, Electron Proton Telescope, Anti-Sun direction, High Cadence
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-ept-asun-hcad
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, Electron Proton Telescope, Anti-Sun direction, High Cadence
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	HCAD>High Cadence
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Variables

Variables coincide with those of EPT Sun L2 High Cadence

4.1.3.11 EPT North L2 High Cadence

Description: EPT Level 2 high cadence particle rates from *north* direction (discontinued on March 24th, 2021)

Descriptor: epd-ept-north-hcad

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-epthet2-nom-far, solo_L1_epd-epthet2-nom-close

Associated calibration set: solo_CAL_epd-epthet2-nom

Expected cadence and dataset volume: Daily files (∼500 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-EPT-NORTH-HCAD>Energetic Particle Detector, Electron Proton Telescope, North direction, High Cadence
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-ept-north-hcad
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, Electron Proton Telescope, North direction, High Cadence
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	HCAD>High Cadence
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Variables

Variables coincide with those of EPT Sun L2 High Cadence

4.1.3.12 EPT South L2 High Cadence

Description: EPT Level 2 high cadence particle rates from *south* direction (discontinued on March 24th, 2021)

Descriptor: epd-ept-south-hcad

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-epthet2-nom-far, solo_L1_epd-epthet2-nom-close

Associated calibration set: solo_CAL_epd-epthet2-nom

Expected cadence and dataset volume: Daily files (∼500 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-EPT-SOUTH-HCAD>Energetic Particle Detector, Electron Proton Telescope, South direction, High Cadence
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-ept-south-hcad
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, Electron Proton Telescope, South direction, High Cadence
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	HCAD>High Cadence
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Variables

Variables coincide with those of EPT Sun L2 High Cadence

4.1.3.13 HET Sun L2 Rates

Description: HET Level 2 particle rates from *sun* direction

Descriptor: epd-het-sun-rates

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-epthet1-nom-far, solo_L1_epd-epthet1-nom-close

Associated calibration set: solo_CAL_epd-epthet1-nom

Expected cadence and dataset volume: Daily files (∼400 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-HET-SUN-RATES>Energetic Particle Detector, High Energy Telescope, Sun direction, Rates
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-het-sun-rates
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, High Energy Telescope, Sun direction, Rates
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES>Rates
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
H_Flux	EPOCH H_Bins_Low_Energy	[36]	Hydrogen flux
H_HCad_Flux	EPOCH_4 H_HCad_Bins_Low_Energy	[4]	High Cadence hydrogen flux
Electron_Flux	EPOCH_4 Electron_Bins_Low_Energy	[4]	Electron flux
Elec_HE_Flux	EPOCH_1	[]	Electron flux in 38 - 96 MeV energy range
He3_Flux	EPOCH_1 He3_Bins_Low_Energy	[9]	Helium-3 flux
He4_Flux	EPOCH_1 He4_Bins_Low_Energy	[15]	Helium-4 flux
C_Flux	EPOCH_2 C_Bins_Low_Energy	[17]	Carbon flux
N_Flux	EPOCH_2 N_Bins_Low_Energy	[17]	Nitrogen flux
O_Flux	EPOCH_2 O_Bins_Low_Energy	[17]	Oxygen flux
Fe_Flux	EPOCH_3 Fe_Bins_Low_Energy	[16]	Iron flux

Epoch variables

Name	Cadence
EPOCH	(Variable) 5 seconds, 30 seconds
EPOCH_1	(Variable) 30 seconds, 1 minute
EPOCH_2	(Variable) 1 minute, 5 minutes
EPOCH_3	(Variable) 5 minutes, 10 minutes
EPOCH_4	(Variable) 1 second, 5 seconds
EPOCH_5	60 seconds
EPOCH_6	3600 seconds

Support variables

Name	Depend	Dims.	Description
DELTA_EPOCH	EPOCH	[]	Accumulation period in seconds
DELTA_EPOCH_1	EPOCH_1	[]	Accumulation period in seconds
DELTA_EPOCH_2	EPOCH_2	[]	Accumulation period in seconds
DELTA_EPOCH_3	EPOCH_3	[]	Accumulation period in seconds
DELTA_EPOCH_4	EPOCH_4	[]	Accumulation period in seconds
H_Uncertainty	EPOCH H_Bins_Low_Energy	[36]	Uncertainty in hydrogen flux

Name	Depend	Dims.	Description
H_Rate	EPOCH H_Bins_Low_Energy	[36]	Hydrogen count rate
H_Bins_Low_Energy		[36]	Lowest energy of each bin for hydrogen flux
H_Bins_Width		[36]	Width of each energy bin for hydrogen flux
H_Bins_Text		[36]	Text description of each energy bin for hydrogen flux
H_HCad_Uncertainty	EPOCH_4 H_HCad_Bins_Low_Energy	[4]	Uncertainty in high cadence hydrogen flux
H_HCad_Rate	EPOCH_4 H_HCad_Bins_Low_Energy	[4]	High cadence hydrogen count rate
H_HCad_Bins_Low_Energy		[4]	Lowest energy of each bin for high cadence hydrogen flux
H_HCad_Bins_Width		[4]	Width of each energy bin for high cadence hydrogen flux
H_HCad_Bins_Text		[4]	Text description of each energy bin for high cadence hydrogen flux
Electron_Uncertainty	EPOCH_4 Electron_Bins_Low_Energy	[4]	Uncertainty in electron flux
Electron_Rate	EPOCH_4 Electron_Bins_Low_Energy	[4]	Electron count rate
Electron_Bins_Low_Energy		[4]	Lowest energy of each bin for electron flux
Electron_Bins_Width		[4]	Width of each energy bin for electron flux
Electron_Bins_Text		[4]	Text description of each energy bin for electron flux
Elec_HE_Uncertainty	EPOCH_1	[]	Uncertainty in high energy electron flux
Elec_HE_Rate	EPOCH_1	[]	High energy electron count rate
He3_Uncertainty	EPOCH_1 He3_Bins_Low_Energy	[9]	Uncertainty in helium-3 flux
He3_Rate	EPOCH_1 He3_Bins_Low_Energy	[9]	Helium-3 count rate
He3_Bins_Low_Energy		[9]	Lowest energy of each bin for helium-3 flux
He3_Bins_Width		[9]	Width of each energy bin for helium-3 flux
He3_Bins_Text		[9]	Text description of each energy bin for helium-3 flux
He4_Uncertainty	EPOCH_1 He4_Bins_Low_Energy	[15]	Uncertainty in helium-4 flux
He4_Rate	EPOCH_1 He4_Bins_Low_Energy	[15]	Helium-4 count rate
He4_Bins_Low_Energy		[15]	Lowest energy of each bin for helium-4 flux
He4_Bins_Width		[15]	Width of each energy bin for helium-4 flux
He4_Bins_Text		[15]	Text description of each energy bin for helium-4 flux
C_Uncertainty	EPOCH_2 C_Bins_Low_Energy	[17]	Uncertainty in carbon flux

Name	Depend	Dims.	Description
C_Rate	EPOCH_2 C_Bins_Low_Energy	[17]	Carbon count rate
C_Bins_Low_Energy		[17]	Lowest energy of each bin for carbon flux
C_Bins_Width		[17]	Width of each energy bin for carbon flux
C_Bins_Text		[17]	Text description of each energy bin for carbon flux
N_Uncertainty	EPOCH_2 N_Bins_Low_Energy	[17]	Uncertainty in nitrogen flux
N_Rate	EPOCH_2 N_Bins_Low_Energy	[17]	Nitrogen count rate
N_Bins_Low_Energy		[17]	Lowest energy of each bin for nitrogen flux
N_Bins_Width		[17]	Width of each energy bin for nitrogen flux
N_Bins_Text		[17]	Text description of each energy bin for nitrogen flux
O_Uncertainty	EPOCH_2 O_Bins_Low_Energy	[17]	Uncertainty in oxygen flux
O_Rate	EPOCH_2 O_Bins_Low_Energy	[17]	Oxygen count rate
O_Bins_Low_Energy		[17]	Lowest energy of each bin for oxygen flux
O_Bins_Width		[17]	Width of each energy bin for oxygen flux
O_Bins_Text		[17]	Text description of each energy bin for oxygen flux
Fe_Uncertainty	EPOCH_3 Fe_Bins_Low_Energy	[16]	Uncertainty in iron flux
Fe_Rate	EPOCH_3 Fe_Bins_Low_Energy	[16]	Iron count rate
Fe_Bins_Low_Energy		[16]	Lowest energy of each bin for iron flux
Fe_Bins_Width		[16]	Width of each energy bin for iron flux
Fe_Bins_Text		[16]	Text description of each energy bin for iron flux
RTN	EPOCH_5	[3]	Particle flow direction (unit vector) in RTN coordinates
XYZ		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates
HCI_R	EPOCH_6	[]	Spacecraft radial distance from the Sun
HCI_Lat	EPOCH_6	[]	Spacecraft heliocentric latitude (HCI)
HCI_Lon	EPOCH_6	[]	Spacecraft heliocentric longitude (HCI)
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
QUALITY_FLAG_1	EPOCH_1	[]	Data quality flag
QUALITY_BITMASK_1	EPOCH_1	[]	Computer readable quality parameter
QUALITY_FLAG_2	EPOCH_2	[]	Data quality flag
QUALITY_BITMASK_2	EPOCH_2	[]	Computer readable quality parameter

Name	Depend	Dims.	Description
QUALITY_FLAG_3	EPOCH_3	[]	Data quality flag
QUALITY_BITMASK_3	EPOCH_3	[]	Computer readable quality parameter
QUALITY_FLAG_4	EPOCH_4	[]	Data quality flag
QUALITY_BITMASK_4	EPOCH_4	[]	Computer readable quality parameter
RTN_Labels		[3]	Labels for vector components in RTN coordinates
XYZ_Labels		[3]	Labels for vector components in spacecraft XYZ coordinates

4.1.3.14 HET Anti-Sun L2 Rates

Description: HET Level 2 particle rates from *anti-sun* direction

Descriptor: epd-het-asun-rates

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-epthet1-nom-far, solo_L1_epd-epthet1-nom-close

Associated calibration set: solo_CAL_epd-epthet1-nom

Expected cadence and dataset volume: Daily files (∼400 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-HET-ASUN-RATES>Energetic Particle Detector, High Energy Telescope, Anti-Sun direction, Rates
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-het-asun-rates
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, High Energy Telescope, Anti-Sun direction, Rates
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES>Rates
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Variables

Variables coincide with those of HET Sun L2 Rates

4.1.3.15 HET North L2 Rates

Description: HET Level 2 particle rates from *north* direction

Descriptor: epd-het-north-rates

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-epthet2-nom-far, solo_L1_epd-epthet2-nom-close

Associated calibration set: solo_CAL_epd-epthet2-nom

Expected cadence and dataset volume: Daily files (∼400 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-HET-NORTH-RATES>Energetic Particle Detector, High Energy Telescope, North direction, Rates
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-het-north-rates
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, High Energy Telescope, North direction, Rates
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES>Rates
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Variables

Variables coincide with those of HET Sun L2 Rates

4.1.3.16 HET South L2 Rates

Description: HET Level 2 particle rates from *south* direction

Descriptor: epd-het-south-rates

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-epthet2-nom-far, solo_L1_epd-epthet2-nom-close

Associated calibration set: solo_CAL_epd-epthet2-nom

Expected cadence and dataset volume: Daily files (∼400 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-HET-SOUTH-RATES>Energetic Particle Detector, High Energy Telescope, South direction, Rates
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-het-south-rates
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, High Energy Telescope, South direction, Rates
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES>Rates
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Variables

Variables coincide with those of HET Sun L2 Rates

4.1.3.17 SIS A L2 Rates medium

Description: SIS A Level 2 particle rates with medium cadence

Descriptor: epd-sis-a-rates-medium

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-sis-a-rates-medium

Associated calibration set: solo_CAL_epd-sis-a-rates

Expected cadence and dataset volume: Daily files (∼80 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-SIS-A-RATES-MEDIUM>Energetic Particle Detector, Suprathermal Ion Spectrograph, A Telescope, Particle rates, medium cadence
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-sis-a-rates-medium
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, Suprathermal Ion Spectrograph, A Telescope, Particle rates, medium cadence
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES-MEDIUM>Particle rates, medium cadence
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
H_Flux	EPOCH H_Bins_Low_Energy	[11]	Hydrogen flux
He3_Flux	EPOCH He3_Bins_Low_Energy	[12]	Helium-3 flux
He4_Flux	EPOCH He4_Bins_Low_Energy	[13]	Helium-4 flux
C_Flux	EPOCH C_Bins_Low_Energy	[16]	Carbon flux
N_Flux	EPOCH N_Bins_Low_Energy	[16]	Nitrogen flux
O_Flux	EPOCH O_Bins_Low_Energy	[16]	Oxygen flux
Ne_Flux	EPOCH Ne_Bins_Low_Energy	[16]	Neon flux
Mg_Flux	EPOCH Mg_Bins_Low_Energy	[16]	Magnesium flux
Si_Flux	EPOCH Si_Bins_Low_Energy	[17]	Silicon flux
S_Flux	EPOCH S_Bins_Low_Energy	[17]	Sulfur flux
Ca_Flux	EPOCH Ca_Bins_Low_Energy	[16]	Calcium flux
Fe_Flux	EPOCH Fe_Bins_Low_Energy	[15]	Iron flux

Epoch variables

Name	Cadence
EPOCH	30 seconds
EPOCH_1	60 seconds
EPOCH_2	1 hour

Support variables

Name	Depend	Dims.	Description
DELTA_EPOCH	EPOCH	[]	Accumulation period in seconds
H_Uncertainty	EPOCH H_Bins_Low_Energy	[11]	Uncertainty in hydrogen flux
H_Rate	EPOCH H_Bins_Low_Energy	[11]	Hydrogen count rate
He3_Uncertainty	EPOCH He3_Bins_Low_Energy	[12]	Uncertainty in helium-3 flux
He3_Rate	EPOCH He3_Bins_Low_Energy	[12]	Helium-3 count rate

Name	Depend	Dims.	Description
He4_Uncertainty	EPOCH He4_Bins_Low_Energy	[13]	Uncertainty in helium-4 flux
He4_Rate	EPOCH He4_Bins_Low_Energy	[13]	Helium-4 count rate
C_Uncertainty	EPOCH C_Bins_Low_Energy	[16]	Uncertainty in carbon flux
C_Rate	EPOCH C_Bins_Low_Energy	[16]	Carbon count rate
N_Uncertainty	EPOCH N_Bins_Low_Energy	[16]	Uncertainty in nitrogen flux
N_Rate	EPOCH N_Bins_Low_Energy	[16]	Nitrogen count rate
O_Uncertainty	EPOCH O_Bins_Low_Energy	[16]	Uncertainty in oxygen flux
O_Rate	EPOCH O_Bins_Low_Energy	[16]	Oxygen count rate
Ne_Uncertainty	EPOCH Ne_Bins_Low_Energy	[16]	Uncertainty in neon flux
Ne_Rate	EPOCH Ne_Bins_Low_Energy	[16]	Neon count rate
Mg_Uncertainty	EPOCH Mg_Bins_Low_Energy	[16]	Uncertainty in magnesium flux
Mg_Rate	EPOCH Mg_Bins_Low_Energy	[16]	Magnesium count rate
Si_Uncertainty	EPOCH Si_Bins_Low_Energy	[17]	Uncertainty in silicon flux
Si_Rate	EPOCH Si_Bins_Low_Energy	[17]	Silicon count rate
S_Uncertainty	EPOCH S_Bins_Low_Energy	[17]	Uncertainty in sulfur flux
S_Rate	EPOCH S_Bins_Low_Energy	[17]	Sulfur count rate
Ca_Uncertainty	EPOCH Ca_Bins_Low_Energy	[16]	Uncertainty in calcium flux
Ca_Rate	EPOCH Ca_Bins_Low_Energy	[16]	Calcium count rate
Fe_Uncertainty	EPOCH Fe_Bins_Low_Energy	[15]	Uncertainty in iron flux
Fe_Rate	EPOCH Fe_Bins_Low_Energy	[15]	Iron count rate
H_Bins_Low_Energy		[11]	Lowest energy of each bin for hydrogen
H_Bins_Width		[11]	Width of each energy bin for hydrogen
H_Bins_Text		[11]	Text description of each energy bin for hydrogen
He3_Bins_Low_Energy		[12]	Lowest energy of each bin for helium-3

Name	Depend	Dims.	Description
He3_Bins_Width		[12]	Width of each energy bin for helium-3
He3_Bins_Text		[12]	Text description of each energy bin for helium-3
He4_Bins_Low_Energy		[13]	Lowest energy of each bin for helium-4
He4_Bins_Width		[13]	Width of each energy bin for helium-4
He4_Bins_Text		[13]	Text description of each energy bin for helium-4
C_Bins_Low_Energy		[16]	Lowest energy of each bin for carbon
C_Bins_Width		[16]	Width of each energy bin for carbon
C_Bins_Text		[16]	Text description of each energy bin for carbon
N_Bins_Low_Energy		[16]	Lowest energy of each bin for nitrogen
N_Bins_Width		[16]	Width of each energy bin for nitrogen
N_Bins_Text		[16]	Text description of each energy bin for nitrogen
O_Bins_Low_Energy		[16]	Lowest energy of each bin for oxygen
O_Bins_Width		[16]	Width of each energy bin for oxygen
O_Bins_Text		[16]	Text description of each energy bin for oxygen
Ne_Bins_Low_Energy		[16]	Lowest energy of each bin for neon
Ne_Bins_Width		[16]	Width of each energy bin for neon
Ne_Bins_Text		[16]	Text description of each energy bin for neon
Mg_Bins_Low_Energy		[16]	Lowest energy of each bin for magnesium
Mg_Bins_Width		[16]	Width of each energy bin for magnesium
Mg_Bins_Text		[16]	Text description of each energy bin for magnesium
Si_Bins_Low_Energy		[17]	Lowest energy of each bin for silicon
Si_Bins_Width		[17]	Width of each energy bin for silicon
Si_Bins_Text		[17]	Text description of each energy bin for silicon
S_Bins_Low_Energy		[17]	Lowest energy of each bin for sulfur
S_Bins_Width		[17]	Width of each energy bin for sulfur
S_Bins_Text		[17]	Text description of each energy bin for sulfur
Ca_Bins_Low_Energy		[16]	Lowest energy of each bin for calcium
Ca_Bins_Width		[16]	Width of each energy bin for calcium
Ca_Bins_Text		[16]	Text description of each energy bin for calcium
Fe_Bins_Low_Energy		[15]	Lowest energy of each bin for iron
Fe_Bins_Width		[15]	Width of each energy bin for iron
Fe_Bins_Text		[15]	Text description of each energy bin for iron
RTN	EPOCH_1	[3]	Particle flow direction (unit vector) in RTN coordinates
XYZ		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates
HCI_R	EPOCH_2	[]	Spacecraft radial distance from the Sun
HCI_Lat	EPOCH_2	[]	Spacecraft heliocentric latitude (HCI)
HCI_Lon	EPOCH_2	[]	Spacecraft heliocentric longitude (HCI)

Name	Depend	Dims.	Description
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
RTN_Labels		[3]	Labels for vector components in RTN coordinates
XYZ_Labels		[3]	Labels for vector components in spacecraft XYZ coordinates

4.1.3.18 SIS B L2 Rates medium

Description: SIS B Level 2 particle rates with medium cadence

Descriptor: epd-sis-b-rates-medium

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-sis-b-rates-medium

Associated calibration set: solo_CAL_epd-sis-b-rates

Expected cadence and dataset volume: Daily files (∼80 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-SIS-B-RATES-MEDIUM>Energetic Particle Detector, Suprathermal Ion Spectrograph, B Telescope, Particle rates, medium cadence
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-sis-b-rates-medium
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, Suprathermal Ion Spectrograph, B Telescope, Particle rates, medium cadence
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES-MEDIUM>Particle rates, medium cadence
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Variables

Variables coincide with those of SIS A L2 Rates medium

4.1.3.19 SIS A L2 Rates slow

Description: SIS A Level 2 particle rates with slow cadence

Descriptor: epd-sis-a-rates-slow

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-sis-a-rates-slow

Associated calibration set: solo_CAL_epd-sis-a-rates

Expected cadence and dataset volume: Daily files (∼25 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-SIS-A-RATES-SLOW>Energetic Particle Detector, Suprathermal Ion Spectrograph, A Telescope, Particle rates, slow cadence
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-sis-a-rates-slow
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, Suprathermal Ion Spectrograph, A Telescope, Particle rates, slow cadence
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES-SLOW>Particle rates, slow cadence
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
H_Flux	EPOCH H_Bins_Low_Energy	[11]	Hydrogen flux
He3_Flux	EPOCH He3_Bins_Low_Energy	[12]	Helium-3 flux
He4_Flux	EPOCH He4_Bins_Low_Energy	[13]	Helium-4 flux
C_Flux	EPOCH C_Bins_Low_Energy	[16]	Carbon flux
N_Flux	EPOCH N_Bins_Low_Energy	[16]	Nitrogen flux
O_Flux	EPOCH O_Bins_Low_Energy	[16]	Oxygen flux
Ne_Flux	EPOCH Ne_Bins_Low_Energy	[16]	Neon flux
Mg_Flux	EPOCH Mg_Bins_Low_Energy	[16]	Magnesium flux
Si_Flux	EPOCH Si_Bins_Low_Energy	[17]	Silicon flux
S_Flux	EPOCH S_Bins_Low_Energy	[17]	Sulfur flux
Ca_Flux	EPOCH Ca_Bins_Low_Energy	[16]	Calcium flux
Fe_Flux	EPOCH Fe_Bins_Low_Energy	[15]	Iron flux

Epoch variables

Name	Cadence
EPOCH	1800 seconds
EPOCH_1	60 seconds
EPOCH_2	1 hour

Support variables

Name	Depend	Dims.	Description
DELTA_EPOCH	EPOCH	[]	Accumulation period in seconds
H_Uncertainty	EPOCH H_Bins_Low_Energy	[11]	Uncertainty in hydrogen flux
H_Rate	EPOCH H_Bins_Low_Energy	[11]	Hydrogen count rate
He3_Uncertainty	EPOCH He3_Bins_Low_Energy	[12]	Uncertainty in helium-3 flux
He3_Rate	EPOCH He3_Bins_Low_Energy	[12]	Helium-3 count rate

Name	Depend	Dims.	Description
He4_Uncertainty	EPOCH He4_Bins_Low_Energy	[13]	Uncertainty in helium-4 flux
He4_Rate	EPOCH He4_Bins_Low_Energy	[13]	Helium-4 count rate
C_Uncertainty	EPOCH C_Bins_Low_Energy	[16]	Uncertainty in carbon flux
C_Rate	EPOCH C_Bins_Low_Energy	[16]	Carbon count rate
N_Uncertainty	EPOCH N_Bins_Low_Energy	[16]	Uncertainty in nitrogen flux
N_Rate	EPOCH N_Bins_Low_Energy	[16]	Nitrogen count rate
O_Uncertainty	EPOCH O_Bins_Low_Energy	[16]	Uncertainty in oxygen flux
O_Rate	EPOCH O_Bins_Low_Energy	[16]	Oxygen count rate
Ne_Uncertainty	EPOCH Ne_Bins_Low_Energy	[16]	Uncertainty in neon flux
Ne_Rate	EPOCH Ne_Bins_Low_Energy	[16]	Neon count rate
Mg_Uncertainty	EPOCH Mg_Bins_Low_Energy	[16]	Uncertainty in magnesium flux
Mg_Rate	EPOCH Mg_Bins_Low_Energy	[16]	Magnesium count rate
Si_Uncertainty	EPOCH Si_Bins_Low_Energy	[17]	Uncertainty in silicon flux
Si_Rate	EPOCH Si_Bins_Low_Energy	[17]	Silicon count rate
S_Uncertainty	EPOCH S_Bins_Low_Energy	[17]	Uncertainty in sulfur flux
S_Rate	EPOCH S_Bins_Low_Energy	[17]	Sulfur count rate
Ca_Uncertainty	EPOCH Ca_Bins_Low_Energy	[16]	Uncertainty in calcium flux
Ca_Rate	EPOCH Ca_Bins_Low_Energy	[16]	Calcium count rate
Fe_Uncertainty	EPOCH Fe_Bins_Low_Energy	[15]	Uncertainty in iron flux
Fe_Rate	EPOCH Fe_Bins_Low_Energy	[15]	Iron count rate
H_Bins_Low_Energy		[11]	Lowest energy of each bin for hydrogen
H_Bins_Width		[11]	Width of each energy bin for hydrogen
H_Bins_Text		[11]	Text description of each energy bin for hydrogen
He3_Bins_Low_Energy		[12]	Lowest energy of each bin for helium-3

Name	Depend	Dims.	Description
He3_Bins_Width		[12]	Width of each energy bin for helium-3
He3_Bins_Text		[12]	Text description of each energy bin for helium-3
He4_Bins_Low_Energy		[13]	Lowest energy of each bin for helium-4
He4_Bins_Width		[13]	Width of each energy bin for helium-4
He4_Bins_Text		[13]	Text description of each energy bin for helium-4
C_Bins_Low_Energy		[16]	Lowest energy of each bin for carbon
C_Bins_Width		[16]	Width of each energy bin for carbon
C_Bins_Text		[16]	Text description of each energy bin for carbon
N_Bins_Low_Energy		[16]	Lowest energy of each bin for nitrogen
N_Bins_Width		[16]	Width of each energy bin for nitrogen
N_Bins_Text		[16]	Text description of each energy bin for nitrogen
O_Bins_Low_Energy		[16]	Lowest energy of each bin for oxygen
O_Bins_Width		[16]	Width of each energy bin for oxygen
O_Bins_Text		[16]	Text description of each energy bin for oxygen
Ne_Bins_Low_Energy		[16]	Lowest energy of each bin for neon
Ne_Bins_Width		[16]	Width of each energy bin for neon
Ne_Bins_Text		[16]	Text description of each energy bin for neon
Mg_Bins_Low_Energy		[16]	Lowest energy of each bin for magnesium
Mg_Bins_Width		[16]	Width of each energy bin for magnesium
Mg_Bins_Text		[16]	Text description of each energy bin for magnesium
Si_Bins_Low_Energy		[17]	Lowest energy of each bin for silicon
Si_Bins_Width		[17]	Width of each energy bin for silicon
Si_Bins_Text		[17]	Text description of each energy bin for silicon
S_Bins_Low_Energy		[17]	Lowest energy of each bin for sulfur
S_Bins_Width		[17]	Width of each energy bin for sulfur
S_Bins_Text		[17]	Text description of each energy bin for sulfur
Ca_Bins_Low_Energy		[16]	Lowest energy of each bin for calcium
Ca_Bins_Width		[16]	Width of each energy bin for calcium
Ca_Bins_Text		[16]	Text description of each energy bin for calcium
Fe_Bins_Low_Energy		[15]	Lowest energy of each bin for iron
Fe_Bins_Width		[15]	Width of each energy bin for iron
Fe_Bins_Text		[15]	Text description of each energy bin for iron
XYZ		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
XYZ_Labels		[3]	Labels for vector components in spacecraft XYZ coordinates

4.1.3.20 SIS B L2 Rates slow

Description: SIS B Level 2 particle rates with slow cadence

Descriptor: epd-sis-b-rates-slow

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-sis-b-rates-slow

Associated calibration set: solo_CAL_epd-sis-b-rates

Expected cadence and dataset volume: Daily files (∼25 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-SIS-B-RATES-SLOW>Energetic Particle Detector, Suprathermal Ion Spectrograph, B Telescope, Particle rates, slow cadence
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-sis-b-rates-slow
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, Suprathermal Ion Spectrograph, B Telescope, Particle rates, slow cadence
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES-SLOW>Particle rates, slow cadence
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Variables

Variables coincide with those of SIS A L2 Rates slow

4.1.3.21 SIS A L2 Rates fast

Description: SIS A Level 2 particle rates with fast cadence

Descriptor: epd-sis-a-rates-fast

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-sis-a-rates-fast

Associated calibration set: solo_CAL_epd-sis-a-rates

Expected cadence and dataset volume: One file per burst period

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-SIS-A-RATES-FAST>Energetic Particle Detector, Suprathermal Ion Spectrograph, A Telescope, Particle rates, fast cadence
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-sis-a-rates-fast
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, Suprathermal Ion Spectrograph, A Telescope, Particle rates, fast cadence
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES-FAST>Particle rates, fast cadence
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
H_Flux	EPOCH H_Bins_Low_Energy	[12]	Hydrogen flux
He3_Flux	EPOCH He3_Bins_Low_Energy	[14]	Helium-3 flux
He4_Flux	EPOCH He4_Bins_Low_Energy	[14]	Helium-4 flux
C_Flux	EPOCH C_Bins_Low_Energy	[16]	Carbon flux
N_Flux	EPOCH N_Bins_Low_Energy	[16]	Nitrogen flux
O_Flux	EPOCH O_Bins_Low_Energy	[16]	Oxygen flux
Ne_Flux	EPOCH Ne_Bins_Low_Energy	[16]	Neon flux
Mg_Flux	EPOCH Mg_Bins_Low_Energy	[16]	Magnesium flux
Si_Flux	EPOCH Si_Bins_Low_Energy	[17]	Silicon flux
S_Flux	EPOCH S_Bins_Low_Energy	[17]	Sulfur flux
Ca_Flux	EPOCH Ca_Bins_Low_Energy	[16]	Calcium flux
Fe_Flux	EPOCH Fe_Bins_Low_Energy	[15]	Iron flux

Epoch variables

Name	Cadence
EPOCH	3 seconds
EPOCH_1	60 seconds
EPOCH_2	1 hour

Support variables

Name	Depend	Dims.	Description
DELTA_EPOCH	EPOCH	[]	Accumulation period in seconds
H_Uncertainty	EPOCH H_Bins_Low_Energy	[12]	Uncertainty in hydrogen flux
H_Rate	EPOCH H_Bins_Low_Energy	[12]	Hydrogen count rate
He3_Uncertainty	EPOCH He3_Bins_Low_Energy	[14]	Uncertainty in helium-3 flux
He3_Rate	EPOCH He3_Bins_Low_Energy	[14]	Helium-3 count rate

Name	Depend	Dims.	Description
He4_Uncertainty	EPOCH He4_Bins_Low_Energy	[14]	Uncertainty in helium-4 flux
He4_Rate	EPOCH He4_Bins_Low_Energy	[14]	Helium-4 count rate
C_Uncertainty	EPOCH C_Bins_Low_Energy	[16]	Uncertainty in carbon flux
C_Rate	EPOCH C_Bins_Low_Energy	[16]	Carbon count rate
N_Uncertainty	EPOCH N_Bins_Low_Energy	[16]	Uncertainty in nitrogen flux
N_Rate	EPOCH N_Bins_Low_Energy	[16]	Nitrogen count rate
O_Uncertainty	EPOCH O_Bins_Low_Energy	[16]	Uncertainty in oxygen flux
O_Rate	EPOCH O_Bins_Low_Energy	[16]	Oxygen count rate
Ne_Uncertainty	EPOCH Ne_Bins_Low_Energy	[16]	Uncertainty in neon flux
Ne_Rate	EPOCH Ne_Bins_Low_Energy	[16]	Neon count rate
Mg_Uncertainty	EPOCH Mg_Bins_Low_Energy	[16]	Uncertainty in magnesium flux
Mg_Rate	EPOCH Mg_Bins_Low_Energy	[16]	Magnesium count rate
Si_Uncertainty	EPOCH Si_Bins_Low_Energy	[17]	Uncertainty in silicon flux
Si_Rate	EPOCH Si_Bins_Low_Energy	[17]	Silicon count rate
S_Uncertainty	EPOCH S_Bins_Low_Energy	[17]	Uncertainty in sulfur flux
S_Rate	EPOCH S_Bins_Low_Energy	[17]	Sulfur count rate
Ca_Uncertainty	EPOCH Ca_Bins_Low_Energy	[16]	Uncertainty in calcium flux
Ca_Rate	EPOCH Ca_Bins_Low_Energy	[16]	Calcium count rate
Fe_Uncertainty	EPOCH Fe_Bins_Low_Energy	[15]	Uncertainty in iron flux
Fe_Rate	EPOCH Fe_Bins_Low_Energy	[15]	Iron count rate
H_Bins_Low_Energy		[12]	Lowest energy of each bin for hydrogen
H_Bins_Width		[12]	Width of each energy bin for hydrogen
H_Bins_Text		[12]	Text description of each energy bin for hydrogen
He3_Bins_Low_Energy		[14]	Lowest energy of each bin for helium-3

Name	Depend	Dims.	Description
He3_Bins_Width		[14]	Width of each energy bin for helium-3
He3_Bins_Text		[14]	Text description of each energy bin for helium-3
He4_Bins_Low_Energy		[14]	Lowest energy of each bin for helium-4
He4_Bins_Width		[14]	Width of each energy bin for helium-4
He4_Bins_Text		[14]	Text description of each energy bin for helium-4
C_Bins_Low_Energy		[16]	Lowest energy of each bin for carbon
C_Bins_Width		[16]	Width of each energy bin for carbon
C_Bins_Text		[16]	Text description of each energy bin for carbon
N_Bins_Low_Energy		[16]	Lowest energy of each bin for nitrogen
N_Bins_Width		[16]	Width of each energy bin for nitrogen
N_Bins_Text		[16]	Text description of each energy bin for nitrogen
O_Bins_Low_Energy		[16]	Lowest energy of each bin for oxygen
O_Bins_Width		[16]	Width of each energy bin for oxygen
O_Bins_Text		[16]	Text description of each energy bin for oxygen
Ne_Bins_Low_Energy		[16]	Lowest energy of each bin for neon
Ne_Bins_Width		[16]	Width of each energy bin for neon
Ne_Bins_Text		[16]	Text description of each energy bin for neon
Mg_Bins_Low_Energy		[16]	Lowest energy of each bin for magnesium
Mg_Bins_Width		[16]	Width of each energy bin for magnesium
Mg_Bins_Text		[16]	Text description of each energy bin for magnesium
Si_Bins_Low_Energy		[17]	Lowest energy of each bin for silicon
Si_Bins_Width		[17]	Width of each energy bin for silicon
Si_Bins_Text		[17]	Text description of each energy bin for silicon
S_Bins_Low_Energy		[17]	Lowest energy of each bin for sulfur
S_Bins_Width		[17]	Width of each energy bin for sulfur
S_Bins_Text		[17]	Text description of each energy bin for sulfur
Ca_Bins_Low_Energy		[16]	Lowest energy of each bin for calcium
Ca_Bins_Width		[16]	Width of each energy bin for calcium
Ca_Bins_Text		[16]	Text description of each energy bin for calcium
Fe_Bins_Low_Energy		[15]	Lowest energy of each bin for iron
Fe_Bins_Width		[15]	Width of each energy bin for iron
Fe_Bins_Text		[15]	Text description of each energy bin for iron
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
XYZ_Labels		[3]	Labels for vector components in spacecraft XYZ coordinates

4.1.3.22 SIS B L2 Rates fast

Description: SIS B Level 2 particle rates with fast cadence

Descriptor: epd-sis-b-rates-fast

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-sis-b-rates-fast

Associated calibration set: solo_CAL_epd-sis-b-rates

Expected cadence and dataset volume: One file per burst period

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-SIS-B-RATES-FAST>Energetic Particle Detector, Suprathermal Ion Spectrograph, B Telescope, Particle rates, fast cadence
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-sis-b-rates-fast
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, Suprathermal Ion Spectrograph, B Telescope, Particle rates, fast cadence
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES-FAST>Particle rates, fast cadence
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Variables

Variables coincide with those of SIS A L2 Rates fast

4.1.3.23 SIS A L2 Helium Histogram

Description: SIS A Level 2 helium histogram

Descriptor: epd-sis-a-hehist

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-sis-a-hehist

Associated calibration set: solo_CAL_epd-sis-a-rates

Expected cadence and dataset volume: Daily files (∼6 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-SIS-A-HEHIST>Energetic Particle Detector, Suprathermal Ion Spectrograph, A Telescope, Helium histogram
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-sis-a-hehist
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, Suprathermal Ion Spectrograph, A Telescope, Helium histogram
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	HEHIST>Helium histogram
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Data variables

Name	Depend	Dims.	Description
He_Histogram	EPOCH Mass_Bins	[80]	Helium mass histogram. Detected counts per mass bin for particles in the energy range 0.5 - 2 MeV/n.

Epoch variables

Name	Cadence
EPOCH	30 minutes

Support variables

Name	Depend	Dims.	Description
DELTA_EPOCH	EPOCH	[]	Accumulation period in seconds
Mass_Bins		[80]	Lowest mass value for each bin
Mass_Bins_Width		[80]	Width of each mass bin
XYZ		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates
QUALITY_FLAG	EPOCH	[]	Data quality flag
QUALITY_BITMASK	EPOCH	[]	Computer readable quality parameter
XYZ_Labels		[3]	Labels for vector components in spacecraft XYZ coordinates

4.1.3.24 SIS B L2 Helium Histogram

Description: SIS B Level 2 helium histogram

Descriptor: epd-sis-b-hehist

Free field: None

Level: L2

Dataset dependencies: solo_L1_epd-sis-b-hehist

Associated calibration set: solo_CAL_epd-sis-b-rates

Expected cadence and dataset volume: Daily files (∼6 kB/file)

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	L2>Level 2 Data
Descriptor	EPD-SIS-B-HEHIST>Energetic Particle Detector, Suprathermal Ion Spectrograph, B Telescope, Helium histogram
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_L2_epd-sis-b-hehist
Logical_source_description	Solar Orbiter, Level 2 Data, Energetic Particle Detector, Suprathermal Ion Spectrograph, B Telescope, Helium histogram
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	HEHIST>Helium histogram
LEVEL	L2>Level 2 Data
SOOP_TYPE	***SOOP type***
OBS_ID	***Observation ID***
TARGET_NAME	Sun
TARGET_CLASS	interplanetary_medium
TARGET_REGION	heliosphere
TIME_MIN	***Julian date (start)***
TIME_MAX	***Julian date (end)***

Variables

Variables coincide with those of SIS A L2 Helium Histogram

4.1.4 CAL - Calibration data products

4.1.4.1 STEP CAL Main

Description: STEP main product calibration file

Descriptor: epd-step-main

Free field: None

Level: CAL

Dataset dependencies:

Associated calibration set: N/A

Expected cadence and dataset volume: Single file, updated only when a new calibration is available

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	CAL>Calibration Data
Descriptor	EPD-STEP-MAIN>Energetic Particle Detector, SupraThermal Electrons and Protons, Main product
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (space)
Mission_group	Solar Orbiter
Logical_source	solo_CAL_epd-step-main
Logical_source_description	Solar Orbiter, Calibration Data, Energetic Particle Detector, SupraThermal Electrons and Protons, Main product
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	MAIN>Main product
LEVEL	CAL>Calibration Data

Variables

Name	Depend	Dims.	Description
STEP_M_0_00_GF	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 0 (background) Geometric factor
STEP_M_0_00_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 0 (background) Bins Low Energy

Name	Depend	Dims.	Description
STEP_M_0_00_Bins_Width	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 0 (background) Bins Width
STEP_M_0_01_GF	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 1 Geometric factor
STEP_M_0_01_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 1 Bins Low Energy
STEP_M_0_01_Bins_Width	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 1 Bins Width
STEP_M_0_02_GF	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 2 Geometric factor
STEP_M_0_02_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 2 Bins Low Energy
STEP_M_0_02_Bins_Width	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 2 Bins Width
STEP_M_0_03_GF	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 3 Geometric factor
STEP_M_0_03_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 3 Bins Low Energy
STEP_M_0_03_Bins_Width	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 3 Bins Width
STEP_M_0_04_GF	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 4 Geometric factor
STEP_M_0_04_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 4 Bins Low Energy
STEP_M_0_04_Bins_Width	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 4 Bins Width
STEP_M_0_05_GF	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 5 Geometric factor
STEP_M_0_05_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 5 Bins Low Energy
STEP_M_0_05_Bins_Width	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 5 Bins Width

Name	Depend	Dims.	Description
STEP_M_0_06_GF	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 6 Geometric factor
STEP_M_0_06_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 6 Bins Low Energy
STEP_M_0_06_Bins_Width	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 6 Bins Width
STEP_M_0_07_GF	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 7 Geometric factor
STEP_M_0_07_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 7 Bins Low Energy
STEP_M_0_07_Bins_Width	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 7 Bins Width
STEP_M_0_08_GF	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 8 Geometric factor
STEP_M_0_08_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 8 Bins Low Energy
STEP_M_0_08_Bins_Width	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 8 Bins Width
STEP_M_0_09_GF	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 9 Geometric factor
STEP_M_0_09_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 9 Bins Low Energy
STEP_M_0_09_Bins_Width	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 9 Bins Width
STEP_M_0_10_GF	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 10 Geometric factor
STEP_M_0_10_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 10 Bins Low Energy
STEP_M_0_10_Bins_Width	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 10 Bins Width
STEP_M_0_11_GF	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 11 Geometric factor

Name	Depend	Dims.	Description
STEP_M_0_11_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 11 Bins Low Energy
STEP_M_0_11_Bins_Width	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 11 Bins Width
STEP_M_0_12_GF	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 12 Geometric factor
STEP_M_0_12_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 12 Bins Low Energy
STEP_M_0_12_Bins_Width	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 12 Bins Width
STEP_M_0_13_GF	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 13 Geometric factor
STEP_M_0_13_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 13 Bins Low Energy
STEP_M_0_13_Bins_Width	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 13 Bins Width
STEP_M_0_14_GF	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 14 Geometric factor
STEP_M_0_14_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 14 Bins Low Energy
STEP_M_0_14_Bins_Width	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 14 Bins Width
STEP_M_0_15_GF	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 15 Geometric factor
STEP_M_0_15_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 15 Bins Low Energy
STEP_M_0_15_Bins_Width	OBS_MODE SPECIES_INT BINS_32	[2, 3, 32]	STEP main product integral pixel 15 Bins Width
STEP_M_1_00_GF	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 0 (background) Geometric factor
STEP_M_1_00_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 0 (background) Bins Low Energy

Name	Depend	Dims.	Description
STEP_M_1_00_Bins_Width	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 0 (background) Bins Width
STEP_M_1_01_GF	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 1 Geometric factor
STEP_M_1_01_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 1 Bins Low Energy
STEP_M_1_01_Bins_Width	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 1 Bins Width
STEP_M_1_02_GF	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 2 Geometric factor
STEP_M_1_02_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 2 Bins Low Energy
STEP_M_1_02_Bins_Width	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 2 Bins Width
STEP_M_1_03_GF	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 3 Geometric factor
STEP_M_1_03_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 3 Bins Low Energy
STEP_M_1_03_Bins_Width	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 3 Bins Width
STEP_M_1_04_GF	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 4 Geometric factor
STEP_M_1_04_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 4 Bins Low Energy
STEP_M_1_04_Bins_Width	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 4 Bins Width
STEP_M_1_05_GF	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 5 Geometric factor
STEP_M_1_05_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 5 Bins Low Energy
STEP_M_1_05_Bins_Width	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 5 Bins Width

Name	Depend	Dims.	Description
STEP_M_1_06_GF	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 6 Geometric factor
STEP_M_1_06_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 6 Bins Low Energy
STEP_M_1_06_Bins_Width	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 6 Bins Width
STEP_M_1_07_GF	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 7 Geometric factor
STEP_M_1_07_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 7 Bins Low Energy
STEP_M_1_07_Bins_Width	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 7 Bins Width
STEP_M_1_08_GF	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 8 Geometric factor
STEP_M_1_08_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 8 Bins Low Energy
STEP_M_1_08_Bins_Width	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 8 Bins Width
STEP_M_1_09_GF	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 9 Geometric factor
STEP_M_1_09_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 9 Bins Low Energy
STEP_M_1_09_Bins_Width	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 9 Bins Width
STEP_M_1_10_GF	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 10 Geometric factor
STEP_M_1_10_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 10 Bins Low Energy
STEP_M_1_10_Bins_Width	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 10 Bins Width
STEP_M_1_11_GF	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 11 Geometric factor

Name	Depend	Dims.	Description
STEP_M_1_11_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 11 Bins Low Energy
STEP_M_1_11_Bins_Width	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 11 Bins Width
STEP_M_1_12_GF	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 12 Geometric factor
STEP_M_1_12_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 12 Bins Low Energy
STEP_M_1_12_Bins_Width	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 12 Bins Width
STEP_M_1_13_GF	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 13 Geometric factor
STEP_M_1_13_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 13 Bins Low Energy
STEP_M_1_13_Bins_Width	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 13 Bins Width
STEP_M_1_14_GF	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 14 Geometric factor
STEP_M_1_14_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 14 Bins Low Energy
STEP_M_1_14_Bins_Width	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 14 Bins Width
STEP_M_1_15_GF	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 15 Geometric factor
STEP_M_1_15_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 15 Bins Low Energy
STEP_M_1_15_Bins_Width	OBS_MODE SPECIES_MAG BINS_32	[2, 3, 32]	STEP main product magnet pixel 15 Bins Width
BINS_32		[32]	Energy bin number for 32 bins
SPECIES_INT		[3]	Species
SPECIES_MAG		[3]	Species
OBS_MODE		[2]	Observing mode
PIXELS_ALL		[15]	Pixel labels for all pixels

Name	Depend	Dims.	Description
XYZ		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates)
XYZ_Labels		[3]	Labels for vector components in spacecraft XYZ coordinates
XYZ_Pixels	PIXELS_ALL	[15, 3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates)
XYZ_Small_Pixels	PIXELS_ALL	[15, 3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates)
ENERGY		[400]	Incident energy
STEP_M_0_00_Response	ENERGY OBS_MODE SPECIES_INT BINS_32	[400, 2, 3, 32]	STEP main product integral pixel 0 (background) Energy response
STEP_M_0_01_Response	ENERGY OBS_MODE SPECIES_INT BINS_32	[400, 2, 3, 32]	STEP main product integral pixel 1 Energy response
STEP_M_0_02_Response	ENERGY OBS_MODE SPECIES_INT BINS_32	[400, 2, 3, 32]	STEP main product integral pixel 2 Energy response
STEP_M_0_03_Response	ENERGY OBS_MODE SPECIES_INT BINS_32	[400, 2, 3, 32]	STEP main product integral pixel 3 Energy response
STEP_M_0_04_Response	ENERGY OBS_MODE SPECIES_INT BINS_32	[400, 2, 3, 32]	STEP main product integral pixel 4 Energy response
STEP_M_0_05_Response	ENERGY OBS_MODE SPECIES_INT BINS_32	[400, 2, 3, 32]	STEP main product integral pixel 5 Energy response
STEP_M_0_06_Response	ENERGY OBS_MODE SPECIES_INT BINS_32	[400, 2, 3, 32]	STEP main product integral pixel 6 Energy response
STEP_M_0_07_Response	ENERGY OBS_MODE SPECIES_INT BINS_32	[400, 2, 3, 32]	STEP main product integral pixel 7 Energy response
STEP_M_0_08_Response	ENERGY OBS_MODE SPECIES_INT BINS_32	[400, 2, 3, 32]	STEP main product integral pixel 8 Energy response
STEP_M_0_09_Response	ENERGY OBS_MODE SPECIES_INT BINS_32	[400, 2, 3, 32]	STEP main product integral pixel 9 Energy response

Name	Depend	Dims.	Description
STEP_M_0_10_Response	ENERGY OBS_MODE SPECIES_INT BINS_32	[400, 2, 3, 32]	STEP main product integral pixel 10 Energy response
STEP_M_0_11_Response	ENERGY OBS_MODE SPECIES_INT BINS_32	[400, 2, 3, 32]	STEP main product integral pixel 11 Energy response
STEP_M_0_12_Response	ENERGY OBS_MODE SPECIES_INT BINS_32	[400, 2, 3, 32]	STEP main product integral pixel 12 Energy response
STEP_M_0_13_Response	ENERGY OBS_MODE SPECIES_INT BINS_32	[400, 2, 3, 32]	STEP main product integral pixel 13 Energy response
STEP_M_0_14_Response	ENERGY OBS_MODE SPECIES_INT BINS_32	[400, 2, 3, 32]	STEP main product integral pixel 14 Energy response
STEP_M_0_15_Response	ENERGY OBS_MODE SPECIES_INT BINS_32	[400, 2, 3, 32]	STEP main product integral pixel 15 Energy response
STEP_M_1_00_Response	ENERGY OBS_MODE SPECIES_MAG BINS_32	[400, 2, 3, 32]	STEP main product magnet pixel 0 (background) Energy response
STEP_M_1_01_Response	ENERGY OBS_MODE SPECIES_MAG BINS_32	[400, 2, 3, 32]	STEP main product magnet pixel 1 Energy response
STEP_M_1_02_Response	ENERGY OBS_MODE SPECIES_MAG BINS_32	[400, 2, 3, 32]	STEP main product magnet pixel 2 Energy response
STEP_M_1_03_Response	ENERGY OBS_MODE SPECIES_MAG BINS_32	[400, 2, 3, 32]	STEP main product magnet pixel 3 Energy response
STEP_M_1_04_Response	ENERGY OBS_MODE SPECIES_MAG BINS_32	[400, 2, 3, 32]	STEP main product magnet pixel 4 Energy response
STEP_M_1_05_Response	ENERGY OBS_MODE SPECIES_MAG BINS_32	[400, 2, 3, 32]	STEP main product magnet pixel 5 Energy response
STEP_M_1_06_Response	ENERGY OBS_MODE SPECIES_MAG BINS_32	[400, 2, 3, 32]	STEP main product magnet pixel 6 Energy response

Name	Depend	Dims.	Description
STEP_M_1_07_Response	ENERGY OBS_MODE SPECIES_MAG BINS_32	[400, 2, 3, 32]	STEP main product magnet pixel 7 Energy response
STEP_M_1_08_Response	ENERGY OBS_MODE SPECIES_MAG BINS_32	[400, 2, 3, 32]	STEP main product magnet pixel 8 Energy response
STEP_M_1_09_Response	ENERGY OBS_MODE SPECIES_MAG BINS_32	[400, 2, 3, 32]	STEP main product magnet pixel 9 Energy response
STEP_M_1_10_Response	ENERGY OBS_MODE SPECIES_MAG BINS_32	[400, 2, 3, 32]	STEP main product magnet pixel 10 Energy response
STEP_M_1_11_Response	ENERGY OBS_MODE SPECIES_MAG BINS_32	[400, 2, 3, 32]	STEP main product magnet pixel 11 Energy response
STEP_M_1_12_Response	ENERGY OBS_MODE SPECIES_MAG BINS_32	[400, 2, 3, 32]	STEP main product magnet pixel 12 Energy response
STEP_M_1_13_Response	ENERGY OBS_MODE SPECIES_MAG BINS_32	[400, 2, 3, 32]	STEP main product magnet pixel 13 Energy response
STEP_M_1_14_Response	ENERGY OBS_MODE SPECIES_MAG BINS_32	[400, 2, 3, 32]	STEP main product magnet pixel 14 Energy response
STEP_M_1_15_Response	ENERGY OBS_MODE SPECIES_MAG BINS_32	[400, 2, 3, 32]	STEP main product magnet pixel 15 Energy response
PHI		[32]	Azimuthal angle in spacecraft reference frame
THETA		[64]	Latitudinal angle in spacecraft reference frame
ANGULAR_RESPONSE	PHI THETA OBS_MODE PIXELS_ALL	[32, 64, 2, 15]	Normalised angular response per unit solid angle

4.1.4.2 STEP CAL Nominal

Description: STEP nominal product calibration file

Descriptor: epd-step-nom

Free field: None

Level: CAL

Dataset dependencies:

Associated calibration set: N/A

Expected cadence and dataset volume: Single file, updated only when a new calibration is available

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	CAL>Calibration Data
Descriptor	EPD-STEP-NOM>Energetic Particle Detector, SupraThermal Electrons and Protons, Nominal product
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_CAL_epd-step-nom
Logical_source_description	Solar Orbiter, Calibration Data, Energetic Particle Detector, SupraThermal Electrons and Protons, Nominal product
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	NOM>Nominal product
Level	CAL>Calibration Data

Variables

Name	Depend	Dims.	Description
NO_STEP_BASIC_INT_GF	OBS_MODE SPECIES_INT BINS_8 PIXELS_ALL_BKGND	[2, 7, 8, 16]	Integral pixels Geometric factor
NO_STEP_BASIC_INT_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_8 PIXELS_ALL_BKGND	[2, 7, 8, 16]	Integral pixels Bins Low Energy

Name	Depend	Dims.	Description
NO_STEP_BASIC_INT_Bins_Width	OBS_MODE SPECIES_INT BINS_8 PIXELS_ALL_BKGND	[2, 7, 8, 16]	Integral pixels Bins Width
NO_STEP_BASIC_MAG_GF	OBS_MODE SPECIES_MAG BINS_8 PIXELS_ALL_BKGND	[2, 6, 8, 16]	Magnet pixels Geometric factor
NO_STEP_BASIC_MAG_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_8 PIXELS_ALL_BKGND	[2, 6, 8, 16]	Magnet pixels Bins Low Energy
NO_STEP_BASIC_MAG_Bins_Width	OBS_MODE SPECIES_MAG BINS_8 PIXELS_ALL_BKGND	[2, 6, 8, 16]	Magnet pixels Bins Width
NO_STEP_TRES_ROWS_INT_GF	OBS_MODE SPECIES_INT BINS_4 PIXELS_ROWS	[2, 7, 4, 3]	Integral rows Geometric factor
NO_STEP_TRES_ROWS_INT_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_4 PIXELS_ROWS	[2, 7, 4, 3]	Integral rows Bins Low Energy
NO_STEP_TRES_ROWS_INT_Bins_Width	OBS_MODE SPECIES_INT BINS_4 PIXELS_ROWS	[2, 7, 4, 3]	Integral rows Bins Width
NO_STEP_TRES_ROWS_MAG_GF	OBS_MODE SPECIES_MAG BINS_4 PIXELS_ROWS	[2, 6, 4, 3]	Magnet rows Geometric factor
NO_STEP_TRES_ROWS_MAG_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_4 PIXELS_ROWS	[2, 6, 4, 3]	Magnet rows Bins Low Energy
NO_STEP_TRES_ROWS_MAG_Bins_Width	OBS_MODE SPECIES_MAG BINS_4 PIXELS_ROWS	[2, 6, 4, 3]	Magnet rows Bins Width
NO_STEP_TRES_COLS_INT_GF	OBS_MODE SPECIES_INT BINS_4 PIXELS_COLS	[2, 7, 4, 5]	Integral columns Geometric factor
NO_STEP_TRES_COLS_INT_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_4 PIXELS_COLS	[2, 7, 4, 5]	Integral columns Bins Low Energy
NO_STEP_TRES_COLS_INT_Bins_Width	OBS_MODE SPECIES_INT BINS_4 PIXELS_COLS	[2, 7, 4, 5]	Integral columns Bins Width

Name	Depend	Dims.	Description
NO_STEP_TRES_COLS_MAG_GF	OBS_MODE SPECIES_MAG BINS_4 PIXELS_COLS	[2, 6, 4, 5]	Magnet columns Geometric factor
NO_STEP_TRES_COLS_MAG_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_4 PIXELS_COLS	[2, 6, 4, 5]	Magnet columns Bins Low Energy
NO_STEP_TRES_COLS_MAG_Bins_Width	OBS_MODE SPECIES_MAG BINS_4 PIXELS_COLS	[2, 6, 4, 5]	Magnet columns Bins Width
NO_STEP_TRES_BKGND_INT_GF	OBS_MODE SPECIES_INT_BG BINS_4	[2, 1, 4]	Integral background Geometric factor
NO_STEP_TRES_BKGND_INT_Bins_Low_Energy	OBS_MODE SPECIES_INT_BG BINS_4	[2, 1, 4]	Integral background Bins Low Energy
NO_STEP_TRES_BKGND_INT_Bins_Width	OBS_MODE SPECIES_INT_BG BINS_4	[2, 1, 4]	Integral background Bins Width
NO_STEP_TRES_BKGND_MAG_GF	OBS_MODE SPECIES_MAG_BG BINS_4	[2, 1, 4]	Magnet background Geometric factor
NO_STEP_TRES_BKGND_MAG_Bins_Low_Energy	OBS_MODE SPECIES_MAG_BG BINS_4	[2, 1, 4]	Magnet background Bins Low Energy
NO_STEP_TRES_BKGND_MAG_Bins_Width	OBS_MODE SPECIES_MAG_BG BINS_4	[2, 1, 4]	Magnet background Bins Width
NO_STEP_ERES_INT_GF	OBS_MODE SPECIES_INT BINS_48	[2, 7, 48]	Integral Geometric factor
NO_STEP_ERES_INT_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_48	[2, 7, 48]	Integral Bins Low Energy
NO_STEP_ERES_INT_Bins_Width	OBS_MODE SPECIES_INT BINS_48	[2, 7, 48]	Integral Bins Width
NO_STEP_ERES_MAG_GF	OBS_MODE SPECIES_MAG BINS_48	[2, 6, 48]	Magnet Geometric factor
NO_STEP_ERES_MAG_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_48	[2, 6, 48]	Magnet Bins Low Energy
NO_STEP_ERES_MAG_Bins_Width	OBS_MODE SPECIES_MAG BINS_48	[2, 6, 48]	Magnet Bins Width
BINS_8		[8]	Energy bin number for 8 bins

Name	Depend	Dims.	Description
BINS_4		[4]	Energy bin number for 4 bins
BINS_48		[48]	Energy bin number for 48 bins
PIXELS_ALL_BKGND		[16]	Pixel labels for all pixels including background pixel
PIXELS_ROWS		[3]	Pixel label combinations for rows
PIXELS_COLS		[5]	Pixel label combinations for columns
PIXELS_ALL		[15]	Pixel labels for all pixels
SPECIES_INT		[7]	Species
SPECIES_MAG		[6]	Species
SPECIES_INT_BG		[1]	Species
SPECIES_MAG_BG		[1]	Species
OBS_MODE		[2]	Observing mode
XYZ		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates)
XYZ_Labels		[3]	Labels for vector components in spacecraft XYZ coordinates
XYZ_Pixels	PIXELS_ALL	[15, 3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates)
XYZ_Small_Pixels	PIXELS_ALL	[15, 3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates)
ENERGY		[400]	Incident energy
NO_STEP_BASIC_INT_Response	ENERGY OBS_MODE SPECIES_INT BINS_8 PIXELS_ALL_BKGND	[400, 2, 7, 8, 16]	Integral pixels Energy response

Name	Depend	Dims.	Description
NO_STEP_BASIC_MAG_Response	ENERGY OBS_MODE SPECIES_MAG BINS_8 PIXELS_ALL_BKGND	[400, 2, 6, 8, 16]	Magnet pixels Energy response
NO_STEP_TRES_ROWS_INT_Response	ENERGY OBS_MODE SPECIES_INT BINS_4 PIXELS_ROWS	[400, 2, 7, 4, 3]	Integral rows Energy response
NO_STEP_TRES_ROWS_MAG_Response	ENERGY OBS_MODE SPECIES_MAG BINS_4 PIXELS_ROWS	[400, 2, 6, 4, 3]	Magnet rows Energy response
NO_STEP_TRES_COLS_INT_Response	ENERGY OBS_MODE SPECIES_INT BINS_4 PIXELS_COLS	[400, 2, 7, 4, 5]	Integral columns Energy response
NO_STEP_TRES_COLS_MAG_Response	ENERGY OBS_MODE SPECIES_MAG BINS_4 PIXELS_COLS	[400, 2, 6, 4, 5]	Magnet columns Energy response
NO_STEP_ERES_INT_Response	ENERGY OBS_MODE SPECIES_INT BINS_48	[400, 2, 7, 48]	Integral Energy response
NO_STEP_ERES_MAG_Response	ENERGY OBS_MODE SPECIES_MAG BINS_48	[400, 2, 6, 48]	Magnet Energy response
PHI		[32]	Azimuthal angle in spacecraft reference frame
THETA		[64]	Latitudinal angle in spacecraft reference frame
ANGULAR_RESPONSE	PHI THETA OBS_MODE PIXELS_ALL	[32, 64, 2, 15]	Normalised angular response per unit solid angle

4.1.4.3 STEP CAL Burst1

Description: STEP burst product calibration file

Descriptor: epd-step-burst1

Free field: None

Level: CAL

Dataset dependencies:

Associated calibration set: N/A

Expected cadence and dataset volume: Single file, updated only when a new calibration is available

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	CAL>Calibration Data
Descriptor	EPD-STEP-BURST1>Energetic Particle Detector, SupraThermal Electrons and Protons, Burst product 1
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_CAL_epd-step-burst1
Logical_source_description	Solar Orbiter, Calibration Data, Energetic Particle Detector, SupraThermal Electrons and Protons, Burst product 1
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	BURST1>Burst product 1
LEVEL	CAL>Calibration Data

Variables

Name	Depend	Dims.	Description
B1_STEP_BASIC_INT_GF	OBS_MODE SPECIES_INT BINS_16 PIXELS_ALL_BKGND	[2, 7, 16, 16]	Integral pixels Geometric factor
B1_STEP_BASIC_INT_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_16 PIXELS_ALL_BKGND	[2, 7, 16, 16]	Integral pixels Bins Low Energy

Name	Depend	Dims.	Description
B1_STEP_BASIC_INT_Bins_Width	OBS_MODE SPECIES_INT BINS_16 PIXELS_ALL_BKGND	[2, 7, 16, 16]	Integral pixels Bins Width
B1_STEP_BASIC_MAG_GF	OBS_MODE SPECIES_MAG BINS_16 PIXELS_ALL_BKGND	[2, 6, 16, 16]	Magnet pixels Geometric factor
B1_STEP_BASIC_MAG_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_16 PIXELS_ALL_BKGND	[2, 6, 16, 16]	Magnet pixels Bins Low Energy
B1_STEP_BASIC_MAG_Bins_Width	OBS_MODE SPECIES_MAG BINS_16 PIXELS_ALL_BKGND	[2, 6, 16, 16]	Magnet pixels Bins Width
B1_STEP_ERES_INT_GF	OBS_MODE SPECIES_INT BINS_48	[2, 7, 48]	Integral Geometric factor
B1_STEP_ERES_INT_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_48	[2, 7, 48]	Integral Bins Low Energy
B1_STEP_ERES_INT_Bins_Width	OBS_MODE SPECIES_INT BINS_48	[2, 7, 48]	Integral Bins Width
B1_STEP_ERES_MAG_GF	OBS_MODE SPECIES_MAG BINS_48	[2, 6, 48]	Magnet Geometric factor
B1_STEP_ERES_MAG_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_48	[2, 6, 48]	Magnet Bins Low Energy
B1_STEP_ERES_MAG_Bins_Width	OBS_MODE SPECIES_MAG BINS_48	[2, 6, 48]	Magnet Bins Width
BINS_16		[16]	Energy bin number for 16 bins
BINS_48		[48]	Energy bin number for 48 bins
PIXELS_ALL_BKGND		[16]	Pixel labels for all pixels including background pixel
PIXELS_ALL		[15]	Pixel labels for all pixels
SPECIES_INT		[7]	Species
SPECIES_MAG		[6]	Species
OBS_MODE		[2]	Observing mode
XYZ		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates)

Name	Depend	Dims.	Description
XYZ_Labels		[3]	Labels for vector components in spacecraft XYZ coordinates
XYZ_Pixels	PIXELS_ALL	[15, 3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates)
XYZ_Small_Pixels	PIXELS_ALL	[15, 3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates)
ENERGY		[400]	Incident energy
B1_STEP_BASIC_INT_Response	ENERGY OBS_MODE SPECIES_INT BINS_16 PIXELS_ALL_BKGND	[400, 2, 7, 16, 16]	Integral pixels Energy response
B1_STEP_BASIC_MAG_Response	ENERGY OBS_MODE SPECIES_MAG BINS_16 PIXELS_ALL_BKGND	[400, 2, 6, 16, 16]	Magnet pixels Energy response
B1_STEP_ERES_INT_Response	ENERGY OBS_MODE SPECIES_INT BINS_48	[400, 2, 7, 48]	Integral Energy response
B1_STEP_ERES_MAG_Response	ENERGY OBS_MODE SPECIES_MAG BINS_48	[400, 2, 6, 48]	Magnet Energy response
PHI		[32]	Azimuthal angle in spacecraft reference frame
THETA		[64]	Latitudinal angle in spacecraft reference frame
ANGULAR_RESPONSE	PHI THETA OBS_MODE PIXELS_ALL	[32, 64, 2, 15]	Normalised angular response per unit solid angle

4.1.4.4 STEP CAL Quicklook

Description: STEP quicklook product calibration file

Descriptor: epd-step-quicklook

Free field: None

Level: CAL

Dataset dependencies:

Associated calibration set: N/A

Expected cadence and dataset volume: Single file, updated only when a new calibration is available

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	CAL>Calibration Data
Descriptor	EPD-STEP-QUICKLOOK>Energetic Particle Detector, SupraThermal Electrons and Protons, Quicklook product
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_CAL_epd-step-quicklook
Logical_source_description	Solar Orbiter, Calibration Data, Energetic Particle Detector, SupraThermal Electrons and Protons, Quicklook product
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	QUICKLOOK>Quicklook product
Level	CAL>Calibration Data

Variables

Name	Depend	Dims.	Description
LL_STEP_ENERGY_RES_INT_GF	OBS_MODE SPECIES_INT BINS_24	[2, 7, 24]	Integral Geometric factor
LL_STEP_ENERGY_RES_INT_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_24	[2, 7, 24]	Integral Bins Low Energy

Name	Depend	Dims.	Description
LL_STEP_ENERGY_RES_INT_Bins_Width	OBS_MODE SPECIES_INT BINS_24	[2, 7, 24]	Integral Bins Width
LL_STEP_ENERGY_RES_BKGND_INT_GF	OBS_MODE SPECIES_INT_BG BINS_24	[2, 1, 24]	Integral background Geometric factor
LL_STEP_ENERGY_RES_BKGND_INT_Bins_Low_Energy	OBS_MODE SPECIES_INT_BG BINS_24	[2, 1, 24]	Integral background Bins Low Energy
LL_STEP_ENERGY_RES_BKGND_INT_Bins_Width	OBS_MODE SPECIES_INT_BG BINS_24	[2, 1, 24]	Integral background Bins Width
LL_STEP_ENERGY_RES_MAG_GF	OBS_MODE SPECIES_MAG BINS_24	[2, 6, 24]	Magnet Geometric factor
LL_STEP_ENERGY_RES_MAG_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_24	[2, 6, 24]	Magnet Bins Low Energy
LL_STEP_ENERGY_RES_MAG_Bins_Width	OBS_MODE SPECIES_MAG BINS_24	[2, 6, 24]	Magnet Bins Width
LL_STEP_ENERGY_RES_BKGND_MAG_GF	OBS_MODE SPECIES_MAG_BG BINS_24	[2, 1, 24]	Magnet bkgnd Geometric factor
LL_STEP_ENERGY_RES_BKGND_MAG_Bins_Low_Energy	OBS_MODE SPECIES_MAG_BG BINS_24	[2, 1, 24]	Magnet bkgnd Bins Low Energy
LL_STEP_ENERGY_RES_BKGND_MAG_Bins_Width	OBS_MODE SPECIES_MAG_BG BINS_24	[2, 1, 24]	Magnet bkgnd Bins Width
LL_STEP_TIME_RES_INT_GF	OBS_MODE SPECIES_INT BINS_4	[2, 7, 4]	Integral high time resolution Geometric factor
LL_STEP_TIME_RES_INT_Bins_Low_Energy	OBS_MODE SPECIES_INT BINS_4	[2, 7, 4]	Integral high time resolution Bins Low Energy
LL_STEP_TIME_RES_INT_Bins_Width	OBS_MODE SPECIES_INT BINS_4	[2, 7, 4]	Integral high time resolution Bins Width

Name	Depend	Dims.	Description
LL_STEP_TIME_RES_BKGND_INT_GF	OBS_MODE SPECIES_INT_BG BINS_4	[2, 1, 4]	Integral high time resolution background Geometric factor
LL_STEP_TIME_RES_BKGND_INT_Bins_Low_Energy	OBS_MODE SPECIES_INT_BG BINS_4	[2, 1, 4]	Integral high time resolution background Bins Low Energy
LL_STEP_TIME_RES_BKGND_INT_Bins_Width	OBS_MODE SPECIES_INT_BG BINS_4	[2, 1, 4]	Integral high time resolution background Bins Width
LL_STEP_TIME_RES_MAG_GF	OBS_MODE SPECIES_MAG BINS_4	[2, 6, 4]	Magnet high time resolution Geometric factor
LL_STEP_TIME_RES_MAG_Bins_Low_Energy	OBS_MODE SPECIES_MAG BINS_4	[2, 6, 4]	Magnet high time resolution Bins Low Energy
LL_STEP_TIME_RES_MAG_Bins_Width	OBS_MODE SPECIES_MAG BINS_4	[2, 6, 4]	Magnet high time resolution Bins Width
LL_STEP_TIME_RES_BKGND_MAG_GF	OBS_MODE SPECIES_MAG_BG BINS_4	[2, 1, 4]	Magnet high time resolution background Geometric factor
LL_STEP_TIME_RES_BKGND_MAG_Bins_Low_Energy	OBS_MODE SPECIES_MAG_BG BINS_4	[2, 1, 4]	Magnet high time resolution background Bins Low Energy
LL_STEP_TIME_RES_BKGND_MAG_Bins_Width	OBS_MODE SPECIES_MAG_BG BINS_4	[2, 1, 4]	Magnet high time resolution background Bins Width
BINS_24		[24]	Energy bin number for 24 bins

Name	Depend	Dims.	Description
BINS_4		[4]	Energy bin number for 4 bins
SPECIES_INT		[7]	Species
SPECIES_MAG		[6]	Species
SPECIES_INT_BG		[1]	Species
SPECIES_MAG_BG		[1]	Species
OBS_MODE		[2]	Observing mode
XYZ		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates)
XYZ_Labels		[3]	Labels for vector components in spacecraft XYZ coordinates
ENERGY		[400]	Incident energy
LL_STEP_ENERGY_RES_INT_Response	ENERGY OBS_MODE SPECIES_INT BINS_24	[400, 2, 7, 24]	Integral Energy response
LL_STEP_ENERGY_RES_MAG_Response	ENERGY OBS_MODE SPECIES_MAG BINS_24	[400, 2, 6, 24]	Magnet Energy response
LL_STEP_TIME_RES_INT_Response	ENERGY OBS_MODE SPECIES_INT BINS_4	[400, 2, 7, 4]	Integral high time resolution Energy response
LL_STEP_TIME_RES_MAG_Response	ENERGY OBS_MODE SPECIES_MAG BINS_4	[400, 2, 6, 4]	Magnet high time resolution Energy response

4.1.4.5 EPT-HET1 CAL Nominal

Description: EPT-HET1 nominal product calibration file

Descriptor: epd-epthet1-nom

Free field: None

Level: CAL

Dataset dependencies:

Associated calibration set: N/A

Expected cadence and dataset volume: Single file, updated only when a new calibration is available

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	CAL>Calibration Data
Descriptor	EPD-EPTHET1-NOM>Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, ecliptic unit, Nominal product
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_CAL_epd-epthet1-nom
Logical_source_description	Solar Orbiter, Calibration Data, Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, ecliptic unit, Nominal product
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	NOM>Nominal product
LEVEL	CAL>Calibration Data

Variables

Name	Depend	Dims.	Description
NO_EPT_E_S_GF	OBS_MODE SPECIES_EPT_S BINS_34	[2, 3, 34]	EPT foil, sun direction Geometric factor
NO_EPT_E_S_Bins_Low_Energy	OBS_MODE SPECIES_EPT_S BINS_34	[2, 3, 34]	EPT foil, sun direction Bins Low Energy

Name	Depend	Dims.	Description
NO_EPT_E_S_Bins_Width	OBS_MODE SPECIES_EPT_S BINS_34	[2, 3, 34]	EPT foil, sun direction Bins Width
NO_EPT_E_A_GF	OBS_MODE SPECIES_EPT_A BINS_34	[2, 3, 34]	EPT foil, antisun direction Geometric factor
NO_EPT_E_A_Bins_Low_Energy	OBS_MODE SPECIES_EPT_A BINS_34	[2, 3, 34]	EPT foil, antisun direction Bins Low Energy
NO_EPT_E_A_Bins_Width	OBS_MODE SPECIES_EPT_A BINS_34	[2, 3, 34]	EPT foil, antisun direction Bins Width
NO_EPT_T_E_S_GF	OBS_MODE SPECIES_EPT_S BINS_17	[2, 3, 17]	EPT foil high time resolution, sun direction Geometric factor
NO_EPT_T_E_S_Bins_Low_Energy	OBS_MODE SPECIES_EPT_S BINS_17	[2, 3, 17]	EPT foil high time resolution, sun direction Bins Low Energy
NO_EPT_T_E_S_Bins_Width	OBS_MODE SPECIES_EPT_S BINS_17	[2, 3, 17]	EPT foil high time resolution, sun direction Bins Width
NO_EPT_T_E_A_GF	OBS_MODE SPECIES_EPT_A BINS_17	[2, 3, 17]	EPT foil high time resolution, antisun direction Geometric factor
NO_EPT_T_E_A_Bins_Low_Energy	OBS_MODE SPECIES_EPT_A BINS_17	[2, 3, 17]	EPT foil high time resolution, antisun direction Bins Low Energy
NO_EPT_T_E_A_Bins_Width	OBS_MODE SPECIES_EPT_A BINS_17	[2, 3, 17]	EPT foil high time resolution, antisun direction Bins Width
NO_EPT_I_S_GF	OBS_MODE SPECIES_EPT_S BINS_64	[2, 3, 64]	EPT magnet, sun direction Geometric factor
NO_EPT_I_S_Bins_Low_Energy	OBS_MODE SPECIES_EPT_S BINS_64	[2, 3, 64]	EPT magnet, sun direction Bins Low Energy
NO_EPT_I_S_Bins_Width	OBS_MODE SPECIES_EPT_S BINS_64	[2, 3, 64]	EPT magnet, sun direction Bins Width
NO_EPT_I_A_GF	OBS_MODE SPECIES_EPT_A BINS_64	[2, 3, 64]	EPT magnet, antisun direction Geometric factor
NO_EPT_I_A_Bins_Low_Energy	OBS_MODE SPECIES_EPT_A BINS_64	[2, 3, 64]	EPT magnet, antisun direction Bins Low Energy

Name	Depend	Dims.	Description
NO_EPT_I_A_Bins_Width	OBS_MODE SPECIES_EPT_A BINS_64	[2, 3, 64]	EPT magnet, antisun direction Bins Width
NO_EPT_C_I_S_GF	OBS_MODE SPECIES_EPT_S BINS_8	[2, 3, 8]	EPT magnet, sun direction Geometric factor
NO_EPT_C_I_S_Bins_Low_Energy	OBS_MODE SPECIES_EPT_S BINS_8	[2, 3, 8]	EPT magnet, sun direction Bins Low Energy
NO_EPT_C_I_S_Bins_Width	OBS_MODE SPECIES_EPT_S BINS_8	[2, 3, 8]	EPT magnet, sun direction Bins Width
NO_EPT_C_I_A_GF	OBS_MODE SPECIES_EPT_A BINS_8	[2, 3, 8]	EPT magnet, antisun direction Geometric factor
NO_EPT_C_I_A_Bins_Low_Energy	OBS_MODE SPECIES_EPT_A BINS_8	[2, 3, 8]	EPT magnet, antisun direction Bins Low Energy
NO_EPT_C_I_A_Bins_Width	OBS_MODE SPECIES_EPT_A BINS_8	[2, 3, 8]	EPT magnet, antisun direction Bins Width
NO_EPT_T_I_S_GF	OBS_MODE SPECIES_EPT_S BINS_12	[2, 3, 12]	EPT magnet high time resolution, sun direction Geometric factor
NO_EPT_T_I_S_Bins_Low_Energy	OBS_MODE SPECIES_EPT_S BINS_12	[2, 3, 12]	EPT magnet high time resolution, sun direction Bins Low Energy
NO_EPT_T_I_S_Bins_Width	OBS_MODE SPECIES_EPT_S BINS_12	[2, 3, 12]	EPT magnet high time resolution, sun direction Bins Width
NO_EPT_T_I_A_GF	OBS_MODE SPECIES_EPT_A BINS_12	[2, 3, 12]	EPT magnet high time resolution, antisun direction Geometric factor
NO_EPT_T_I_A_Bins_Low_Energy	OBS_MODE SPECIES_EPT_A BINS_12	[2, 3, 12]	EPT magnet high time resolution, antisun direction Bins Low Energy
NO_EPT_T_I_A_Bins_Width	OBS_MODE SPECIES_EPT_A BINS_12	[2, 3, 12]	EPT magnet high time resolution, antisun direction Bins Width
NO_EPT_HE_S_GF	OBS_MODE SPECIES_HE4_S BINS_8	[2, 1, 8]	EPT magnet high energy, sun direction Geometric factor
NO_EPT_HE_S_Bins_Low_Energy	OBS_MODE SPECIES_HE4_S BINS_8	[2, 1, 8]	EPT magnet high energy, sun direction Bins Low Energy

Name	Depend	Dims.	Description
NO_EPT_HE_S_Bins_Width	OBS_MODE SPECIES_HE4_S BINS_8	[2, 1, 8]	EPT magnet high energy, sun direction Bins Width
NO_EPT_HE_A_GF	OBS_MODE SPECIES_HE4_A BINS_8	[2, 1, 8]	EPT magnet high energy, antisun direction Geometric factor
NO_EPT_HE_A_Bins_Low_Energy	OBS_MODE SPECIES_HE4_A BINS_8	[2, 1, 8]	EPT magnet high energy, antisun direction Bins Low Energy
NO_EPT_HE_A_Bins_Width	OBS_MODE SPECIES_HE4_A BINS_8	[2, 1, 8]	EPT magnet high energy, antisun direction Bins Width
NO_EPTP_E_S_GF	OBS_MODE SPECIES_E_S BINS_2	[2, 1, 2]	EPT Penetrating electrons, sun direction Geometric factor
NO_EPTP_E_S_Bins_Low_Energy	OBS_MODE SPECIES_E_S BINS_2	[2, 1, 2]	EPT Penetrating electrons, sun direction Bins Low Energy
NO_EPTP_E_S_Bins_Width	OBS_MODE SPECIES_E_S BINS_2	[2, 1, 2]	EPT Penetrating electrons, sun direction Bins Width
NO_EPTP_E_A_GF	OBS_MODE SPECIES_E_A BINS_2	[2, 1, 2]	EPT Penetrating electrons, antisun direction Geometric factor
NO_EPTP_E_A_Bins_Low_Energy	OBS_MODE SPECIES_E_A BINS_2	[2, 1, 2]	EPT Penetrating electrons, antisun direction Bins Low Energy
NO_EPTP_E_A_Bins_Width	OBS_MODE SPECIES_E_A BINS_2	[2, 1, 2]	EPT Penetrating electrons, antisun direction Bins Width
NO_EPTP_P_S_GF	OBS_MODE SPECIES_P_S BINS_4	[2, 1, 4]	EPT Penetrating protons, sun direction Geometric factor
NO_EPTP_P_S_Bins_Low_Energy	OBS_MODE SPECIES_P_S BINS_4	[2, 1, 4]	EPT Penetrating protons, sun direction Bins Low Energy
NO_EPTP_P_S_Bins_Width	OBS_MODE SPECIES_P_S BINS_4	[2, 1, 4]	EPT Penetrating protons, sun direction Bins Width
NO_EPTP_P_A_GF	OBS_MODE SPECIES_P_A BINS_4	[2, 1, 4]	EPT Penetrating protons, antisun direction Geometric factor

Name	Depend	Dims.	Description
NO_EPTP_P_A_Bins_Low_Energy	OBS_MODE SPECIES_P_A BINS_4	[2, 1, 4]	EPT Penetrating protons, antisun direction Bins Low Energy
NO_EPTP_P_A_Bins_Width	OBS_MODE SPECIES_P_A BINS_4	[2, 1, 4]	EPT Penetrating protons, antisun direction Bins Width
NO_EPTP_P_E_GF	OBS_MODE SPECIES_P_E BINS_4	[2, 2, 4]	EPT Penetrating Relativistic protons, ecliptic (sun + antisun) direction Geometric factor
NO_EPTP_P_E_Bins_Low_Energy	OBS_MODE SPECIES_P_E BINS_4	[2, 2, 4]	EPT Penetrating Relativistic protons, ecliptic (sun + antisun) direction Bins Low Energy
NO_EPTP_P_E_Bins_Width	OBS_MODE SPECIES_P_E BINS_4	[2, 2, 4]	EPT Penetrating Relativistic protons, ecliptic (sun + antisun) direction Bins Width
NO_EPTP_HE_S_GF	OBS_MODE SPECIES_HE_S	[2, 2]	EPT Penetrating Helium, sun direction Geometric factor
NO_EPTP_HE_S_Bins_Low_Energy	OBS_MODE SPECIES_HE_S	[2, 2]	EPT Penetrating Helium, sun direction Bins Low Energy
NO_EPTP_HE_S_Bins_Width	OBS_MODE SPECIES_HE_S	[2, 2]	EPT Penetrating Helium, sun direction Bins Width
NO_EPTP_HE_A_GF	OBS_MODE SPECIES_HE_A	[2, 2]	EPT Penetrating Helium, antisun direction Geometric factor
NO_EPTP_HE_A_Bins_Low_Energy	OBS_MODE SPECIES_HE_A	[2, 2]	EPT Penetrating Helium, antisun direction Bins Low Energy
NO_EPTP_HE_A_Bins_Width	OBS_MODE SPECIES_HE_A	[2, 2]	EPT Penetrating Helium, antisun direction Bins Width
NO_EPTP_HE_E_GF	OBS_MODE SPECIES_HE_E BINS_4	[2, 4, 4]	EPT Penetrating Relativistic Helium, ecliptic (sun + antisun) direction Geometric factor

Name	Depend	Dims.	Description
NO_EPTP_HE_E_Bins_Low_Energy	OBS_MODE SPECIES_HE_E BINS_4	[2, 4, 4]	EPT Penetrating Relativistic Helium, ecliptic (sun + antisun) direction Bins Low Energy
NO_EPTP_HE_E_Bins_Width	OBS_MODE SPECIES_HE_E BINS_4	[2, 4, 4]	EPT Penetrating Relativistic Helium, ecliptic (sun + antisun) direction Bins Width
NO_EPTP_HE3_S_GF	OBS_MODE SPECIES_HE3_S BINS_2	[2, 1, 2]	EPT Penetrating Helium-3, sun direction Geometric factor
NO_EPTP_HE3_S_Bins_Low_Energy	OBS_MODE SPECIES_HE3_S BINS_2	[2, 1, 2]	EPT Penetrating Helium-3, sun direction Bins Low Energy
NO_EPTP_HE3_S_Bins_Width	OBS_MODE SPECIES_HE3_S BINS_2	[2, 1, 2]	EPT Penetrating Helium-3, sun direction Bins Width
NO_EPTP_HE3_A_GF	OBS_MODE SPECIES_HE3_A BINS_2	[2, 1, 2]	EPT Penetrating Helium-3, antisun direction Geometric factor
NO_EPTP_HE3_A_Bins_Low_Energy	OBS_MODE SPECIES_HE3_A BINS_2	[2, 1, 2]	EPT Penetrating Helium-3, antisun direction Bins Low Energy
NO_EPTP_HE3_A_Bins_Width	OBS_MODE SPECIES_HE3_A BINS_2	[2, 1, 2]	EPT Penetrating Helium-3, antisun direction Bins Width
NO_EPTP_HE3_E_GF	OBS_MODE SPECIES_HE3_E	[2, 2]	EPT Penetrating Relativistic Helium-3, ecliptic (sun + antisun) direction Geometric factor
NO_EPTP_HE3_E_Bins_Low_Energy	OBS_MODE SPECIES_HE3_E	[2, 2]	EPT Penetrating Relativistic Helium-3, ecliptic (sun + antisun) direction Bins Low Energy
NO_EPTP_HE3_E_Bins_Width	OBS_MODE SPECIES_HE3_E	[2, 2]	EPT Penetrating Relativistic Helium-3, ecliptic (sun + antisun) direction Bins Width
NO_EPTP_HE4_S_GF	OBS_MODE SPECIES_HE4_S BINS_2	[2, 1, 2]	EPT Penetrating Helium-4, sun direction Geometric factor

Name	Depend	Dims.	Description
NO_EPTP_HE4_S_Bins_Low_Energy	OBS_MODE SPECIES_HE4_S BINS_2	[2, 1, 2]	EPT Penetrating Helium-4, sun direction Bins Low Energy
NO_EPTP_HE4_S_Bins_Width	OBS_MODE SPECIES_HE4_S BINS_2	[2, 1, 2]	EPT Penetrating Helium-4, sun direction Bins Width
NO_EPTP_HE4_A_GF	OBS_MODE SPECIES_HE4_A BINS_2	[2, 1, 2]	EPT Penetrating Helium-4, antisun direction Geometric factor
NO_EPTP_HE4_A_Bins_Low_Energy	OBS_MODE SPECIES_HE4_A BINS_2	[2, 1, 2]	EPT Penetrating Helium-4, antisun direction Bins Low Energy
NO_EPTP_HE4_A_Bins_Width	OBS_MODE SPECIES_HE4_A BINS_2	[2, 1, 2]	EPT Penetrating Helium-4, antisun direction Bins Width
NO_EPTP_HE4_E_GF	OBS_MODE SPECIES_HE4_E	[2, 2]	EPT Penetrating Relativistic Helium-4, ecliptic (sun + antisun) direction Geometric factor
NO_EPTP_HE4_E_Bins_Low_Energy	OBS_MODE SPECIES_HE4_E	[2, 2]	EPT Penetrating Relativistic Helium-4, ecliptic (sun + antisun) direction Bins Low Energy
NO_EPTP_HE4_E_Bins_Width	OBS_MODE SPECIES_HE4_E	[2, 2]	EPT Penetrating Relativistic Helium-4, ecliptic (sun + antisun) direction Bins Width
NO_HETB_E_S_GF	OBS_MODE SPECIES_E_S	[2, 1]	HET B Electrons, sun direction Geometric factor
NO_HETB_E_S_Bins_Low_Energy	OBS_MODE SPECIES_E_S	[2, 1]	HET B Electrons, sun direction Bins Low Energy
NO_HETB_E_S_Bins_Width	OBS_MODE SPECIES_E_S	[2, 1]	HET B Electrons, sun direction Bins Width
NO_HETB_E_A_GF	OBS_MODE SPECIES_E_A	[2, 1]	HET B Electrons, antisun direction Geometric factor
NO_HETB_E_A_Bins_Low_Energy	OBS_MODE SPECIES_E_A	[2, 1]	HET B Electrons, antisun direction Bins Low Energy
NO_HETB_E_A_Bins_Width	OBS_MODE SPECIES_E_A	[2, 1]	HET B Electrons, antisun direction Bins Width

Name	Depend	Dims.	Description
NO_HETC_E_S_GF	OBS_MODE SPECIES_E_S BINS_3	[2, 1, 3]	HET C Electrons, sun direction Geometric factor
NO_HETC_E_S_Bins_Low_Energy	OBS_MODE SPECIES_E_S BINS_3	[2, 1, 3]	HET C Electrons, sun direction Bins Low Energy
NO_HETC_E_S_Bins_Width	OBS_MODE SPECIES_E_S BINS_3	[2, 1, 3]	HET C Electrons, sun direction Bins Width
NO_HETC_E_A_GF	OBS_MODE SPECIES_E_A BINS_3	[2, 1, 3]	HET C Electrons, antisun direction Geometric factor
NO_HETC_E_A_Bins_Low_Energy	OBS_MODE SPECIES_E_A BINS_3	[2, 1, 3]	HET C Electrons, antisun direction Bins Low Energy
NO_HETC_E_A_Bins_Width	OBS_MODE SPECIES_E_A BINS_3	[2, 1, 3]	HET C Electrons, antisun direction Bins Width
NO_HETC_H_E_S_GF	OBS_MODE SPECIES_E_S	[2, 1]	HET B Electrons high energy, sun direction Geometric factor
NO_HETC_H_E_S_Bins_Low_Energy	OBS_MODE SPECIES_E_S	[2, 1]	HET B Electrons high energy, sun direction Bins Low Energy
NO_HETC_H_E_S_Bins_Width	OBS_MODE SPECIES_E_S	[2, 1]	HET B Electrons high energy, sun direction Bins Width
NO_HETC_H_E_A_GF	OBS_MODE SPECIES_E_A	[2, 1]	HET B Electrons high energy, antisun direction Geometric factor
NO_HETC_H_E_A_Bins_Low_Energy	OBS_MODE SPECIES_E_A	[2, 1]	HET B Electrons high energy, antisun direction Bins Low Energy
NO_HETC_H_E_A_Bins_Width	OBS_MODE SPECIES_E_A	[2, 1]	HET B Electrons high energy, antisun direction Bins Width
NO_HETB_P_S_GF	OBS_MODE SPECIES_P_S BINS_5	[2, 1, 5]	HET B Hydrogen, sun direction Geometric factor
NO_HETB_P_S_Bins_Low_Energy	OBS_MODE SPECIES_P_S BINS_5	[2, 1, 5]	HET B Hydrogen, sun direction Bins Low Energy
NO_HETB_P_S_Bins_Width	OBS_MODE SPECIES_P_S BINS_5	[2, 1, 5]	HET B Hydrogen, sun direction Bins Width

Name	Depend	Dims.	Description
NO_HETB_P_A_GF	OBS_MODE SPECIES_P_A BINS_5	[2, 1, 5]	HET B Hydrogen, antisun direction Geometric factor
NO_HETB_P_A_Bins_Low_Energy	OBS_MODE SPECIES_P_A BINS_5	[2, 1, 5]	HET B Hydrogen, antisun direction Bins Low Energy
NO_HETB_P_A_Bins_Width	OBS_MODE SPECIES_P_A BINS_5	[2, 1, 5]	HET B Hydrogen, antisun direction Bins Width
NO_HETC_P_S_GF	OBS_MODE SPECIES_P_S BINS_31	[2, 1, 31]	HET C Hydrogen, sun direction Geometric factor
NO_HETC_P_S_Bins_Low_Energy	OBS_MODE SPECIES_P_S BINS_31	[2, 1, 31]	HET C Hydrogen, sun direction Bins Low Energy
NO_HETC_P_S_Bins_Width	OBS_MODE SPECIES_P_S BINS_31	[2, 1, 31]	HET C Hydrogen, sun direction Bins Width
NO_HETC_P_A_GF	OBS_MODE SPECIES_P_A BINS_31	[2, 1, 31]	HET C Hydrogen, antisun direction Geometric factor
NO_HETC_P_A_Bins_Low_Energy	OBS_MODE SPECIES_P_A BINS_31	[2, 1, 31]	HET C Hydrogen, antisun direction Bins Low Energy
NO_HETC_P_A_Bins_Width	OBS_MODE SPECIES_P_A BINS_31	[2, 1, 31]	HET C Hydrogen, antisun direction Bins Width
NO_HETP_P_S_GF	OBS_MODE SPECIES_P_S BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, sun direction Geometric factor
NO_HETP_P_S_Bins_Low_Energy	OBS_MODE SPECIES_P_S BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, sun direction Bins Low Energy
NO_HETP_P_S_Bins_Width	OBS_MODE SPECIES_P_S BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, sun direction Bins Width
NO_HETP_P_A_GF	OBS_MODE SPECIES_P_A BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, antisun direction Geometric factor
NO_HETP_P_A_Bins_Low_Energy	OBS_MODE SPECIES_P_A BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, antisun direction Bins Low Energy
NO_HETP_P_A_Bins_Width	OBS_MODE SPECIES_P_A BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, antisun direction Bins Width

Name	Depend	Dims.	Description
NO_HETP_P_E_GF	OBS_MODE SPECIES_P_E BINS_3	[2, 2, 3]	HET Penetrating Relativistic Hydrogen, ecliptic (sun + antisun) direction Geometric factor
NO_HETP_P_E_Bins_Low_Energy	OBS_MODE SPECIES_P_E BINS_3	[2, 2, 3]	HET Penetrating Relativistic Hydrogen, ecliptic (sun + antisun) direction Bins Low Energy
NO_HETP_P_E_Bins_Width	OBS_MODE SPECIES_P_E BINS_3	[2, 2, 3]	HET Penetrating Relativistic Hydrogen, ecliptic (sun + antisun) direction Bins Width
NO_HETB_TAIL_HIGH_P_S_GF	OBS_MODE SPECIES_P_S	[2, 1]	HET B Hydrogen tail high, sun direction Geometric factor
NO_HETB_TAIL_HIGH_P_S_Bins_Low_Energy	OBS_MODE SPECIES_P_S	[2, 1]	HET B Hydrogen tail high, sun direction Bins Low Energy
NO_HETB_TAIL_HIGH_P_S_Bins_Width	OBS_MODE SPECIES_P_S	[2, 1]	HET B Hydrogen tail high, sun direction Bins Width
NO_HETB_TAIL_HIGH_P_A_GF	OBS_MODE SPECIES_P_A	[2, 1]	HET B Hydrogen tail high, antisun direction Geometric factor
NO_HETB_TAIL_HIGH_P_A_Bins_Low_Energy	OBS_MODE SPECIES_P_A	[2, 1]	HET B Hydrogen tail high, antisun direction Bins Low Energy
NO_HETB_TAIL_HIGH_P_A_Bins_Width	OBS_MODE SPECIES_P_A	[2, 1]	HET B Hydrogen tail high, antisun direction Bins Width
NO_HETB_H_P_S_GF	OBS_MODE SPECIES_P_S	[2, 1]	HET B Hydrogen high time resolution, sun direction Geometric factor
NO_HETB_H_P_S_Bins_Low_Energy	OBS_MODE SPECIES_P_S	[2, 1]	HET B Hydrogen high time resolution, sun direction Bins Low Energy
NO_HETB_H_P_S_Bins_Width	OBS_MODE SPECIES_P_S	[2, 1]	HET B Hydrogen high time resolution, sun direction Bins Width
NO_HETB_H_P_A_GF	OBS_MODE SPECIES_P_A	[2, 1]	HET B Hydrogen high time resolution, antisun direction Geometric factor
NO_HETB_H_P_A_Bins_Low_Energy	OBS_MODE SPECIES_P_A	[2, 1]	HET B Hydrogen high time resolution, antisun direction Bins Low Energy

Name	Depend	Dims.	Description
NO_HETB_H_P_A_Bins_Width	OBS_MODE SPECIES_P_A	[2, 1]	HET B Hydrogen high time resolution, antisun direction Bins Width
NO_HETC_H_P_S_GF	OBS_MODE SPECIES_P_S BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, sun direction Geometric factor
NO_HETC_H_P_S_Bins_Low_Energy	OBS_MODE SPECIES_P_S BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, sun direction Bins Low Energy
NO_HETC_H_P_S_Bins_Width	OBS_MODE SPECIES_P_S BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, sun direction Bins Width
NO_HETC_H_P_A_GF	OBS_MODE SPECIES_P_A BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, antisun direction Geometric factor
NO_HETC_H_P_A_Bins_Low_Energy	OBS_MODE SPECIES_P_A BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, antisun direction Bins Low Energy
NO_HETC_H_P_A_Bins_Width	OBS_MODE SPECIES_P_A BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, antisun direction Bins Width
NO_HETB_HE_S_GF	OBS_MODE SPECIES_HE_S BINS_6	[2, 2, 6]	HET B Helium, sun direction Geometric factor
NO_HETB_HE_S_Bins_Low_Energy	OBS_MODE SPECIES_HE_S BINS_6	[2, 2, 6]	HET B Helium, sun direction Bins Low Energy
NO_HETB_HE_S_Bins_Width	OBS_MODE SPECIES_HE_S BINS_6	[2, 2, 6]	HET B Helium, sun direction Bins Width
NO_HETB_HE_A_GF	OBS_MODE SPECIES_HE_A BINS_6	[2, 2, 6]	HET B Helium, antisun direction Geometric factor
NO_HETB_HE_A_Bins_Low_Energy	OBS_MODE SPECIES_HE_A BINS_6	[2, 2, 6]	HET B Helium, antisun direction Bins Low Energy
NO_HETB_HE_A_Bins_Width	OBS_MODE SPECIES_HE_A BINS_6	[2, 2, 6]	HET B Helium, antisun direction Bins Width
NO_HETP_HE_S_GF	OBS_MODE SPECIES_HE4_S BINS_2	[2, 1, 2]	HET Penetrating Helium, sun direction Geometric factor
NO_HETP_HE_S_Bins_Low_Energy	OBS_MODE SPECIES_HE4_S BINS_2	[2, 1, 2]	HET Penetrating Helium, sun direction Bins Low Energy

Name	Depend	Dims.	Description
NO_HETP_HE_S_Bins_Width	OBS_MODE SPECIES_HE4_S BINS_2	[2, 1, 2]	HET Penetrating Helium, sun direction Bins Width
NO_HETP_HE_A_GF	OBS_MODE SPECIES_HE4_A BINS_2	[2, 1, 2]	HET Penetrating Helium, antisun direction Geometric factor
NO_HETP_HE_A_Bins_Low_Energy	OBS_MODE SPECIES_HE4_A BINS_2	[2, 1, 2]	HET Penetrating Helium, antisun direction Bins Low Energy
NO_HETP_HE_A_Bins_Width	OBS_MODE SPECIES_HE4_A BINS_2	[2, 1, 2]	HET Penetrating Helium, antisun direction Bins Width
NO_HETP_HE_E_GF	OBS_MODE SPECIES_HE4_E BINS_4	[2, 2, 4]	HET Penetrating Relativistic Helium, ecliptic (sun + antisun) direction Geometric factor
NO_HETP_HE_E_Bins_Low_Energy	OBS_MODE SPECIES_HE4_E BINS_4	[2, 2, 4]	HET Penetrating Relativistic Helium, ecliptic (sun + antisun) direction Bins Low Energy
NO_HETP_HE_E_Bins_Width	OBS_MODE SPECIES_HE4_E BINS_4	[2, 2, 4]	HET Penetrating Relativistic Helium, ecliptic (sun + antisun) direction Bins Width
NO_HETB_HE3_S_GF	OBS_MODE SPECIES_HE3_S BINS_4	[2, 1, 4]	HET B Helium-3, sun direction Geometric factor
NO_HETB_HE3_S_Bins_Low_Energy	OBS_MODE SPECIES_HE3_S BINS_4	[2, 1, 4]	HET B Helium-3, sun direction Bins Low Energy
NO_HETB_HE3_S_Bins_Width	OBS_MODE SPECIES_HE3_S BINS_4	[2, 1, 4]	HET B Helium-3, sun direction Bins Width
NO_HETB_HE3_A_GF	OBS_MODE SPECIES_HE3_A BINS_4	[2, 1, 4]	HET B Helium-3, antisun direction Geometric factor
NO_HETB_HE3_A_Bins_Low_Energy	OBS_MODE SPECIES_HE3_A BINS_4	[2, 1, 4]	HET B Helium-3, antisun direction Bins Low Energy
NO_HETB_HE3_A_Bins_Width	OBS_MODE SPECIES_HE3_A BINS_4	[2, 1, 4]	HET B Helium-3, antisun direction Bins Width
NO_HETC_HE3_S_GF	OBS_MODE SPECIES_HE3_S BINS_5	[2, 1, 5]	HET C Helium-3, sun direction Geometric factor

Name	Depend	Dims.	Description
NO_HETC_HE3_S_Bins_Low_Energy	OBS_MODE SPECIES_HE3_S BINS_5	[2, 1, 5]	HET C Helium-3, sun direction Bins Low Energy
NO_HETC_HE3_S_Bins_Width	OBS_MODE SPECIES_HE3_S BINS_5	[2, 1, 5]	HET C Helium-3, sun direction Bins Width
NO_HETC_HE3_A_GF	OBS_MODE SPECIES_HE3_A BINS_5	[2, 1, 5]	HET C Helium-3, antisun direction Geometric factor
NO_HETC_HE3_A_Bins_Low_Energy	OBS_MODE SPECIES_HE3_A BINS_5	[2, 1, 5]	HET C Helium-3, antisun direction Bins Low Energy
NO_HETC_HE3_A_Bins_Width	OBS_MODE SPECIES_HE3_A BINS_5	[2, 1, 5]	HET C Helium-3, antisun direction Bins Width
NO_HETB_HE4_S_GF	OBS_MODE SPECIES_HE4_S BINS_4	[2, 1, 4]	HET B Helium-4, sun direction Geometric factor
NO_HETB_HE4_S_Bins_Low_Energy	OBS_MODE SPECIES_HE4_S BINS_4	[2, 1, 4]	HET B Helium-4, sun direction Bins Low Energy
NO_HETB_HE4_S_Bins_Width	OBS_MODE SPECIES_HE4_S BINS_4	[2, 1, 4]	HET B Helium-4, sun direction Bins Width
NO_HETB_HE4_A_GF	OBS_MODE SPECIES_HE4_A BINS_4	[2, 1, 4]	HET B Helium-4, antisun direction Geometric factor
NO_HETB_HE4_A_Bins_Low_Energy	OBS_MODE SPECIES_HE4_A BINS_4	[2, 1, 4]	HET B Helium-4, antisun direction Bins Low Energy
NO_HETB_HE4_A_Bins_Width	OBS_MODE SPECIES_HE4_A BINS_4	[2, 1, 4]	HET B Helium-4, antisun direction Bins Width
NO_HETC_HE4_S_GF	OBS_MODE SPECIES_HE4_S BINS_11	[2, 1, 11]	HET C Helium-4, sun direction Geometric factor
NO_HETC_HE4_S_Bins_Low_Energy	OBS_MODE SPECIES_HE4_S BINS_11	[2, 1, 11]	HET C Helium-4, sun direction Bins Low Energy
NO_HETC_HE4_S_Bins_Width	OBS_MODE SPECIES_HE4_S BINS_11	[2, 1, 11]	HET C Helium-4, sun direction Bins Width
NO_HETC_HE4_A_GF	OBS_MODE SPECIES_HE4_A BINS_11	[2, 1, 11]	HET C Helium-4, antisun direction Geometric factor
NO_HETC_HE4_A_Bins_Low_Energy	OBS_MODE SPECIES_HE4_A BINS_11	[2, 1, 11]	HET C Helium-4, antisun direction Bins Low Energy

Name	Depend	Dims.	Description
NO_HETC_HE4_A_Bins_Width	OBS_MODE SPECIES_HE4_A BINS_11	[2, 1, 11]	HET C Helium-4, antisun direction Bins Width
NO_HETB_C_S_GF	OBS_MODE SPECIES_C_S BINS_5	[2, 1, 5]	HET B Carbon, sun direction Geometric factor
NO_HETB_C_S_Bins_Low_Energy	OBS_MODE SPECIES_C_S BINS_5	[2, 1, 5]	HET B Carbon, sun direction Bins Low Energy
NO_HETB_C_S_Bins_Width	OBS_MODE SPECIES_C_S BINS_5	[2, 1, 5]	HET B Carbon, sun direction Bins Width
NO_HETB_C_A_GF	OBS_MODE SPECIES_C_A BINS_5	[2, 1, 5]	HET B Carbon, antisun direction Geometric factor
NO_HETB_C_A_Bins_Low_Energy	OBS_MODE SPECIES_C_A BINS_5	[2, 1, 5]	HET B Carbon, antisun direction Bins Low Energy
NO_HETB_C_A_Bins_Width	OBS_MODE SPECIES_C_A BINS_5	[2, 1, 5]	HET B Carbon, antisun direction Bins Width
NO_HETC_C_S_GF	OBS_MODE SPECIES_C_S BINS_12	[2, 1, 12]	HET C Carbon, sun direction Geometric factor
NO_HETC_C_S_Bins_Low_Energy	OBS_MODE SPECIES_C_S BINS_12	[2, 1, 12]	HET C Carbon, sun direction Bins Low Energy
NO_HETC_C_S_Bins_Width	OBS_MODE SPECIES_C_S BINS_12	[2, 1, 12]	HET C Carbon, sun direction Bins Width
NO_HETC_C_A_GF	OBS_MODE SPECIES_C_A BINS_12	[2, 1, 12]	HET C Carbon, antisun direction Geometric factor
NO_HETC_C_A_Bins_Low_Energy	OBS_MODE SPECIES_C_A BINS_12	[2, 1, 12]	HET C Carbon, antisun direction Bins Low Energy
NO_HETC_C_A_Bins_Width	OBS_MODE SPECIES_C_A BINS_12	[2, 1, 12]	HET C Carbon, antisun direction Bins Width
NO_HETB_N_S_GF	OBS_MODE SPECIES_N_S BINS_5	[2, 1, 5]	HET B Nitrogen, sun direction Geometric factor
NO_HETB_N_S_Bins_Low_Energy	OBS_MODE SPECIES_N_S BINS_5	[2, 1, 5]	HET B Nitrogen, sun direction Bins Low Energy
NO_HETB_N_S_Bins_Width	OBS_MODE SPECIES_N_S BINS_5	[2, 1, 5]	HET B Nitrogen, sun direction Bins Width

Name	Depend	Dims.	Description
NO_HETB_N_A_GF	OBS_MODE SPECIES_N_A BINS_5	[2, 1, 5]	HET B Nitrogen, antisun direction Geometric factor
NO_HETB_N_A_Bins_Low_Energy	OBS_MODE SPECIES_N_A BINS_5	[2, 1, 5]	HET B Nitrogen, antisun direction Bins Low Energy
NO_HETB_N_A_Bins_Width	OBS_MODE SPECIES_N_A BINS_5	[2, 1, 5]	HET B Nitrogen, antisun direction Bins Width
NO_HETC_N_S_GF	OBS_MODE SPECIES_N_S BINS_12	[2, 1, 12]	HET C Nitrogen, sun direction Geometric factor
NO_HETC_N_S_Bins_Low_Energy	OBS_MODE SPECIES_N_S BINS_12	[2, 1, 12]	HET C Nitrogen, sun direction Bins Low Energy
NO_HETC_N_S_Bins_Width	OBS_MODE SPECIES_N_S BINS_12	[2, 1, 12]	HET C Nitrogen, sun direction Bins Width
NO_HETC_N_A_GF	OBS_MODE SPECIES_N_A BINS_12	[2, 1, 12]	HET C Nitrogen, antisun direction Geometric factor
NO_HETC_N_A_Bins_Low_Energy	OBS_MODE SPECIES_N_A BINS_12	[2, 1, 12]	HET C Nitrogen, antisun direction Bins Low Energy
NO_HETC_N_A_Bins_Width	OBS_MODE SPECIES_N_A BINS_12	[2, 1, 12]	HET C Nitrogen, antisun direction Bins Width
NO_HETB_O_S_GF	OBS_MODE SPECIES_O_S BINS_5	[2, 1, 5]	HET B Oxygen, sun direction Geometric factor
NO_HETB_O_S_Bins_Low_Energy	OBS_MODE SPECIES_O_S BINS_5	[2, 1, 5]	HET B Oxygen, sun direction Bins Low Energy
NO_HETB_O_S_Bins_Width	OBS_MODE SPECIES_O_S BINS_5	[2, 1, 5]	HET B Oxygen, sun direction Bins Width
NO_HETB_O_A_GF	OBS_MODE SPECIES_O_A BINS_5	[2, 1, 5]	HET B Oxygen, antisun direction Geometric factor
NO_HETB_O_A_Bins_Low_Energy	OBS_MODE SPECIES_O_A BINS_5	[2, 1, 5]	HET B Oxygen, antisun direction Bins Low Energy
NO_HETB_O_A_Bins_Width	OBS_MODE SPECIES_O_A BINS_5	[2, 1, 5]	HET B Oxygen, antisun direction Bins Width
NO_HETC_O_S_GF	OBS_MODE SPECIES_O_S BINS_12	[2, 1, 12]	HET C Oxygen, sun direction Geometric factor

Name	Depend	Dims.	Description
NO_HETC_O_S_Bins_Low_Energy	OBS_MODE SPECIES_O_S BINS_12	[2, 1, 12]	HET C Oxygen, sun direction Bins Low Energy
NO_HETC_O_S_Bins_Width	OBS_MODE SPECIES_O_S BINS_12	[2, 1, 12]	HET C Oxygen, sun direction Bins Width
NO_HETC_O_A_GF	OBS_MODE SPECIES_O_A BINS_12	[2, 1, 12]	HET C Oxygen, antisun direction Geometric factor
NO_HETC_O_A_Bins_Low_Energy	OBS_MODE SPECIES_O_A BINS_12	[2, 1, 12]	HET C Oxygen, antisun direction Bins Low Energy
NO_HETC_O_A_Bins_Width	OBS_MODE SPECIES_O_A BINS_12	[2, 1, 12]	HET C Oxygen, antisun direction Bins Width
NO_HETP_CNO_S_GF	OBS_MODE SPECIES_CNO_S BINS_2	[2, 3, 2]	HET Penetrating CNO, sun direction Geometric factor
NO_HETP_CNO_S_Bins_Low_Energy	OBS_MODE SPECIES_CNO_S BINS_2	[2, 3, 2]	HET Penetrating CNO, sun direction Bins Low Energy
NO_HETP_CNO_S_Bins_Width	OBS_MODE SPECIES_CNO_S BINS_2	[2, 3, 2]	HET Penetrating CNO, sun direction Bins Width
NO_HETP_CNO_A_GF	OBS_MODE SPECIES_CNO_A BINS_2	[2, 3, 2]	HET Penetrating CNO, antisun direction Geometric factor
NO_HETP_CNO_A_Bins_Low_Energy	OBS_MODE SPECIES_CNO_A BINS_2	[2, 3, 2]	HET Penetrating CNO, antisun direction Bins Low Energy
NO_HETP_CNO_A_Bins_Width	OBS_MODE SPECIES_CNO_A BINS_2	[2, 3, 2]	HET Penetrating CNO, antisun direction Bins Width
NO_HETP_CNO_E_GF	OBS_MODE SPECIES_CNO_E BINS_6	[2, 6, 6]	HET Penetrating Relativistic CNO, ecliptic (sun + antisun) direction Geometric factor
NO_HETP_CNO_E_Bins_Low_Energy	OBS_MODE SPECIES_CNO_E BINS_6	[2, 6, 6]	HET Penetrating Relativistic CNO, ecliptic (sun + antisun) direction Bins Low Energy
NO_HETP_CNO_E_Bins_Width	OBS_MODE SPECIES_CNO_E BINS_6	[2, 6, 6]	HET Penetrating Relativistic CNO, ecliptic (sun + antisun) direction Bins Width

Name	Depend	Dims.	Description
NO_HETB_FE_S_GF	OBS_MODE SPECIES_FE_S BINS_5	[2, 1, 5]	HET B Iron, sun direction Geometric factor
NO_HETB_FE_S_Bins_Low_Energy	OBS_MODE SPECIES_FE_S BINS_5	[2, 1, 5]	HET B Iron, sun direction Bins Low Energy
NO_HETB_FE_S_Bins_Width	OBS_MODE SPECIES_FE_S BINS_5	[2, 1, 5]	HET B Iron, sun direction Bins Width
NO_HETB_FE_A_GF	OBS_MODE SPECIES_FE_A BINS_5	[2, 1, 5]	HET B Iron, antisun direction Geometric factor
NO_HETB_FE_A_Bins_Low_Energy	OBS_MODE SPECIES_FE_A BINS_5	[2, 1, 5]	HET B Iron, antisun direction Bins Low Energy
NO_HETB_FE_A_Bins_Width	OBS_MODE SPECIES_FE_A BINS_5	[2, 1, 5]	HET B Iron, antisun direction Bins Width
NO_HETC_FE_S_GF	OBS_MODE SPECIES_FE_S BINS_11	[2, 1, 11]	HET C Iron, sun direction Geometric factor
NO_HETC_FE_S_Bins_Low_Energy	OBS_MODE SPECIES_FE_S BINS_11	[2, 1, 11]	HET C Iron, sun direction Bins Low Energy
NO_HETC_FE_S_Bins_Width	OBS_MODE SPECIES_FE_S BINS_11	[2, 1, 11]	HET C Iron, sun direction Bins Width
NO_HETC_FE_A_GF	OBS_MODE SPECIES_FE_A BINS_11	[2, 1, 11]	HET C Iron, antisun direction Geometric factor
NO_HETC_FE_A_Bins_Low_Energy	OBS_MODE SPECIES_FE_A BINS_11	[2, 1, 11]	HET C Iron, antisun direction Bins Low Energy
NO_HETC_FE_A_Bins_Width	OBS_MODE SPECIES_FE_A BINS_11	[2, 1, 11]	HET C Iron, antisun direction Bins Width
NO_HETP_FE_S_GF	OBS_MODE SPECIES_FE_S BINS_2	[2, 1, 2]	HET Penetrating Iron, sun direction Geometric factor
NO_HETP_FE_S_Bins_Low_Energy	OBS_MODE SPECIES_FE_S BINS_2	[2, 1, 2]	HET Penetrating Iron, sun direction Bins Low Energy
NO_HETP_FE_S_Bins_Width	OBS_MODE SPECIES_FE_S BINS_2	[2, 1, 2]	HET Penetrating Iron, sun direction Bins Width
NO_HETP_FE_A_GF	OBS_MODE SPECIES_FE_A BINS_2	[2, 1, 2]	HET Penetrating Iron, antisun direction Geometric factor

Name	Depend	Dims.	Description
NO_HETP_FE_A_Bins_Low_Energy	OBS_MODE SPECIES_FE_A BINS_2	[2, 1, 2]	HET Penetrating Iron, antisun direction Bins Low Energy
NO_HETP_FE_A_Bins_Width	OBS_MODE SPECIES_FE_A BINS_2	[2, 1, 2]	HET Penetrating Iron, antisun direction Bins Width
NO_HETP_FE_E_GF	OBS_MODE SPECIES_FE_E BINS_3	[2, 2, 3]	HET Penetrating Relativistic Iron, ecliptic (sun + antisun) direction Geometric factor
NO_HETP_FE_E_Bins_Low_Energy	OBS_MODE SPECIES_FE_E BINS_3	[2, 2, 3]	HET Penetrating Relativistic Iron, ecliptic (sun + antisun) direction Bins Low Energy
NO_HETP_FE_E_Bins_Width	OBS_MODE SPECIES_FE_E BINS_3	[2, 2, 3]	HET Penetrating Relativistic Iron, ecliptic (sun + antisun) direction Bins Width
NO_HETB_BG_S_GF	OBS_MODE SPECIES_HETB_BG_S	[2, 1]	HET B background, sun direction Geometric factor
NO_HETB_BG_S_Bins_Low_Energy	OBS_MODE SPECIES_HETB_BG_S	[2, 1]	HET B background, sun direction Bins Low Energy
NO_HETB_BG_S_Bins_Width	OBS_MODE SPECIES_HETB_BG_S	[2, 1]	HET B background, sun direction Bins Width
NO_HETB_BG_A_GF	OBS_MODE SPECIES_HETB_BG_A	[2, 1]	HET B background, antisun direction Geometric factor
NO_HETB_BG_A_Bins_Low_Energy	OBS_MODE SPECIES_HETB_BG_A	[2, 1]	HET B background, antisun direction Bins Low Energy
NO_HETB_BG_A_Bins_Width	OBS_MODE SPECIES_HETB_BG_A	[2, 1]	HET B background, antisun direction Bins Width
NO_HETP_BG_S_GF	OBS_MODE SPECIES_HETP_BG_S	[2, 1]	HET Penetrating background, sun direction Geometric factor
NO_HETP_BG_S_Bins_Low_Energy	OBS_MODE SPECIES_HETP_BG_S	[2, 1]	HET Penetrating background, sun direction Bins Low Energy
NO_HETP_BG_S_Bins_Width	OBS_MODE SPECIES_HETP_BG_S	[2, 1]	HET Penetrating background, sun direction Bins Width

Name	Depend	Dims.	Description
NO_HETP_BG_A_GF	OBS_MODE SPECIES_HETP_BG_A	[2, 1]	HET Penetrating background, antisun direction Geometric factor
NO_HETP_BG_A_Bins_Low_Energy	OBS_MODE SPECIES_HETP_BG_A	[2, 1]	HET Penetrating background, antisun direction Bins Low Energy
NO_HETP_BG_A_Bins_Width	OBS_MODE SPECIES_HETP_BG_A	[2, 1]	HET Penetrating background, antisun direction Bins Width
BINS_2		[2]	Energy bin number for 2 bins
BINS_3		[3]	Energy bin number for 3 bins
BINS_4		[4]	Energy bin number for 4 bins
BINS_5		[5]	Energy bin number for 5 bins
BINS_6		[6]	Energy bin number for 6 bins
BINS_8		[8]	Energy bin number for 8 bins
BINS_11		[11]	Energy bin number for 11 bins
BINS_12		[12]	Energy bin number for 12 bins
BINS_17		[17]	Energy bin number for 17 bins
BINS_31		[31]	Energy bin number for 31 bins
BINS_34		[34]	Energy bin number for 34 bins
BINS_64		[64]	Energy bin number for 64 bins
SPECIES_EPT_S		[3]	Species
SPECIES_EPT_A		[3]	Species
SPECIES_E_S		[1]	Species
SPECIES_E_A		[1]	Species
SPECIES_P_S		[1]	Species
SPECIES_P_A		[1]	Species
SPECIES_P_E		[2]	Species
SPECIES_HE_S		[2]	Species
SPECIES_HE_A		[2]	Species
SPECIES_HE_E		[4]	Species
SPECIES_HE3_S		[1]	Species

Name	Depend	Dims.	Description
SPECIES_HE3_A		[1]	Species
SPECIES_HE3_E		[2]	Species
SPECIES_HE4_S		[1]	Species
SPECIES_HE4_A		[1]	Species
SPECIES_HE4_E		[2]	Species
SPECIES_CNO_S		[3]	Species
SPECIES_CNO_A		[3]	Species
SPECIES_CNO_E		[6]	Species
SPECIES_C_S		[1]	Species
SPECIES_C_A		[1]	Species
SPECIES_N_S		[1]	Species
SPECIES_N_A		[1]	Species
SPECIES_O_S		[1]	Species
SPECIES_O_A		[1]	Species
SPECIES_FE_S		[1]	Species
SPECIES_FE_A		[1]	Species
SPECIES_FE_E		[2]	Species
SPECIES_HETB_BG_S		[1]	Species
SPECIES_HETB_BG_A		[1]	Species
SPECIES_HETP_BG_S		[1]	Species
SPECIES_HETP_BG_A		[1]	Species
OBS_MODE		[2]	Observing mode
XYZ_S		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates)
XYZ_Labels		[3]	Labels for vector components in spacecraft XYZ coordinates
XYZ_A		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates)
ENERGY		[1720]	Incident energy
NO_EPT_E_S_Response	ENERGY OBS_MODE SPECIES_EPT_S BINS_34	[1720, 2, 3, 34]	EPT foil, sun direction Energy response
NO_EPT_E_A_Response	ENERGY OBS_MODE SPECIES_EPT_A BINS_34	[1720, 2, 3, 34]	EPT foil, antisun direction Energy response

Name	Depend	Dims.	Description
NO_EPT_T_E_S_Response	ENERGY OBS_MODE SPECIES_EPT_S BINS_17	[1720, 2, 3, 17]	EPT foil high time resolution, sun direction Energy response
NO_EPT_T_E_A_Response	ENERGY OBS_MODE SPECIES_EPT_A BINS_17	[1720, 2, 3, 17]	EPT foil high time resolution, antisun direction Energy response
NO_EPT_I_S_Response	ENERGY OBS_MODE SPECIES_EPT_S BINS_64	[1720, 2, 3, 64]	EPT magnet, sun direction Energy response
NO_EPT_I_A_Response	ENERGY OBS_MODE SPECIES_EPT_A BINS_64	[1720, 2, 3, 64]	EPT magnet, antisun direction Energy response
NO_EPT_C_I_S_Response	ENERGY OBS_MODE SPECIES_EPT_S BINS_8	[1720, 2, 3, 8]	EPT magnet, sun direction Energy response
NO_EPT_C_I_A_Response	ENERGY OBS_MODE SPECIES_EPT_A BINS_8	[1720, 2, 3, 8]	EPT magnet, antisun direction Energy response
NO_EPT_T_I_S_Response	ENERGY OBS_MODE SPECIES_EPT_S BINS_12	[1720, 2, 3, 12]	EPT magnet high time resolution, sun direction Energy response
NO_EPT_T_I_A_Response	ENERGY OBS_MODE SPECIES_EPT_A BINS_12	[1720, 2, 3, 12]	EPT magnet high time resolution, antisun direction Energy response
NO_EPT_HE_S_Response	ENERGY OBS_MODE SPECIES_HE4_S BINS_8	[1720, 2, 1, 8]	EPT magnet high energy, sun direction Energy response
NO_EPT_HE_A_Response	ENERGY OBS_MODE SPECIES_HE4_A BINS_8	[1720, 2, 1, 8]	EPT magnet high energy, antisun direction Energy response
NO_HETB_E_S_Response	ENERGY OBS_MODE SPECIES_E_S	[1720, 2, 1]	HET B Electrons, sun direction Energy response
NO_HETB_E_A_Response	ENERGY OBS_MODE SPECIES_E_A	[1720, 2, 1]	HET B Electrons, antisun direction Energy response
NO_HETC_E_S_Response	ENERGY OBS_MODE SPECIES_E_S BINS_3	[1720, 2, 1, 3]	HET C Electrons, sun direction Energy response

Name	Depend	Dims.	Description
NO_HETC_E_A_Response	ENERGY OBS_MODE SPECIES_E_A BINS_3	[1720, 2, 1, 3]	HET C Electrons, antisun direction Energy response
NO_HETC_H_E_S_Response	ENERGY OBS_MODE SPECIES_E_S	[1720, 2, 1]	HET B Electrons high energy, sun direction Energy response
NO_HETC_H_E_A_Response	ENERGY OBS_MODE SPECIES_E_A	[1720, 2, 1]	HET B Electrons high energy, antisun direction Energy response
NO_HETB_P_S_Response	ENERGY OBS_MODE SPECIES_P_S BINS_5	[1720, 2, 1, 5]	HET B Hydrogen, sun direction Energy response
NO_HETB_P_A_Response	ENERGY OBS_MODE SPECIES_P_A BINS_5	[1720, 2, 1, 5]	HET B Hydrogen, antisun direction Energy response
NO_HETC_P_S_Response	ENERGY OBS_MODE SPECIES_P_S BINS_31	[1720, 2, 1, 31]	HET C Hydrogen, sun direction Energy response
NO_HETC_P_A_Response	ENERGY OBS_MODE SPECIES_P_A BINS_31	[1720, 2, 1, 31]	HET C Hydrogen, antisun direction Energy response
NO_HETP_P_S_Response	ENERGY OBS_MODE SPECIES_P_S BINS_2	[1720, 2, 1, 2]	HET Penetrating Hydrogen, sun direction Energy response
NO_HETP_P_A_Response	ENERGY OBS_MODE SPECIES_P_A BINS_2	[1720, 2, 1, 2]	HET Penetrating Hydrogen, antisun direction Energy response
NO_HETP_P_E_Response	ENERGY OBS_MODE SPECIES_P_E BINS_3	[1720, 2, 2, 3]	HET Penetrating Relativistic Hydrogen, ecliptic (sun + antisun) direction Energy response
NO_HETB_TAIL_HIGH_P_S_Response	ENERGY OBS_MODE SPECIES_P_S	[1720, 2, 1]	HET B Hydrogen tail high, sun direction Energy response
NO_HETB_TAIL_HIGH_P_A_Response	ENERGY OBS_MODE SPECIES_P_A	[1720, 2, 1]	HET B Hydrogen tail high, antisun direction Energy response
NO_HETB_H_P_S_Response	ENERGY OBS_MODE SPECIES_P_S	[1720, 2, 1]	HET B Hydrogen high time resolution, sun direction Energy response

Name	Depend	Dims.	Description
NO_HETB_H_P_A_Response	ENERGY OBS_MODE SPECIES_P_A	[1720, 2, 1]	HET B Hydrogen high time resolution, antisun direction Energy response
NO_HETC_H_P_S_Response	ENERGY OBS_MODE SPECIES_P_S BINS_3	[1720, 2, 1, 3]	HET C Hydrogen high time resolution, sun direction Energy response
NO_HETC_H_P_A_Response	ENERGY OBS_MODE SPECIES_P_A BINS_3	[1720, 2, 1, 3]	HET C Hydrogen high time resolution, antisun direction Energy response
NO_HETB_HE_S_Response	ENERGY OBS_MODE SPECIES_HE_S BINS_6	[1720, 2, 2, 6]	HET B Helium, sun direction Energy response
NO_HETB_HE_A_Response	ENERGY OBS_MODE SPECIES_HE_A BINS_6	[1720, 2, 2, 6]	HET B Helium, antisun direction Energy response
NO_HETP_HE_S_Response	ENERGY OBS_MODE SPECIES_HE4_S BINS_2	[1720, 2, 1, 2]	HET Penetrating Helium, sun direction Energy response
NO_HETP_HE_A_Response	ENERGY OBS_MODE SPECIES_HE4_A BINS_2	[1720, 2, 1, 2]	HET Penetrating Helium, antisun direction Energy response
NO_HETP_HE_E_Response	ENERGY OBS_MODE SPECIES_HE4_E BINS_4	[1720, 2, 2, 4]	HET Penetrating Relativistic Helium, ecliptic (sun + antisun) direction Energy response
NO_HETB_HE3_S_Response	ENERGY OBS_MODE SPECIES_HE3_S BINS_4	[1720, 2, 1, 4]	HET B Helium-3, sun direction Energy response
NO_HETB_HE3_A_Response	ENERGY OBS_MODE SPECIES_HE3_A BINS_4	[1720, 2, 1, 4]	HET B Helium-3, antisun direction Energy response
NO_HETC_HE3_S_Response	ENERGY OBS_MODE SPECIES_HE3_S BINS_5	[1720, 2, 1, 5]	HET C Helium-3, sun direction Energy response
NO_HETC_HE3_A_Response	ENERGY OBS_MODE SPECIES_HE3_A BINS_5	[1720, 2, 1, 5]	HET C Helium-3, antisun direction Energy response

Name	Depend	Dims.	Description
NO_HETB_HE4_S_Response	ENERGY OBS_MODE SPECIES_HE4_S BINS_4	[1720, 2, 1, 4]	HET B Helium-4, sun direction Energy response
NO_HETB_HE4_A_Response	ENERGY OBS_MODE SPECIES_HE4_A BINS_4	[1720, 2, 1, 4]	HET B Helium-4, antisun direction Energy response
NO_HETC_HE4_S_Response	ENERGY OBS_MODE SPECIES_HE4_S BINS_11	[1720, 2, 1, 11]	HET C Helium-4, sun direction Energy response
NO_HETC_HE4_A_Response	ENERGY OBS_MODE SPECIES_HE4_A BINS_11	[1720, 2, 1, 11]	HET C Helium-4, antisun direction Energy response
NO_HETB_C_S_Response	ENERGY OBS_MODE SPECIES_C_S BINS_5	[1720, 2, 1, 5]	HET B Carbon, sun direction Energy response
NO_HETB_C_A_Response	ENERGY OBS_MODE SPECIES_C_A BINS_5	[1720, 2, 1, 5]	HET B Carbon, antisun direction Energy response
NO_HETC_C_S_Response	ENERGY OBS_MODE SPECIES_C_S BINS_12	[1720, 2, 1, 12]	HET C Carbon, sun direction Energy response
NO_HETC_C_A_Response	ENERGY OBS_MODE SPECIES_C_A BINS_12	[1720, 2, 1, 12]	HET C Carbon, antisun direction Energy response
NO_HETB_N_S_Response	ENERGY OBS_MODE SPECIES_N_S BINS_5	[1720, 2, 1, 5]	HET B Nitrogen, sun direction Energy response
NO_HETB_N_A_Response	ENERGY OBS_MODE SPECIES_N_A BINS_5	[1720, 2, 1, 5]	HET B Nitrogen, antisun direction Energy response
NO_HETC_N_S_Response	ENERGY OBS_MODE SPECIES_N_S BINS_12	[1720, 2, 1, 12]	HET C Nitrogen, sun direction Energy response
NO_HETC_N_A_Response	ENERGY OBS_MODE SPECIES_N_A BINS_12	[1720, 2, 1, 12]	HET C Nitrogen, antisun direction Energy response
NO_HETB_O_S_Response	ENERGY OBS_MODE SPECIES_O_S BINS_5	[1720, 2, 1, 5]	HET B Oxygen, sun direction Energy response

Name	Depend	Dims.	Description
NO_HETB_O_A_Response	ENERGY OBS_MODE SPECIES_O_A BINS_5	[1720, 2, 1, 5]	HET B Oxygen, antisun direction Energy response
NO_HETC_O_S_Response	ENERGY OBS_MODE SPECIES_O_S BINS_12	[1720, 2, 1, 12]	HET C Oxygen, sun direction Energy response
NO_HETC_O_A_Response	ENERGY OBS_MODE SPECIES_O_A BINS_12	[1720, 2, 1, 12]	HET C Oxygen, antisun direction Energy response
NO_HETP_CNO_S_Response	ENERGY OBS_MODE SPECIES_CNO_S BINS_2	[1720, 2, 3, 2]	HET Penetrating CNO, sun direction Energy response
NO_HETP_CNO_A_Response	ENERGY OBS_MODE SPECIES_CNO_A BINS_2	[1720, 2, 3, 2]	HET Penetrating CNO, antisun direction Energy response
NO_HETP_CNO_E_Response	ENERGY OBS_MODE SPECIES_CNO_E BINS_6	[1720, 2, 6, 6]	HET Penetrating Relativistic CNO, ecliptic (sun + antisun) direction Energy response
NO_HETB_FE_S_Response	ENERGY OBS_MODE SPECIES_FE_S BINS_5	[1720, 2, 1, 5]	HET B Iron, sun direction Energy response
NO_HETB_FE_A_Response	ENERGY OBS_MODE SPECIES_FE_A BINS_5	[1720, 2, 1, 5]	HET B Iron, antisun direction Energy response
NO_HETC_FE_S_Response	ENERGY OBS_MODE SPECIES_FE_S BINS_11	[1720, 2, 1, 11]	HET C Iron, sun direction Energy response
NO_HETC_FE_A_Response	ENERGY OBS_MODE SPECIES_FE_A BINS_11	[1720, 2, 1, 11]	HET C Iron, antisun direction Energy response
NO_HETP_FE_S_Response	ENERGY OBS_MODE SPECIES_FE_S BINS_2	[1720, 2, 1, 2]	HET Penetrating Iron, sun direction Energy response
NO_HETP_FE_A_Response	ENERGY OBS_MODE SPECIES_FE_A BINS_2	[1720, 2, 1, 2]	HET Penetrating Iron, antisun direction Energy response

Name	Depend	Dims.	Description
NO_HETP_FE_E_Response	ENERGY OBS_MODE SPECIES_FE_E BINS_3	[1720, 2, 2, 3]	HET Penetrating Relativistic Iron, ecliptic (sun + antisun) direction Energy response

4.1.4.6 EPT-HET1 CAL Quicklook

Description: EPT-HET1 quicklook product calibration file

Descriptor: epd-epthet1-quicklook

Free field: None

Level: CAL

Dataset dependencies:

Associated calibration set: N/A

Expected cadence and dataset volume: Single file, updated only when a new calibration is available

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	CAL>Calibration Data
Descriptor	EPD-EPTHET1-QUICKLOOK>Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, ecliptic unit, Quicklook product
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_CAL_epd-epthet1-quicklook
Logical_source_description	Solar Orbiter, Calibration Data, Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, ecliptic unit, Quicklook product
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	QUICKLOOK>Quicklook product
LEVEL	CAL>Calibration Data

Variables

Name	Depend	Dims.	Description
LL_EPT_E_S_GF	OBS_MODE SPECIES_EPT_S BINS_8	[2, 3, 8]	EPT foil, sun direction Geometric factor
LL_EPT_E_S_Bins_Low_Energy	OBS_MODE SPECIES_EPT_S BINS_8	[2, 3, 8]	EPT foil, sun direction Bins Low Energy

Name	Depend	Dims.	Description
LL_EPT_E_S_Bins_Width	OBS_MODE SPECIES_EPT_S BINS_8	[2, 3, 8]	EPT foil, sun direction Bins Width
LL_EPT_E_A_GF	OBS_MODE SPECIES_EPT_A BINS_8	[2, 3, 8]	EPT foil, antisun direction Geometric factor
LL_EPT_E_A_Bins_Low_Energy	OBS_MODE SPECIES_EPT_A BINS_8	[2, 3, 8]	EPT foil, antisun direction Bins Low Energy
LL_EPT_E_A_Bins_Width	OBS_MODE SPECIES_EPT_A BINS_8	[2, 3, 8]	EPT foil, antisun direction Bins Width
LL_EPT_T_E_S_GF	OBS_MODE SPECIES_EPT_S	[2, 3]	EPT foil high time resolution, sun direction Geometric factor
LL_EPT_T_E_S_Bins_Low_Energy	OBS_MODE SPECIES_EPT_S	[2, 3]	EPT foil high time resolution, sun direction Bins Low Energy
LL_EPT_T_E_S_Bins_Width	OBS_MODE SPECIES_EPT_S	[2, 3]	EPT foil high time resolution, sun direction Bins Width
LL_EPT_T_E_A_GF	OBS_MODE SPECIES_EPT_A	[2, 3]	EPT foil high time resolution, antisun direction Geometric factor
LL_EPT_T_E_A_Bins_Low_Energy	OBS_MODE SPECIES_EPT_A	[2, 3]	EPT foil high time resolution, antisun direction Bins Low Energy
LL_EPT_T_E_A_Bins_Width	OBS_MODE SPECIES_EPT_A	[2, 3]	EPT foil high time resolution, antisun direction Bins Width
LL_EPT_I_S_GF	OBS_MODE SPECIES_EPT_S BINS_18	[2, 3, 18]	EPT magnet, sun direction Geometric factor
LL_EPT_I_S_Bins_Low_Energy	OBS_MODE SPECIES_EPT_S BINS_18	[2, 3, 18]	EPT magnet, sun direction Bins Low Energy
LL_EPT_I_S_Bins_Width	OBS_MODE SPECIES_EPT_S BINS_18	[2, 3, 18]	EPT magnet, sun direction Bins Width
LL_EPT_I_A_GF	OBS_MODE SPECIES_EPT_A BINS_18	[2, 3, 18]	EPT magnet, antisun direction Geometric factor
LL_EPT_I_A_Bins_Low_Energy	OBS_MODE SPECIES_EPT_A BINS_18	[2, 3, 18]	EPT magnet, antisun direction Bins Low Energy
LL_EPT_I_A_Bins_Width	OBS_MODE SPECIES_EPT_A BINS_18	[2, 3, 18]	EPT magnet, antisun direction Bins Width
LL_EPT_T_I_S_GF	OBS_MODE SPECIES_EPT_S BINS_2	[2, 3, 2]	EPT magnet high time resolution, sun direction Geometric factor
LL_EPT_T_I_S_Bins_Low_Energy	OBS_MODE SPECIES_EPT_S BINS_2	[2, 3, 2]	EPT magnet high time resolution, sun direction Bins Low Energy

Name	Depend	Dims.	Description
LL_EPT_T_I_S_Bins_Width	OBS_MODE SPECIES_EPT_S BINS_2	[2, 3, 2]	EPT magnet high time resolution, sun direction Bins Width
LL_EPT_T_I_A_GF	OBS_MODE SPECIES_EPT_A BINS_2	[2, 3, 2]	EPT magnet high time resolution, antisun direction Geometric factor
LL_EPT_T_I_A_Bins_Low_Energy	OBS_MODE SPECIES_EPT_A BINS_2	[2, 3, 2]	EPT magnet high time resolution, antisun direction Bins Low Energy
LL_EPT_T_I_A_Bins_Width	OBS_MODE SPECIES_EPT_A BINS_2	[2, 3, 2]	EPT magnet high time resolution, antisun direction Bins Width
LL_HETB_E_S_GF	OBS_MODE SPECIES_E_S	[2, 1]	HET B Electrons, sun direction Geometric factor
LL_HETB_E_S_Bins_Low_Energy	OBS_MODE SPECIES_E_S	[2, 1]	HET B Electrons, sun direction Bins Low Energy
LL_HETB_E_S_Bins_Width	OBS_MODE SPECIES_E_S	[2, 1]	HET B Electrons, sun direction Bins Width
LL_HETB_E_A_GF	OBS_MODE SPECIES_E_A	[2, 1]	HET B Electrons, antisun direction Geometric factor
LL_HETB_E_A_Bins_Low_Energy	OBS_MODE SPECIES_E_A	[2, 1]	HET B Electrons, antisun direction Bins Low Energy
LL_HETB_E_A_Bins_Width	OBS_MODE SPECIES_E_A	[2, 1]	HET B Electrons, antisun direction Bins Width
LL_HETC_E_S_GF	OBS_MODE SPECIES_E_S BINS_3	[2, 1, 3]	HET C Electrons, sun direction Geometric factor
LL_HETC_E_S_Bins_Low_Energy	OBS_MODE SPECIES_E_S BINS_3	[2, 1, 3]	HET C Electrons, sun direction Bins Low Energy
LL_HETC_E_S_Bins_Width	OBS_MODE SPECIES_E_S BINS_3	[2, 1, 3]	HET C Electrons, sun direction Bins Width
LL_HETC_E_A_GF	OBS_MODE SPECIES_E_A BINS_3	[2, 1, 3]	HET C Electrons, antisun direction Geometric factor
LL_HETC_E_A_Bins_Low_Energy	OBS_MODE SPECIES_E_A BINS_3	[2, 1, 3]	HET C Electrons, antisun direction Bins Low Energy
LL_HETC_E_A_Bins_Width	OBS_MODE SPECIES_E_A BINS_3	[2, 1, 3]	HET C Electrons, antisun direction Bins Width
LL_HETC_T_E_S_GF	OBS_MODE SPECIES_E_S	[2, 1]	HET B Electrons high time resolution, sun direction Geometric factor
LL_HETC_T_E_S_Bins_Low_Energy	OBS_MODE SPECIES_E_S	[2, 1]	HET B Electrons high time resolution, sun direction Bins Low Energy
LL_HETC_T_E_S_Bins_Width	OBS_MODE SPECIES_E_S	[2, 1]	HET B Electrons high time resolution, sun direction Bins Width

Name	Depend	Dims.	Description
LL_HETC_T_E_A_GF	OBS_MODE SPECIES_E_A	[2, 1]	HET B Electrons high time resolution, antisun direction Geometric factor
LL_HETC_T_E_A_Bins_Low_Energy	OBS_MODE SPECIES_E_A	[2, 1]	HET B Electrons high time resolution, antisun direction Bins Low Energy
LL_HETC_T_E_A_Bins_Width	OBS_MODE SPECIES_E_A	[2, 1]	HET B Electrons high time resolution, antisun direction Bins Width
LL_HETB_P_S_GF	OBS_MODE SPECIES_P_S BINS_2	[2, 1, 2]	HET B Hydrogen, sun direction Geometric factor
LL_HETB_P_S_Bins_Low_Energy	OBS_MODE SPECIES_P_S BINS_2	[2, 1, 2]	HET B Hydrogen, sun direction Bins Low Energy
LL_HETB_P_S_Bins_Width	OBS_MODE SPECIES_P_S BINS_2	[2, 1, 2]	HET B Hydrogen, sun direction Bins Width
LL_HETB_P_A_GF	OBS_MODE SPECIES_P_A BINS_2	[2, 1, 2]	HET B Hydrogen, antisun direction Geometric factor
LL_HETB_P_A_Bins_Low_Energy	OBS_MODE SPECIES_P_A BINS_2	[2, 1, 2]	HET B Hydrogen, antisun direction Bins Low Energy
LL_HETB_P_A_Bins_Width	OBS_MODE SPECIES_P_A BINS_2	[2, 1, 2]	HET B Hydrogen, antisun direction Bins Width
LL_HETC_P_S_GF	OBS_MODE SPECIES_P_S BINS_10	[2, 1, 10]	HET C Hydrogen, sun direction Geometric factor
LL_HETC_P_S_Bins_Low_Energy	OBS_MODE SPECIES_P_S BINS_10	[2, 1, 10]	HET C Hydrogen, sun direction Bins Low Energy
LL_HETC_P_S_Bins_Width	OBS_MODE SPECIES_P_S BINS_10	[2, 1, 10]	HET C Hydrogen, sun direction Bins Width
LL_HETC_P_A_GF	OBS_MODE SPECIES_P_A BINS_10	[2, 1, 10]	HET C Hydrogen, antisun direction Geometric factor
LL_HETC_P_A_Bins_Low_Energy	OBS_MODE SPECIES_P_A BINS_10	[2, 1, 10]	HET C Hydrogen, antisun direction Bins Low Energy
LL_HETC_P_A_Bins_Width	OBS_MODE SPECIES_P_A BINS_10	[2, 1, 10]	HET C Hydrogen, antisun direction Bins Width
LL_HETP_P_S_GF	OBS_MODE SPECIES_P_S BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, sun direction Geometric factor
LL_HETP_P_S_Bins_Low_Energy	OBS_MODE SPECIES_P_S BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, sun direction Bins Low Energy

Name	Depend	Dims.	Description
LL_HETP_P_S_Bins_Width	OBS_MODE SPECIES_P_S BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, sun direction Bins Width
LL_HETP_P_A_GF	OBS_MODE SPECIES_P_A BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, antisun direction Geometric factor
LL_HETP_P_A_Bins_Low_Energy	OBS_MODE SPECIES_P_A BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, antisun direction Bins Low Energy
LL_HETP_P_A_Bins_Width	OBS_MODE SPECIES_P_A BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, antisun direction Bins Width
LL_HETP_P_E_GF	OBS_MODE SPECIES_P_E BINS_2	[2, 2, 2]	HET Penetrating Relativistic Hydrogen, ecliptic (sun + antisun) direction Geometric factor
LL_HETP_P_E_Bins_Low_Energy	OBS_MODE SPECIES_P_E BINS_2	[2, 2, 2]	HET Penetrating Relativistic Hydrogen, ecliptic (sun + antisun) direction Bins Low Energy
LL_HETP_P_E_Bins_Width	OBS_MODE SPECIES_P_E BINS_2	[2, 2, 2]	HET Penetrating Relativistic Hydrogen, ecliptic (sun + antisun) direction Bins Width
LL_HETC_T_P_S_GF	OBS_MODE SPECIES_P_S BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, sun direction Geometric factor
LL_HETC_T_P_S_Bins_Low_Energy	OBS_MODE SPECIES_P_S BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, sun direction Bins Low Energy
LL_HETC_T_P_S_Bins_Width	OBS_MODE SPECIES_P_S BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, sun direction Bins Width
LL_HETC_T_P_A_GF	OBS_MODE SPECIES_P_A BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, antisun direction Geometric factor
LL_HETC_T_P_A_Bins_Low_Energy	OBS_MODE SPECIES_P_A BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, antisun direction Bins Low Energy
LL_HETC_T_P_A_Bins_Width	OBS_MODE SPECIES_P_A BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, antisun direction Bins Width
LL_HETB_HE_S_GF	OBS_MODE SPECIES_HE_S BINS_4	[2, 2, 4]	HET B Helium, sun direction Geometric factor
LL_HETB_HE_S_Bins_Low_Energy	OBS_MODE SPECIES_HE_S BINS_4	[2, 2, 4]	HET B Helium, sun direction Bins Low Energy
LL_HETB_HE_S_Bins_Width	OBS_MODE SPECIES_HE_S BINS_4	[2, 2, 4]	HET B Helium, sun direction Bins Width

Name	Depend	Dims.	Description
LL_HETB_HE_A_GF	OBS_MODE SPECIES_HE_A BINS_4	[2, 2, 4]	HET B Helium, antisun direction Geometric factor
LL_HETB_HE_A_Bins_Low_Energy	OBS_MODE SPECIES_HE_A BINS_4	[2, 2, 4]	HET B Helium, antisun direction Bins Low Energy
LL_HETB_HE_A_Bins_Width	OBS_MODE SPECIES_HE_A BINS_4	[2, 2, 4]	HET B Helium, antisun direction Bins Width
LL_HETP_HE_S_GF	OBS_MODE SPECIES_HE4_S BINS_2	[2, 1, 2]	HET Penetrating Helium, sun direction Geometric factor
LL_HETP_HE_S_Bins_Low_Energy	OBS_MODE SPECIES_HE4_S BINS_2	[2, 1, 2]	HET Penetrating Helium, sun direction Bins Low Energy
LL_HETP_HE_S_Bins_Width	OBS_MODE SPECIES_HE4_S BINS_2	[2, 1, 2]	HET Penetrating Helium, sun direction Bins Width
LL_HETP_HE_A_GF	OBS_MODE SPECIES_HE4_A BINS_2	[2, 1, 2]	HET Penetrating Helium, antisun direction Geometric factor
LL_HETP_HE_A_Bins_Low_Energy	OBS_MODE SPECIES_HE4_A BINS_2	[2, 1, 2]	HET Penetrating Helium, antisun direction Bins Low Energy
LL_HETP_HE_A_Bins_Width	OBS_MODE SPECIES_HE4_A BINS_2	[2, 1, 2]	HET Penetrating Helium, antisun direction Bins Width
LL_HETP_HE_E_GF	OBS_MODE SPECIES_HE4_E BINS_2	[2, 2, 2]	HET Penetrating Relativistic Helium, ecliptic (sun + antisun) direction Geometric factor
LL_HETP_HE_E_Bins_Low_Energy	OBS_MODE SPECIES_HE4_E BINS_2	[2, 2, 2]	HET Penetrating Relativistic Helium, ecliptic (sun + antisun) direction Bins Low Energy
LL_HETP_HE_E_Bins_Width	OBS_MODE SPECIES_HE4_E BINS_2	[2, 2, 2]	HET Penetrating Relativistic Helium, ecliptic (sun + antisun) direction Bins Width
LL_HETB_HE3_S_GF	OBS_MODE SPECIES_HE3_S BINS_2	[2, 1, 2]	HET B Helium-3, sun direction Geometric factor
LL_HETB_HE3_S_Bins_Low_Energy	OBS_MODE SPECIES_HE3_S BINS_2	[2, 1, 2]	HET B Helium-3, sun direction Bins Low Energy
LL_HETB_HE3_S_Bins_Width	OBS_MODE SPECIES_HE3_S BINS_2	[2, 1, 2]	HET B Helium-3, sun direction Bins Width
LL_HETB_HE3_A_GF	OBS_MODE SPECIES_HE3_A BINS_2	[2, 1, 2]	HET B Helium-3, antisun direction Geometric factor

Name	Depend	Dims.	Description
LL_HETB_HE3_A_Bins_Low_Energy	OBS_MODE SPECIES_HE3_A BINS_2	[2, 1, 2]	HET B Helium-3, antisun direction Bins Low Energy
LL_HETB_HE3_A_Bins_Width	OBS_MODE SPECIES_HE3_A BINS_2	[2, 1, 2]	HET B Helium-3, antisun direction Bins Width
LL_HETC_HE3_S_GF	OBS_MODE SPECIES_HE3_S BINS_4	[2, 1, 4]	HET C Helium-3, sun direction Geometric factor
LL_HETC_HE3_S_Bins_Low_Energy	OBS_MODE SPECIES_HE3_S BINS_4	[2, 1, 4]	HET C Helium-3, sun direction Bins Low Energy
LL_HETC_HE3_S_Bins_Width	OBS_MODE SPECIES_HE3_S BINS_4	[2, 1, 4]	HET C Helium-3, sun direction Bins Width
LL_HETC_HE3_A_GF	OBS_MODE SPECIES_HE3_A BINS_4	[2, 1, 4]	HET C Helium-3, antisun direction Geometric factor
LL_HETC_HE3_A_Bins_Low_Energy	OBS_MODE SPECIES_HE3_A BINS_4	[2, 1, 4]	HET C Helium-3, antisun direction Bins Low Energy
LL_HETC_HE3_A_Bins_Width	OBS_MODE SPECIES_HE3_A BINS_4	[2, 1, 4]	HET C Helium-3, antisun direction Bins Width
LL_HETB_HE4_S_GF	OBS_MODE SPECIES_HE4_S BINS_2	[2, 1, 2]	HET B Helium-4, sun direction Geometric factor
LL_HETB_HE4_S_Bins_Low_Energy	OBS_MODE SPECIES_HE4_S BINS_2	[2, 1, 2]	HET B Helium-4, sun direction Bins Low Energy
LL_HETB_HE4_S_Bins_Width	OBS_MODE SPECIES_HE4_S BINS_2	[2, 1, 2]	HET B Helium-4, sun direction Bins Width
LL_HETB_HE4_A_GF	OBS_MODE SPECIES_HE4_A BINS_2	[2, 1, 2]	HET B Helium-4, antisun direction Geometric factor
LL_HETB_HE4_A_Bins_Low_Energy	OBS_MODE SPECIES_HE4_A BINS_2	[2, 1, 2]	HET B Helium-4, antisun direction Bins Low Energy
LL_HETB_HE4_A_Bins_Width	OBS_MODE SPECIES_HE4_A BINS_2	[2, 1, 2]	HET B Helium-4, antisun direction Bins Width
LL_HETC_HE4_S_GF	OBS_MODE SPECIES_HE4_S BINS_8	[2, 1, 8]	HET C Helium-4, sun direction Geometric factor
LL_HETC_HE4_S_Bins_Low_Energy	OBS_MODE SPECIES_HE4_S BINS_8	[2, 1, 8]	HET C Helium-4, sun direction Bins Low Energy

Name	Depend	Dims.	Description
LL_HETC_HE4_S_Bins_Width	OBS_MODE SPECIES_HE4_S BINS_8	[2, 1, 8]	HET C Helium-4, sun direction Bins Width
LL_HETC_HE4_A_GF	OBS_MODE SPECIES_HE4_A BINS_8	[2, 1, 8]	HET C Helium-4, antisun direction Geometric factor
LL_HETC_HE4_A_Bins_Low_Energy	OBS_MODE SPECIES_HE4_A BINS_8	[2, 1, 8]	HET C Helium-4, antisun direction Bins Low Energy
LL_HETC_HE4_A_Bins_Width	OBS_MODE SPECIES_HE4_A BINS_8	[2, 1, 8]	HET C Helium-4, antisun direction Bins Width
LL_HETB_CNO_S_GF	OBS_MODE SPECIES_CNO_S BINS_6	[2, 3, 6]	HET B CNO, sun direction Geometric factor
LL_HETB_CNO_S_Bins_Low_Energy	OBS_MODE SPECIES_CNO_S BINS_6	[2, 3, 6]	HET B CNO, sun direction Bins Low Energy
LL_HETB_CNO_S_Bins_Width	OBS_MODE SPECIES_CNO_S BINS_6	[2, 3, 6]	HET B CNO, sun direction Bins Width
LL_HETB_CNO_A_GF	OBS_MODE SPECIES_CNO_A BINS_6	[2, 3, 6]	HET B CNO, antisun direction Geometric factor
LL_HETB_CNO_A_Bins_Low_Energy	OBS_MODE SPECIES_CNO_A BINS_6	[2, 3, 6]	HET B CNO, antisun direction Bins Low Energy
LL_HETB_CNO_A_Bins_Width	OBS_MODE SPECIES_CNO_A BINS_6	[2, 3, 6]	HET B CNO, antisun direction Bins Width
LL_HETC_CNO_S_GF	OBS_MODE SPECIES_CNO_S BINS_9	[2, 3, 9]	HET C CNO, sun direction Geometric factor
LL_HETC_CNO_S_Bins_Low_Energy	OBS_MODE SPECIES_CNO_S BINS_9	[2, 3, 9]	HET C CNO, sun direction Bins Low Energy
LL_HETC_CNO_S_Bins_Width	OBS_MODE SPECIES_CNO_S BINS_9	[2, 3, 9]	HET C CNO, sun direction Bins Width
LL_HETC_CNO_A_GF	OBS_MODE SPECIES_CNO_A BINS_9	[2, 3, 9]	HET C CNO, antisun direction Geometric factor
LL_HETC_CNO_A_Bins_Low_Energy	OBS_MODE SPECIES_CNO_A BINS_9	[2, 3, 9]	HET C CNO, antisun direction Bins Low Energy
LL_HETC_CNO_A_Bins_Width	OBS_MODE SPECIES_CNO_A BINS_9	[2, 3, 9]	HET C CNO, antisun direction Bins Width

Name	Depend	Dims.	Description
LL_HETP_CNO_S_GF	OBS_MODE SPECIES_CNO_S BINS_2	[2, 3, 2]	HET Penetrating CNO, sun direction Geometric factor
LL_HETP_CNO_S_Bins_Low_Energy	OBS_MODE SPECIES_CNO_S BINS_2	[2, 3, 2]	HET Penetrating CNO, sun direction Bins Low Energy
LL_HETP_CNO_S_Bins_Width	OBS_MODE SPECIES_CNO_S BINS_2	[2, 3, 2]	HET Penetrating CNO, sun direction Bins Width
LL_HETP_CNO_A_GF	OBS_MODE SPECIES_CNO_A BINS_2	[2, 3, 2]	HET Penetrating CNO, antisun direction Geometric factor
LL_HETP_CNO_A_Bins_Low_Energy	OBS_MODE SPECIES_CNO_A BINS_2	[2, 3, 2]	HET Penetrating CNO, antisun direction Bins Low Energy
LL_HETP_CNO_A_Bins_Width	OBS_MODE SPECIES_CNO_A BINS_2	[2, 3, 2]	HET Penetrating CNO, antisun direction Bins Width
LL_HETP_CNO_E_GF	OBS_MODE SPECIES_CNO_E BINS_2	[2, 6, 2]	HET Penetrating Relativistic CNO, ecliptic (sun + antisun) direction Geometric factor
LL_HETP_CNO_E_Bins_Low_Energy	OBS_MODE SPECIES_CNO_E BINS_2	[2, 6, 2]	HET Penetrating Relativistic CNO, ecliptic (sun + antisun) direction Bins Low Energy
LL_HETP_CNO_E_Bins_Width	OBS_MODE SPECIES_CNO_E BINS_2	[2, 6, 2]	HET Penetrating Relativistic CNO, ecliptic (sun + antisun) direction Bins Width
LL_HETB_FE_S_GF	OBS_MODE SPECIES_FE_S BINS_2	[2, 1, 2]	HET B Iron, sun direction Geometric factor
LL_HETB_FE_S_Bins_Low_Energy	OBS_MODE SPECIES_FE_S BINS_2	[2, 1, 2]	HET B Iron, sun direction Bins Low Energy
LL_HETB_FE_S_Bins_Width	OBS_MODE SPECIES_FE_S BINS_2	[2, 1, 2]	HET B Iron, sun direction Bins Width
LL_HETB_FE_A_GF	OBS_MODE SPECIES_FE_A BINS_2	[2, 1, 2]	HET B Iron, antisun direction Geometric factor
LL_HETB_FE_A_Bins_Low_Energy	OBS_MODE SPECIES_FE_A BINS_2	[2, 1, 2]	HET B Iron, antisun direction Bins Low Energy
LL_HETB_FE_A_Bins_Width	OBS_MODE SPECIES_FE_A BINS_2	[2, 1, 2]	HET B Iron, antisun direction Bins Width
LL_HETC_FE_S_GF	OBS_MODE SPECIES_FE_S BINS_3	[2, 1, 3]	HET C Iron, sun direction Geometric factor

Name	Depend	Dims.	Description
LL_HETC_FE_S_Bins_Low_Energy	OBS_MODE SPECIES_FE_S BINS_3	[2, 1, 3]	HET C Iron, sun direction Bins Low Energy
LL_HETC_FE_S_Bins_Width	OBS_MODE SPECIES_FE_S BINS_3	[2, 1, 3]	HET C Iron, sun direction Bins Width
LL_HETC_FE_A_GF	OBS_MODE SPECIES_FE_A BINS_3	[2, 1, 3]	HET C Iron, antisun direction Geometric factor
LL_HETC_FE_A_Bins_Low_Energy	OBS_MODE SPECIES_FE_A BINS_3	[2, 1, 3]	HET C Iron, antisun direction Bins Low Energy
LL_HETC_FE_A_Bins_Width	OBS_MODE SPECIES_FE_A BINS_3	[2, 1, 3]	HET C Iron, antisun direction Bins Width
LL_HETP_FE_S_GF	OBS_MODE SPECIES_FE_S	[2, 1]	HET Penetrating Iron, sun direction Geometric factor
LL_HETP_FE_S_Bins_Low_Energy	OBS_MODE SPECIES_FE_S	[2, 1]	HET Penetrating Iron, sun direction Bins Low Energy
LL_HETP_FE_S_Bins_Width	OBS_MODE SPECIES_FE_S	[2, 1]	HET Penetrating Iron, sun direction Bins Width
LL_HETP_FE_A_GF	OBS_MODE SPECIES_FE_A	[2, 1]	HET Penetrating Iron, antisun direction Geometric factor
LL_HETP_FE_A_Bins_Low_Energy	OBS_MODE SPECIES_FE_A	[2, 1]	HET Penetrating Iron, antisun direction Bins Low Energy
LL_HETP_FE_A_Bins_Width	OBS_MODE SPECIES_FE_A	[2, 1]	HET Penetrating Iron, antisun direction Bins Width
BINS_2		[2]	Energy bin number for 2 bins
BINS_3		[3]	Energy bin number for 3 bins
BINS_4		[4]	Energy bin number for 4 bins
BINS_6		[6]	Energy bin number for 6 bins
BINS_8		[8]	Energy bin number for 8 bins
BINS_9		[9]	Energy bin number for 9 bins
BINS_10		[10]	Energy bin number for 10 bins
BINS_18		[18]	Energy bin number for 18 bins
SPECIES_EPT_S		[3]	Species
SPECIES_EPT_A		[3]	Species
SPECIES_E_S		[1]	Species
SPECIES_E_A		[1]	Species
SPECIES_P_S		[1]	Species
SPECIES_P_A		[1]	Species
SPECIES_P_E		[2]	Species
SPECIES_HE_S		[2]	Species

Name	Depend	Dims.	Description
SPECIES_HE_A		[2]	Species
SPECIES_HE3_S		[1]	Species
SPECIES_HE3_A		[1]	Species
SPECIES_HE4_S		[1]	Species
SPECIES_HE4_A		[1]	Species
SPECIES_HE4_E		[2]	Species
SPECIES_CNO_S		[3]	Species
SPECIES_CNO_A		[3]	Species
SPECIES_CNO_E		[6]	Species
SPECIES_FE_S		[1]	Species
SPECIES_FE_A		[1]	Species
OBS_MODE		[2]	Observing mode
XYZ_S		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates)
XYZ_Labels		[3]	Labels for vector components in spacecraft XYZ coordinates
XYZ_A		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates)
ENERGY		[1720]	Incident energy
LL_EPT_E_S_Response	ENERGY OBS_MODE SPECIES_EPT_S BINS_8	[1720, 2, 3, 8]	EPT foil, sun direction Energy response
LL_EPT_E_A_Response	ENERGY OBS_MODE SPECIES_EPT_A BINS_8	[1720, 2, 3, 8]	EPT foil, antisun direction Energy response
LL_EPT_T_E_S_Response	ENERGY OBS_MODE SPECIES_EPT_S	[1720, 2, 3]	EPT foil high time resolution, sun direction Energy response
LL_EPT_T_E_A_Response	ENERGY OBS_MODE SPECIES_EPT_A	[1720, 2, 3]	EPT foil high time resolution, antisun direction Energy response
LL_EPT_I_S_Response	ENERGY OBS_MODE SPECIES_EPT_S BINS_18	[1720, 2, 3, 18]	EPT magnet, sun direction Energy response
LL_EPT_I_A_Response	ENERGY OBS_MODE SPECIES_EPT_A BINS_18	[1720, 2, 3, 18]	EPT magnet, antisun direction Energy response
LL_EPT_T_I_S_Response	ENERGY OBS_MODE SPECIES_EPT_S BINS_2	[1720, 2, 3, 2]	EPT magnet high time resolution, sun direction Energy response

Name	Depend	Dims.	Description
LL_EPT_T_I_A_Response	ENERGY OBS_MODE SPECIES_EPT_A BINS_2	[1720, 2, 3, 2]	EPT magnet high time resolution, antisun direction Energy response
LL_HETB_E_S_Response	ENERGY OBS_MODE SPECIES_E_S	[1720, 2, 1]	HET B Electrons, sun direction Energy response
LL_HETB_E_A_Response	ENERGY OBS_MODE SPECIES_E_A	[1720, 2, 1]	HET B Electrons, antisun direction Energy response
LL_HETC_E_S_Response	ENERGY OBS_MODE SPECIES_E_S BINS_3	[1720, 2, 1, 3]	HET C Electrons, sun direction Energy response
LL_HETC_E_A_Response	ENERGY OBS_MODE SPECIES_E_A BINS_3	[1720, 2, 1, 3]	HET C Electrons, antisun direction Energy response
LL_HETC_T_E_S_Response	ENERGY OBS_MODE SPECIES_E_S	[1720, 2, 1]	HET B Electrons high time resolution, sun direction Energy response
LL_HETC_T_E_A_Response	ENERGY OBS_MODE SPECIES_E_A	[1720, 2, 1]	HET B Electrons high time resolution, antisun direction Energy response
LL_HETB_P_S_Response	ENERGY OBS_MODE SPECIES_P_S BINS_2	[1720, 2, 1, 2]	HET B Hydrogen, sun direction Energy response
LL_HETB_P_A_Response	ENERGY OBS_MODE SPECIES_P_A BINS_2	[1720, 2, 1, 2]	HET B Hydrogen, antisun direction Energy response
LL_HETC_P_S_Response	ENERGY OBS_MODE SPECIES_P_S BINS_10	[1720, 2, 1, 10]	HET C Hydrogen, sun direction Energy response
LL_HETC_P_A_Response	ENERGY OBS_MODE SPECIES_P_A BINS_10	[1720, 2, 1, 10]	HET C Hydrogen, antisun direction Energy response
LL_HETP_P_S_Response	ENERGY OBS_MODE SPECIES_P_S BINS_2	[1720, 2, 1, 2]	HET Penetrating Hydrogen, sun direction Energy response
LL_HETP_P_A_Response	ENERGY OBS_MODE SPECIES_P_A BINS_2	[1720, 2, 1, 2]	HET Penetrating Hydrogen, antisun direction Energy response

Name	Depend	Dims.	Description
LL_HETP_P_E_Response	ENERGY OBS_MODE SPECIES_P_E BINS_2	[1720, 2, 2, 2]	HET Penetrating Relativistic Hydrogen, ecliptic (sun + antisun) direction Energy response
LL_HETC_T_P_S_Response	ENERGY OBS_MODE SPECIES_P_S BINS_3	[1720, 2, 1, 3]	HET C Hydrogen high time resolution, sun direction Energy response
LL_HETC_T_P_A_Response	ENERGY OBS_MODE SPECIES_P_A BINS_3	[1720, 2, 1, 3]	HET C Hydrogen high time resolution, antisun direction Energy response
LL_HETB_HE_S_Response	ENERGY OBS_MODE SPECIES_HE_S BINS_4	[1720, 2, 2, 4]	HET B Helium, sun direction Energy response
LL_HETB_HE_A_Response	ENERGY OBS_MODE SPECIES_HE_A BINS_4	[1720, 2, 2, 4]	HET B Helium, antisun direction Energy response
LL_HETP_HE_S_Response	ENERGY OBS_MODE SPECIES_HE4_S BINS_2	[1720, 2, 1, 2]	HET Penetrating Helium, sun direction Energy response
LL_HETP_HE_A_Response	ENERGY OBS_MODE SPECIES_HE4_A BINS_2	[1720, 2, 1, 2]	HET Penetrating Helium, antisun direction Energy response
LL_HETP_HE_E_Response	ENERGY OBS_MODE SPECIES_HE4_E BINS_2	[1720, 2, 2, 2]	HET Penetrating Relativistic Helium, ecliptic (sun + antisun) direction Energy response
LL_HETB_HE3_S_Response	ENERGY OBS_MODE SPECIES_HE3_S BINS_2	[1720, 2, 1, 2]	HET B Helium-3, sun direction Energy response
LL_HETB_HE3_A_Response	ENERGY OBS_MODE SPECIES_HE3_A BINS_2	[1720, 2, 1, 2]	HET B Helium-3, antisun direction Energy response
LL_HETC_HE3_S_Response	ENERGY OBS_MODE SPECIES_HE3_S BINS_4	[1720, 2, 1, 4]	HET C Helium-3, sun direction Energy response
LL_HETC_HE3_A_Response	ENERGY OBS_MODE SPECIES_HE3_A BINS_4	[1720, 2, 1, 4]	HET C Helium-3, antisun direction Energy response
LL_HETB_HE4_S_Response	ENERGY OBS_MODE SPECIES_HE4_S BINS_2	[1720, 2, 1, 2]	HET B Helium-4, sun direction Energy response

Name	Depend	Dims.	Description
LL_HETB_HE4_A_Response	ENERGY OBS_MODE SPECIES_HE4_A BINS_2	[1720, 2, 1, 2]	HET B Helium-4, antisun direction Energy response
LL_HETC_HE4_S_Response	ENERGY OBS_MODE SPECIES_HE4_S BINS_8	[1720, 2, 1, 8]	HET C Helium-4, sun direction Energy response
LL_HETC_HE4_A_Response	ENERGY OBS_MODE SPECIES_HE4_A BINS_8	[1720, 2, 1, 8]	HET C Helium-4, antisun direction Energy response
LL_HETB_CNO_S_Response	ENERGY OBS_MODE SPECIES_CNO_S BINS_6	[1720, 2, 3, 6]	HET B CNO, sun direction Energy response
LL_HETB_CNO_A_Response	ENERGY OBS_MODE SPECIES_CNO_A BINS_6	[1720, 2, 3, 6]	HET B CNO, antisun direction Energy response
LL_HETC_CNO_S_Response	ENERGY OBS_MODE SPECIES_CNO_S BINS_9	[1720, 2, 3, 9]	HET C CNO, sun direction Energy response
LL_HETC_CNO_A_Response	ENERGY OBS_MODE SPECIES_CNO_A BINS_9	[1720, 2, 3, 9]	HET C CNO, antisun direction Energy response
LL_HETP_CNO_S_Response	ENERGY OBS_MODE SPECIES_CNO_S BINS_2	[1720, 2, 3, 2]	HET Penetrating CNO, sun direction Energy response
LL_HETP_CNO_A_Response	ENERGY OBS_MODE SPECIES_CNO_A BINS_2	[1720, 2, 3, 2]	HET Penetrating CNO, antisun direction Energy response
LL_HETP_CNO_E_Response	ENERGY OBS_MODE SPECIES_CNO_E BINS_2	[1720, 2, 6, 2]	HET Penetrating Relativistic CNO, ecliptic (sun + antisun) direction Energy response
LL_HETB_FE_S_Response	ENERGY OBS_MODE SPECIES_FE_S BINS_2	[1720, 2, 1, 2]	HET B Iron, sun direction Energy response
LL_HETB_FE_A_Response	ENERGY OBS_MODE SPECIES_FE_A BINS_2	[1720, 2, 1, 2]	HET B Iron, antisun direction Energy response
LL_HETC_FE_S_Response	ENERGY OBS_MODE SPECIES_FE_S BINS_3	[1720, 2, 1, 3]	HET C Iron, sun direction Energy response

Name	Depend	Dims.	Description
LL_HETC_FE_A_Response	ENERGY OBS_MODE SPECIES_FE_A BINS_3	[1720, 2, 1, 3]	HET C Iron, antisun direction Energy response
LL_HETP_FE_S_Response	ENERGY OBS_MODE SPECIES_FE_S	[1720, 2, 1]	HET Penetrating Iron, sun direction Energy response
LL_HETP_FE_A_Response	ENERGY OBS_MODE SPECIES_FE_A	[1720, 2, 1]	HET Penetrating Iron, antisun direction Energy response

4.1.4.7 EPT-HET2 CAL Nominal

Description: EPT-HET2 nominal product calibration file

Descriptor: epd-epthet2-nom

Free field: None

Level: CAL

Dataset dependencies:

Associated calibration set: N/A

Expected cadence and dataset volume: Single file, updated only when a new calibration is available

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	CAL>Calibration Data
Descriptor	EPD-EPTHET2-NOM>Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, polar unit, Nominal product
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_CAL_epd-epthet2-nom
Logical_source_description	Solar Orbiter, Calibration Data, Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, polar unit, Nominal product
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	NOM>Nominal product
LEVEL	CAL>Calibration Data

Variables

Name	Depend	Dims.	Description
NO_EPT_E_N_GF	OBS_MODE SPECIES_EPT_N BINS_34	[2, 3, 34]	EPT foil, north direction Geometric factor
NO_EPT_E_N_Bins_Low_Energy	OBS_MODE SPECIES_EPT_N BINS_34	[2, 3, 34]	EPT foil, north direction Bins Low Energy

Name	Depend	Dims.	Description
NO_EPT_E_N_Bins_Width	OBS_MODE SPECIES_EPT_N BINS_34	[2, 3, 34]	EPT foil, north direction Bins Width
NO_EPT_E_D_GF	OBS_MODE SPECIES_EPT_D BINS_34	[2, 3, 34]	EPT foil, south direction Geometric factor
NO_EPT_E_D_Bins_Low_Energy	OBS_MODE SPECIES_EPT_D BINS_34	[2, 3, 34]	EPT foil, south direction Bins Low Energy
NO_EPT_E_D_Bins_Width	OBS_MODE SPECIES_EPT_D BINS_34	[2, 3, 34]	EPT foil, south direction Bins Width
NO_EPT_T_E_N_GF	OBS_MODE SPECIES_EPT_N BINS_17	[2, 3, 17]	EPT foil high time resolution, north direction Geometric factor
NO_EPT_T_E_N_Bins_Low_Energy	OBS_MODE SPECIES_EPT_N BINS_17	[2, 3, 17]	EPT foil high time resolution, north direction Bins Low Energy
NO_EPT_T_E_N_Bins_Width	OBS_MODE SPECIES_EPT_N BINS_17	[2, 3, 17]	EPT foil high time resolution, north direction Bins Width
NO_EPT_T_E_D_GF	OBS_MODE SPECIES_EPT_D BINS_17	[2, 3, 17]	EPT foil high time resolution, south direction Geometric factor
NO_EPT_T_E_D_Bins_Low_Energy	OBS_MODE SPECIES_EPT_D BINS_17	[2, 3, 17]	EPT foil high time resolution, south direction Bins Low Energy
NO_EPT_T_E_D_Bins_Width	OBS_MODE SPECIES_EPT_D BINS_17	[2, 3, 17]	EPT foil high time resolution, south direction Bins Width
NO_EPT_I_N_GF	OBS_MODE SPECIES_EPT_N BINS_64	[2, 3, 64]	EPT magnet, north direction Geometric factor
NO_EPT_I_N_Bins_Low_Energy	OBS_MODE SPECIES_EPT_N BINS_64	[2, 3, 64]	EPT magnet, north direction Bins Low Energy
NO_EPT_I_N_Bins_Width	OBS_MODE SPECIES_EPT_N BINS_64	[2, 3, 64]	EPT magnet, north direction Bins Width
NO_EPT_I_D_GF	OBS_MODE SPECIES_EPT_D BINS_64	[2, 3, 64]	EPT magnet, south direction Geometric factor
NO_EPT_I_D_Bins_Low_Energy	OBS_MODE SPECIES_EPT_D BINS_64	[2, 3, 64]	EPT magnet, south direction Bins Low Energy

Name	Depend	Dims.	Description
NO_EPT_I_D_Bins_Width	OBS_MODE SPECIES_EPT_D BINS_64	[2, 3, 64]	EPT magnet, south direction Bins Width
NO_EPT_C_I_N_GF	OBS_MODE SPECIES_EPT_N BINS_8	[2, 3, 8]	EPT magnet, north direction Geometric factor
NO_EPT_C_I_N_Bins_Low_Energy	OBS_MODE SPECIES_EPT_N BINS_8	[2, 3, 8]	EPT magnet, north direction Bins Low Energy
NO_EPT_C_I_N_Bins_Width	OBS_MODE SPECIES_EPT_N BINS_8	[2, 3, 8]	EPT magnet, north direction Bins Width
NO_EPT_C_I_D_GF	OBS_MODE SPECIES_EPT_D BINS_8	[2, 3, 8]	EPT magnet, south direction Geometric factor
NO_EPT_C_I_D_Bins_Low_Energy	OBS_MODE SPECIES_EPT_D BINS_8	[2, 3, 8]	EPT magnet, south direction Bins Low Energy
NO_EPT_C_I_D_Bins_Width	OBS_MODE SPECIES_EPT_D BINS_8	[2, 3, 8]	EPT magnet, south direction Bins Width
NO_EPT_T_I_N_GF	OBS_MODE SPECIES_EPT_N BINS_12	[2, 3, 12]	EPT magnet high time resolution, north direction Geometric factor
NO_EPT_T_I_N_Bins_Low_Energy	OBS_MODE SPECIES_EPT_N BINS_12	[2, 3, 12]	EPT magnet high time resolution, north direction Bins Low Energy
NO_EPT_T_I_N_Bins_Width	OBS_MODE SPECIES_EPT_N BINS_12	[2, 3, 12]	EPT magnet high time resolution, north direction Bins Width
NO_EPT_T_I_D_GF	OBS_MODE SPECIES_EPT_D BINS_12	[2, 3, 12]	EPT magnet high time resolution, south direction Geometric factor
NO_EPT_T_I_D_Bins_Low_Energy	OBS_MODE SPECIES_EPT_D BINS_12	[2, 3, 12]	EPT magnet high time resolution, south direction Bins Low Energy
NO_EPT_T_I_D_Bins_Width	OBS_MODE SPECIES_EPT_D BINS_12	[2, 3, 12]	EPT magnet high time resolution, south direction Bins Width
NO_EPT_HE_N_GF	OBS_MODE SPECIES_HE4_N BINS_8	[2, 1, 8]	EPT magnet high energy, north direction Geometric factor
NO_EPT_HE_N_Bins_Low_Energy	OBS_MODE SPECIES_HE4_N BINS_8	[2, 1, 8]	EPT magnet high energy, north direction Bins Low Energy

Name	Depend	Dims.	Description
NO_EPT_HE_N_Bins_Width	OBS_MODE SPECIES_HE4_N BINS_8	[2, 1, 8]	EPT magnet high energy, north direction Bins Width
NO_EPT_HE_D_GF	OBS_MODE SPECIES_HE4_D BINS_8	[2, 1, 8]	EPT magnet high energy, south direction Geometric factor
NO_EPT_HE_D_Bins_Low_Energy	OBS_MODE SPECIES_HE4_D BINS_8	[2, 1, 8]	EPT magnet high energy, south direction Bins Low Energy
NO_EPT_HE_D_Bins_Width	OBS_MODE SPECIES_HE4_D BINS_8	[2, 1, 8]	EPT magnet high energy, south direction Bins Width
NO_EPTP_E_N_GF	OBS_MODE SPECIES_E_N BINS_2	[2, 1, 2]	EPT Penetrating electrons, north direction Geometric factor
NO_EPTP_E_N_Bins_Low_Energy	OBS_MODE SPECIES_E_N BINS_2	[2, 1, 2]	EPT Penetrating electrons, north direction Bins Low Energy
NO_EPTP_E_N_Bins_Width	OBS_MODE SPECIES_E_N BINS_2	[2, 1, 2]	EPT Penetrating electrons, north direction Bins Width
NO_EPTP_E_D_GF	OBS_MODE SPECIES_E_D BINS_2	[2, 1, 2]	EPT Penetrating electrons, south direction Geometric factor
NO_EPTP_E_D_Bins_Low_Energy	OBS_MODE SPECIES_E_D BINS_2	[2, 1, 2]	EPT Penetrating electrons, south direction Bins Low Energy
NO_EPTP_E_D_Bins_Width	OBS_MODE SPECIES_E_D BINS_2	[2, 1, 2]	EPT Penetrating electrons, south direction Bins Width
NO_EPTP_P_N_GF	OBS_MODE SPECIES_P_N BINS_4	[2, 1, 4]	EPT Penetrating protons, north direction Geometric factor
NO_EPTP_P_N_Bins_Low_Energy	OBS_MODE SPECIES_P_N BINS_4	[2, 1, 4]	EPT Penetrating protons, north direction Bins Low Energy
NO_EPTP_P_N_Bins_Width	OBS_MODE SPECIES_P_N BINS_4	[2, 1, 4]	EPT Penetrating protons, north direction Bins Width

Name	Depend	Dims.	Description
NO_EPTP_P_D_GF	OBS_MODE SPECIES_P_D BINS_4	[2, 1, 4]	EPT Penetrating protons, south direction Geometric factor
NO_EPTP_P_D_Bins_Low_Energy	OBS_MODE SPECIES_P_D BINS_4	[2, 1, 4]	EPT Penetrating protons, south direction Bins Low Energy
NO_EPTP_P_D_Bins_Width	OBS_MODE SPECIES_P_D BINS_4	[2, 1, 4]	EPT Penetrating protons, south direction Bins Width
NO_EPTP_P_P_GF	OBS_MODE SPECIES_P_P BINS_4	[2, 2, 4]	EPT Penetrating Relativistic protons, polar (north + south) direction Geometric factor
NO_EPTP_P_P_Bins_Low_Energy	OBS_MODE SPECIES_P_P BINS_4	[2, 2, 4]	EPT Penetrating Relativistic protons, polar (north + south) direction Bins Low Energy
NO_EPTP_P_P_Bins_Width	OBS_MODE SPECIES_P_P BINS_4	[2, 2, 4]	EPT Penetrating Relativistic protons, polar (north + south) direction Bins Width
NO_EPTP_HE_N_GF	OBS_MODE SPECIES_HE_N	[2, 2]	EPT Penetrating Helium, north direction Geometric factor
NO_EPTP_HE_N_Bins_Low_Energy	OBS_MODE SPECIES_HE_N	[2, 2]	EPT Penetrating Helium, north direction Bins Low Energy
NO_EPTP_HE_N_Bins_Width	OBS_MODE SPECIES_HE_N	[2, 2]	EPT Penetrating Helium, north direction Bins Width
NO_EPTP_HE_D_GF	OBS_MODE SPECIES_HE_D	[2, 2]	EPT Penetrating Helium, south direction Geometric factor
NO_EPTP_HE_D_Bins_Low_Energy	OBS_MODE SPECIES_HE_D	[2, 2]	EPT Penetrating Helium, south direction Bins Low Energy
NO_EPTP_HE_D_Bins_Width	OBS_MODE SPECIES_HE_D	[2, 2]	EPT Penetrating Helium, south direction Bins Width
NO_EPTP_HE_P_GF	OBS_MODE SPECIES_HE_P BINS_4	[2, 4, 4]	EPT Penetrating Relativistic Helium, polar (north + south) direction Geometric factor

Name	Depend	Dims.	Description
NO_EPTP_HE_P_Bins_Low_Energy	OBS_MODE SPECIES_HE_P BINS_4	[2, 4, 4]	EPT Penetrating Relativistic Helium, polar (north + south) direction Bins Low Energy
NO_EPTP_HE_P_Bins_Width	OBS_MODE SPECIES_HE_P BINS_4	[2, 4, 4]	EPT Penetrating Relativistic Helium, polar (north + south) direction Bins Width
NO_EPTP_HE3_N_GF	OBS_MODE SPECIES_HE3_N BINS_2	[2, 1, 2]	EPT Penetrating Helium-3, north direction Geometric factor
NO_EPTP_HE3_N_Bins_Low_Energy	OBS_MODE SPECIES_HE3_N BINS_2	[2, 1, 2]	EPT Penetrating Helium-3, north direction Bins Low Energy
NO_EPTP_HE3_N_Bins_Width	OBS_MODE SPECIES_HE3_N BINS_2	[2, 1, 2]	EPT Penetrating Helium-3, north direction Bins Width
NO_EPTP_HE3_D_GF	OBS_MODE SPECIES_HE3_D BINS_2	[2, 1, 2]	EPT Penetrating Helium-3, south direction Geometric factor
NO_EPTP_HE3_D_Bins_Low_Energy	OBS_MODE SPECIES_HE3_D BINS_2	[2, 1, 2]	EPT Penetrating Helium-3, south direction Bins Low Energy
NO_EPTP_HE3_D_Bins_Width	OBS_MODE SPECIES_HE3_D BINS_2	[2, 1, 2]	EPT Penetrating Helium-3, south direction Bins Width
NO_EPTP_HE3_P_GF	OBS_MODE SPECIES_HE3_P	[2, 2]	EPT Penetrating Relativistic Helium-3, polar (north + south) direction Geometric factor
NO_EPTP_HE3_P_Bins_Low_Energy	OBS_MODE SPECIES_HE3_P	[2, 2]	EPT Penetrating Relativistic Helium-3, polar (north + south) direction Bins Low Energy
NO_EPTP_HE3_P_Bins_Width	OBS_MODE SPECIES_HE3_P	[2, 2]	EPT Penetrating Relativistic Helium-3, polar (north + south) direction Bins Width
NO_EPTP_HE4_N_GF	OBS_MODE SPECIES_HE4_N BINS_2	[2, 1, 2]	EPT Penetrating Helium-4, north direction Geometric factor

Name	Depend	Dims.	Description
NO_EPTP_HE4_N_Bins_Low_Energy	OBS_MODE SPECIES_HE4_N BINS_2	[2, 1, 2]	EPT Penetrating Helium-4, north direction Bins Low Energy
NO_EPTP_HE4_N_Bins_Width	OBS_MODE SPECIES_HE4_N BINS_2	[2, 1, 2]	EPT Penetrating Helium-4, north direction Bins Width
NO_EPTP_HE4_D_GF	OBS_MODE SPECIES_HE4_D BINS_2	[2, 1, 2]	EPT Penetrating Helium-4, south direction Geometric factor
NO_EPTP_HE4_D_Bins_Low_Energy	OBS_MODE SPECIES_HE4_D BINS_2	[2, 1, 2]	EPT Penetrating Helium-4, south direction Bins Low Energy
NO_EPTP_HE4_D_Bins_Width	OBS_MODE SPECIES_HE4_D BINS_2	[2, 1, 2]	EPT Penetrating Helium-4, south direction Bins Width
NO_EPTP_HE4_P_GF	OBS_MODE SPECIES_HE4_P	[2, 2]	EPT Penetrating Relativistic Helium-4, polar (north + south) direction Geometric factor
NO_EPTP_HE4_P_Bins_Low_Energy	OBS_MODE SPECIES_HE4_P	[2, 2]	EPT Penetrating Relativistic Helium-4, polar (north + south) direction Bins Low Energy
NO_EPTP_HE4_P_Bins_Width	OBS_MODE SPECIES_HE4_P	[2, 2]	EPT Penetrating Relativistic Helium-4, polar (north + south) direction Bins Width
NO_HETB_E_N_GF	OBS_MODE SPECIES_E_N	[2, 1]	HET B Electrons, north direction Geometric factor
NO_HETB_E_N_Bins_Low_Energy	OBS_MODE SPECIES_E_N	[2, 1]	HET B Electrons, north direction Bins Low Energy
NO_HETB_E_N_Bins_Width	OBS_MODE SPECIES_E_N	[2, 1]	HET B Electrons, north direction Bins Width
NO_HETB_E_D_GF	OBS_MODE SPECIES_E_D	[2, 1]	HET B Electrons, south direction Geometric factor
NO_HETB_E_D_Bins_Low_Energy	OBS_MODE SPECIES_E_D	[2, 1]	HET B Electrons, south direction Bins Low Energy
NO_HETB_E_D_Bins_Width	OBS_MODE SPECIES_E_D	[2, 1]	HET B Electrons, south direction Bins Width

Name	Depend	Dims.	Description
NO_HETC_E_N_GF	OBS_MODE SPECIES_E_N BINS_3	[2, 1, 3]	HET C Electrons, north direction Geometric factor
NO_HETC_E_N_Bins_Low_Energy	OBS_MODE SPECIES_E_N BINS_3	[2, 1, 3]	HET C Electrons, north direction Bins Low Energy
NO_HETC_E_N_Bins_Width	OBS_MODE SPECIES_E_N BINS_3	[2, 1, 3]	HET C Electrons, north direction Bins Width
NO_HETC_E_D_GF	OBS_MODE SPECIES_E_D BINS_3	[2, 1, 3]	HET C Electrons, south direction Geometric factor
NO_HETC_E_D_Bins_Low_Energy	OBS_MODE SPECIES_E_D BINS_3	[2, 1, 3]	HET C Electrons, south direction Bins Low Energy
NO_HETC_E_D_Bins_Width	OBS_MODE SPECIES_E_D BINS_3	[2, 1, 3]	HET C Electrons, south direction Bins Width
NO_HETC_H_E_N_GF	OBS_MODE SPECIES_E_N	[2, 1]	HET B Electrons high energy, north direction Geometric factor
NO_HETC_H_E_N_Bins_Low_Energy	OBS_MODE SPECIES_E_N	[2, 1]	HET B Electrons high energy, north direction Bins Low Energy
NO_HETC_H_E_N_Bins_Width	OBS_MODE SPECIES_E_N	[2, 1]	HET B Electrons high energy, north direction Bins Width
NO_HETC_H_E_D_GF	OBS_MODE SPECIES_E_D	[2, 1]	HET B Electrons high energy, south direction Geometric factor
NO_HETC_H_E_D_Bins_Low_Energy	OBS_MODE SPECIES_E_D	[2, 1]	HET B Electrons high energy, south direction Bins Low Energy
NO_HETC_H_E_D_Bins_Width	OBS_MODE SPECIES_E_D	[2, 1]	HET B Electrons high energy, south direction Bins Width
NO_HETB_P_N_GF	OBS_MODE SPECIES_P_N BINS_5	[2, 1, 5]	HET B Hydrogen, north direction Geometric factor
NO_HETB_P_N_Bins_Low_Energy	OBS_MODE SPECIES_P_N BINS_5	[2, 1, 5]	HET B Hydrogen, north direction Bins Low Energy
NO_HETB_P_N_Bins_Width	OBS_MODE SPECIES_P_N BINS_5	[2, 1, 5]	HET B Hydrogen, north direction Bins Width

Name	Depend	Dims.	Description
NO_HETB_P_D_GF	OBS_MODE SPECIES_P_D BINS_5	[2, 1, 5]	HET B Hydrogen, south direction Geometric factor
NO_HETB_P_D_Bins_Low_Energy	OBS_MODE SPECIES_P_D BINS_5	[2, 1, 5]	HET B Hydrogen, south direction Bins Low Energy
NO_HETB_P_D_Bins_Width	OBS_MODE SPECIES_P_D BINS_5	[2, 1, 5]	HET B Hydrogen, south direction Bins Width
NO_HETC_P_N_GF	OBS_MODE SPECIES_P_N BINS_31	[2, 1, 31]	HET C Hydrogen, north direction Geometric factor
NO_HETC_P_N_Bins_Low_Energy	OBS_MODE SPECIES_P_N BINS_31	[2, 1, 31]	HET C Hydrogen, north direction Bins Low Energy
NO_HETC_P_N_Bins_Width	OBS_MODE SPECIES_P_N BINS_31	[2, 1, 31]	HET C Hydrogen, north direction Bins Width
NO_HETC_P_D_GF	OBS_MODE SPECIES_P_D BINS_31	[2, 1, 31]	HET C Hydrogen, south direction Geometric factor
NO_HETC_P_D_Bins_Low_Energy	OBS_MODE SPECIES_P_D BINS_31	[2, 1, 31]	HET C Hydrogen, south direction Bins Low Energy
NO_HETC_P_D_Bins_Width	OBS_MODE SPECIES_P_D BINS_31	[2, 1, 31]	HET C Hydrogen, south direction Bins Width
NO_HETP_P_N_GF	OBS_MODE SPECIES_P_N BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, north direction Geometric factor
NO_HETP_P_N_Bins_Low_Energy	OBS_MODE SPECIES_P_N BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, north direction Bins Low Energy
NO_HETP_P_N_Bins_Width	OBS_MODE SPECIES_P_N BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, north direction Bins Width
NO_HETP_P_D_GF	OBS_MODE SPECIES_P_D BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, south direction Geometric factor
NO_HETP_P_D_Bins_Low_Energy	OBS_MODE SPECIES_P_D BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, south direction Bins Low Energy
NO_HETP_P_D_Bins_Width	OBS_MODE SPECIES_P_D BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, south direction Bins Width

Name	Depend	Dims.	Description
NO_HETP_P_P_GF	OBS_MODE SPECIES_P_P BINS_3	[2, 2, 3]	HET Penetrating Relativistic Hydrogen, polar (north + south) direction Geometric factor
NO_HETP_P_P_Bins_Low_Energy	OBS_MODE SPECIES_P_P BINS_3	[2, 2, 3]	HET Penetrating Relativistic Hydrogen, polar (north + south) direction Bins Low Energy
NO_HETP_P_P_Bins_Width	OBS_MODE SPECIES_P_P BINS_3	[2, 2, 3]	HET Penetrating Relativistic Hydrogen, polar (north + south) direction Bins Width
NO_HETB_TAIL_HIGH_P_N_GF	OBS_MODE SPECIES_P_N	[2, 1]	HET B Hydrogen tail high, north direction Geometric factor
NO_HETB_TAIL_HIGH_P_N_Bins_Low_Energy	OBS_MODE SPECIES_P_N	[2, 1]	HET B Hydrogen tail high, north direction Bins Low Energy
NO_HETB_TAIL_HIGH_P_N_Bins_Width	OBS_MODE SPECIES_P_N	[2, 1]	HET B Hydrogen tail high, north direction Bins Width
NO_HETB_TAIL_HIGH_P_D_GF	OBS_MODE SPECIES_P_D	[2, 1]	HET B Hydrogen tail high, south direction Geometric factor
NO_HETB_TAIL_HIGH_P_D_Bins_Low_Energy	OBS_MODE SPECIES_P_D	[2, 1]	HET B Hydrogen tail high, south direction Bins Low Energy
NO_HETB_TAIL_HIGH_P_D_Bins_Width	OBS_MODE SPECIES_P_D	[2, 1]	HET B Hydrogen tail high, south direction Bins Width
NO_HETB_H_P_N_GF	OBS_MODE SPECIES_P_N	[2, 1]	HET B Hydrogen high time resolution, north direction Geometric factor
NO_HETB_H_P_N_Bins_Low_Energy	OBS_MODE SPECIES_P_N	[2, 1]	HET B Hydrogen high time resolution, north direction Bins Low Energy
NO_HETB_H_P_N_Bins_Width	OBS_MODE SPECIES_P_N	[2, 1]	HET B Hydrogen high time resolution, north direction Bins Width
NO_HETB_H_P_D_GF	OBS_MODE SPECIES_P_D	[2, 1]	HET B Hydrogen high time resolution, south direction Geometric factor
NO_HETB_H_P_D_Bins_Low_Energy	OBS_MODE SPECIES_P_D	[2, 1]	HET B Hydrogen high time resolution, south direction Bins Low Energy

Name	Depend	Dims.	Description
NO_HETB_H_P_D_Bins_Width	OBS_MODE SPECIES_P_D	[2, 1]	HET B Hydrogen high time resolution, south direction Bins Width
NO_HETC_H_P_N_GF	OBS_MODE SPECIES_P_N BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, north direction Geometric factor
NO_HETC_H_P_N_Bins_Low_Energy	OBS_MODE SPECIES_P_N BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, north direction Bins Low Energy
NO_HETC_H_P_N_Bins_Width	OBS_MODE SPECIES_P_N BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, north direction Bins Width
NO_HETC_H_P_D_GF	OBS_MODE SPECIES_P_D BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, south direction Geometric factor
NO_HETC_H_P_D_Bins_Low_Energy	OBS_MODE SPECIES_P_D BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, south direction Bins Low Energy
NO_HETC_H_P_D_Bins_Width	OBS_MODE SPECIES_P_D BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, south direction Bins Width
NO_HETB_HE_N_GF	OBS_MODE SPECIES_HE_N BINS_6	[2, 2, 6]	HET B Helium, north direction Geometric factor
NO_HETB_HE_N_Bins_Low_Energy	OBS_MODE SPECIES_HE_N BINS_6	[2, 2, 6]	HET B Helium, north direction Bins Low Energy
NO_HETB_HE_N_Bins_Width	OBS_MODE SPECIES_HE_N BINS_6	[2, 2, 6]	HET B Helium, north direction Bins Width
NO_HETB_HE_D_GF	OBS_MODE SPECIES_HE_D BINS_6	[2, 2, 6]	HET B Helium, south direction Geometric factor
NO_HETB_HE_D_Bins_Low_Energy	OBS_MODE SPECIES_HE_D BINS_6	[2, 2, 6]	HET B Helium, south direction Bins Low Energy
NO_HETB_HE_D_Bins_Width	OBS_MODE SPECIES_HE_D BINS_6	[2, 2, 6]	HET B Helium, south direction Bins Width
NO_HETP_HE_N_GF	OBS_MODE SPECIES_HE4_N BINS_2	[2, 1, 2]	HET Penetrating Helium, north direction Geometric factor
NO_HETP_HE_N_Bins_Low_Energy	OBS_MODE SPECIES_HE4_N BINS_2	[2, 1, 2]	HET Penetrating Helium, north direction Bins Low Energy

Name	Depend	Dims.	Description
NO_HETP_HE_N_Bins_Width	OBS_MODE SPECIES_HE4_N BINS_2	[2, 1, 2]	HET Penetrating Helium, north direction Bins Width
NO_HETP_HE_D_GF	OBS_MODE SPECIES_HE4_D BINS_2	[2, 1, 2]	HET Penetrating Helium, south direction Geometric factor
NO_HETP_HE_D_Bins_Low_Energy	OBS_MODE SPECIES_HE4_D BINS_2	[2, 1, 2]	HET Penetrating Helium, south direction Bins Low Energy
NO_HETP_HE_D_Bins_Width	OBS_MODE SPECIES_HE4_D BINS_2	[2, 1, 2]	HET Penetrating Helium, south direction Bins Width
NO_HETP_HE_P_GF	OBS_MODE SPECIES_HE4_P BINS_4	[2, 2, 4]	HET Penetrating Relativistic Helium, polar (north + south) direction Geometric factor
NO_HETP_HE_P_Bins_Low_Energy	OBS_MODE SPECIES_HE4_P BINS_4	[2, 2, 4]	HET Penetrating Relativistic Helium, polar (north + south) direction Bins Low Energy
NO_HETP_HE_P_Bins_Width	OBS_MODE SPECIES_HE4_P BINS_4	[2, 2, 4]	HET Penetrating Relativistic Helium, polar (north + south) direction Bins Width
NO_HETB_HE3_N_GF	OBS_MODE SPECIES_HE3_N BINS_4	[2, 1, 4]	HET B Helium-3, north direction Geometric factor
NO_HETB_HE3_N_Bins_Low_Energy	OBS_MODE SPECIES_HE3_N BINS_4	[2, 1, 4]	HET B Helium-3, north direction Bins Low Energy
NO_HETB_HE3_N_Bins_Width	OBS_MODE SPECIES_HE3_N BINS_4	[2, 1, 4]	HET B Helium-3, north direction Bins Width
NO_HETB_HE3_D_GF	OBS_MODE SPECIES_HE3_D BINS_4	[2, 1, 4]	HET B Helium-3, south direction Geometric factor
NO_HETB_HE3_D_Bins_Low_Energy	OBS_MODE SPECIES_HE3_D BINS_4	[2, 1, 4]	HET B Helium-3, south direction Bins Low Energy
NO_HETB_HE3_D_Bins_Width	OBS_MODE SPECIES_HE3_D BINS_4	[2, 1, 4]	HET B Helium-3, south direction Bins Width
NO_HETC_HE3_N_GF	OBS_MODE SPECIES_HE3_N BINS_5	[2, 1, 5]	HET C Helium-3, north direction Geometric factor

Name	Depend	Dims.	Description
NO_HETC_HE3_N_Bins_Low_Energy	OBS_MODE SPECIES_HE3_N BINS_5	[2, 1, 5]	HET C Helium-3, north direction Bins Low Energy
NO_HETC_HE3_N_Bins_Width	OBS_MODE SPECIES_HE3_N BINS_5	[2, 1, 5]	HET C Helium-3, north direction Bins Width
NO_HETC_HE3_D_GF	OBS_MODE SPECIES_HE3_D BINS_5	[2, 1, 5]	HET C Helium-3, south direction Geometric factor
NO_HETC_HE3_D_Bins_Low_Energy	OBS_MODE SPECIES_HE3_D BINS_5	[2, 1, 5]	HET C Helium-3, south direction Bins Low Energy
NO_HETC_HE3_D_Bins_Width	OBS_MODE SPECIES_HE3_D BINS_5	[2, 1, 5]	HET C Helium-3, south direction Bins Width
NO_HETB_HE4_N_GF	OBS_MODE SPECIES_HE4_N BINS_4	[2, 1, 4]	HET B Helium-4, north direction Geometric factor
NO_HETB_HE4_N_Bins_Low_Energy	OBS_MODE SPECIES_HE4_N BINS_4	[2, 1, 4]	HET B Helium-4, north direction Bins Low Energy
NO_HETB_HE4_N_Bins_Width	OBS_MODE SPECIES_HE4_N BINS_4	[2, 1, 4]	HET B Helium-4, north direction Bins Width
NO_HETB_HE4_D_GF	OBS_MODE SPECIES_HE4_D BINS_4	[2, 1, 4]	HET B Helium-4, south direction Geometric factor
NO_HETB_HE4_D_Bins_Low_Energy	OBS_MODE SPECIES_HE4_D BINS_4	[2, 1, 4]	HET B Helium-4, south direction Bins Low Energy
NO_HETB_HE4_D_Bins_Width	OBS_MODE SPECIES_HE4_D BINS_4	[2, 1, 4]	HET B Helium-4, south direction Bins Width
NO_HETC_HE4_N_GF	OBS_MODE SPECIES_HE4_N BINS_11	[2, 1, 11]	HET C Helium-4, north direction Geometric factor
NO_HETC_HE4_N_Bins_Low_Energy	OBS_MODE SPECIES_HE4_N BINS_11	[2, 1, 11]	HET C Helium-4, north direction Bins Low Energy
NO_HETC_HE4_N_Bins_Width	OBS_MODE SPECIES_HE4_N BINS_11	[2, 1, 11]	HET C Helium-4, north direction Bins Width
NO_HETC_HE4_D_GF	OBS_MODE SPECIES_HE4_D BINS_11	[2, 1, 11]	HET C Helium-4, south direction Geometric factor
NO_HETC_HE4_D_Bins_Low_Energy	OBS_MODE SPECIES_HE4_D BINS_11	[2, 1, 11]	HET C Helium-4, south direction Bins Low Energy

Name	Depend	Dims.	Description
NO_HETC_HE4_D_Bins_Width	OBS_MODE SPECIES_HE4_D BINS_11	[2, 1, 11]	HET C Helium-4, south direction Bins Width
NO_HETB_C_N_GF	OBS_MODE SPECIES_C_N BINS_5	[2, 1, 5]	HET B Carbon, north direction Geometric factor
NO_HETB_C_N_Bins_Low_Energy	OBS_MODE SPECIES_C_N BINS_5	[2, 1, 5]	HET B Carbon, north direction Bins Low Energy
NO_HETB_C_N_Bins_Width	OBS_MODE SPECIES_C_N BINS_5	[2, 1, 5]	HET B Carbon, north direction Bins Width
NO_HETB_C_D_GF	OBS_MODE SPECIES_C_D BINS_5	[2, 1, 5]	HET B Carbon, south direction Geometric factor
NO_HETB_C_D_Bins_Low_Energy	OBS_MODE SPECIES_C_D BINS_5	[2, 1, 5]	HET B Carbon, south direction Bins Low Energy
NO_HETB_C_D_Bins_Width	OBS_MODE SPECIES_C_D BINS_5	[2, 1, 5]	HET B Carbon, south direction Bins Width
NO_HETC_C_N_GF	OBS_MODE SPECIES_C_N BINS_12	[2, 1, 12]	HET C Carbon, north direction Geometric factor
NO_HETC_C_N_Bins_Low_Energy	OBS_MODE SPECIES_C_N BINS_12	[2, 1, 12]	HET C Carbon, north direction Bins Low Energy
NO_HETC_C_N_Bins_Width	OBS_MODE SPECIES_C_N BINS_12	[2, 1, 12]	HET C Carbon, north direction Bins Width
NO_HETC_C_D_GF	OBS_MODE SPECIES_C_D BINS_12	[2, 1, 12]	HET C Carbon, south direction Geometric factor
NO_HETC_C_D_Bins_Low_Energy	OBS_MODE SPECIES_C_D BINS_12	[2, 1, 12]	HET C Carbon, south direction Bins Low Energy
NO_HETC_C_D_Bins_Width	OBS_MODE SPECIES_C_D BINS_12	[2, 1, 12]	HET C Carbon, south direction Bins Width
NO_HETB_N_N_GF	OBS_MODE SPECIES_N_N BINS_5	[2, 1, 5]	HET B Nitrogen, north direction Geometric factor
NO_HETB_N_N_Bins_Low_Energy	OBS_MODE SPECIES_N_N BINS_5	[2, 1, 5]	HET B Nitrogen, north direction Bins Low Energy
NO_HETB_N_N_Bins_Width	OBS_MODE SPECIES_N_N BINS_5	[2, 1, 5]	HET B Nitrogen, north direction Bins Width

Name	Depend	Dims.	Description
NO_HETB_N_D_GF	OBS_MODE SPECIES_N_D BINS_5	[2, 1, 5]	HET B Nitrogen, south direction Geometric factor
NO_HETB_N_D_Bins_Low_Energy	OBS_MODE SPECIES_N_D BINS_5	[2, 1, 5]	HET B Nitrogen, south direction Bins Low Energy
NO_HETB_N_D_Bins_Width	OBS_MODE SPECIES_N_D BINS_5	[2, 1, 5]	HET B Nitrogen, south direction Bins Width
NO_HETC_N_N_GF	OBS_MODE SPECIES_N_N BINS_12	[2, 1, 12]	HET C Nitrogen, north direction Geometric factor
NO_HETC_N_N_Bins_Low_Energy	OBS_MODE SPECIES_N_N BINS_12	[2, 1, 12]	HET C Nitrogen, north direction Bins Low Energy
NO_HETC_N_N_Bins_Width	OBS_MODE SPECIES_N_N BINS_12	[2, 1, 12]	HET C Nitrogen, north direction Bins Width
NO_HETC_N_D_GF	OBS_MODE SPECIES_N_D BINS_12	[2, 1, 12]	HET C Nitrogen, south direction Geometric factor
NO_HETC_N_D_Bins_Low_Energy	OBS_MODE SPECIES_N_D BINS_12	[2, 1, 12]	HET C Nitrogen, south direction Bins Low Energy
NO_HETC_N_D_Bins_Width	OBS_MODE SPECIES_N_D BINS_12	[2, 1, 12]	HET C Nitrogen, south direction Bins Width
NO_HETB_O_N_GF	OBS_MODE SPECIES_O_N BINS_5	[2, 1, 5]	HET B Oxygen, north direction Geometric factor
NO_HETB_O_N_Bins_Low_Energy	OBS_MODE SPECIES_O_N BINS_5	[2, 1, 5]	HET B Oxygen, north direction Bins Low Energy
NO_HETB_O_N_Bins_Width	OBS_MODE SPECIES_O_N BINS_5	[2, 1, 5]	HET B Oxygen, north direction Bins Width
NO_HETB_O_D_GF	OBS_MODE SPECIES_O_D BINS_5	[2, 1, 5]	HET B Oxygen, south direction Geometric factor
NO_HETB_O_D_Bins_Low_Energy	OBS_MODE SPECIES_O_D BINS_5	[2, 1, 5]	HET B Oxygen, south direction Bins Low Energy
NO_HETB_O_D_Bins_Width	OBS_MODE SPECIES_O_D BINS_5	[2, 1, 5]	HET B Oxygen, south direction Bins Width
NO_HETC_O_N_GF	OBS_MODE SPECIES_O_N BINS_12	[2, 1, 12]	HET C Oxygen, north direction Geometric factor

Name	Depend	Dims.	Description
NO_HETC_O_N_Bins_Low_Energy	OBS_MODE SPECIES_O_N BINS_12	[2, 1, 12]	HET C Oxygen, north direction Bins Low Energy
NO_HETC_O_N_Bins_Width	OBS_MODE SPECIES_O_N BINS_12	[2, 1, 12]	HET C Oxygen, north direction Bins Width
NO_HETC_O_D_GF	OBS_MODE SPECIES_O_D BINS_12	[2, 1, 12]	HET C Oxygen, south direction Geometric factor
NO_HETC_O_D_Bins_Low_Energy	OBS_MODE SPECIES_O_D BINS_12	[2, 1, 12]	HET C Oxygen, south direction Bins Low Energy
NO_HETC_O_D_Bins_Width	OBS_MODE SPECIES_O_D BINS_12	[2, 1, 12]	HET C Oxygen, south direction Bins Width
NO_HETP_CNO_N_GF	OBS_MODE SPECIES_CNO_N BINS_2	[2, 3, 2]	HET Penetrating CNO, north direction Geometric factor
NO_HETP_CNO_N_Bins_Low_Energy	OBS_MODE SPECIES_CNO_N BINS_2	[2, 3, 2]	HET Penetrating CNO, north direction Bins Low Energy
NO_HETP_CNO_N_Bins_Width	OBS_MODE SPECIES_CNO_N BINS_2	[2, 3, 2]	HET Penetrating CNO, north direction Bins Width
NO_HETP_CNO_D_GF	OBS_MODE SPECIES_CNO_D BINS_2	[2, 3, 2]	HET Penetrating CNO, south direction Geometric factor
NO_HETP_CNO_D_Bins_Low_Energy	OBS_MODE SPECIES_CNO_D BINS_2	[2, 3, 2]	HET Penetrating CNO, south direction Bins Low Energy
NO_HETP_CNO_D_Bins_Width	OBS_MODE SPECIES_CNO_D BINS_2	[2, 3, 2]	HET Penetrating CNO, south direction Bins Width
NO_HETP_CNO_P_GF	OBS_MODE SPECIES_CNO_P BINS_6	[2, 6, 6]	HET Penetrating Relativistic CNO, polar (north + south) direction Geometric factor
NO_HETP_CNO_P_Bins_Low_Energy	OBS_MODE SPECIES_CNO_P BINS_6	[2, 6, 6]	HET Penetrating Relativistic CNO, polar (north + south) direction Bins Low Energy
NO_HETP_CNO_P_Bins_Width	OBS_MODE SPECIES_CNO_P BINS_6	[2, 6, 6]	HET Penetrating Relativistic CNO, polar (north + south) direction Bins Width
NO_HETB_FE_N_GF	OBS_MODE SPECIES_FE_N BINS_5	[2, 1, 5]	HET B Iron, north direction Geometric factor

Name	Depend	Dims.	Description
NO_HETB_FE_N_Bins_Low_Energy	OBS_MODE SPECIES_FE_N BINS_5	[2, 1, 5]	HET B Iron, north direction Bins Low Energy
NO_HETB_FE_N_Bins_Width	OBS_MODE SPECIES_FE_N BINS_5	[2, 1, 5]	HET B Iron, north direction Bins Width
NO_HETB_FE_D_GF	OBS_MODE SPECIES_FE_D BINS_5	[2, 1, 5]	HET B Iron, south direction Geometric factor
NO_HETB_FE_D_Bins_Low_Energy	OBS_MODE SPECIES_FE_D BINS_5	[2, 1, 5]	HET B Iron, south direction Bins Low Energy
NO_HETB_FE_D_Bins_Width	OBS_MODE SPECIES_FE_D BINS_5	[2, 1, 5]	HET B Iron, south direction Bins Width
NO_HETC_FE_N_GF	OBS_MODE SPECIES_FE_N BINS_11	[2, 1, 11]	HET C Iron, north direction Geometric factor
NO_HETC_FE_N_Bins_Low_Energy	OBS_MODE SPECIES_FE_N BINS_11	[2, 1, 11]	HET C Iron, north direction Bins Low Energy
NO_HETC_FE_N_Bins_Width	OBS_MODE SPECIES_FE_N BINS_11	[2, 1, 11]	HET C Iron, north direction Bins Width
NO_HETC_FE_D_GF	OBS_MODE SPECIES_FE_D BINS_11	[2, 1, 11]	HET C Iron, south direction Geometric factor
NO_HETC_FE_D_Bins_Low_Energy	OBS_MODE SPECIES_FE_D BINS_11	[2, 1, 11]	HET C Iron, south direction Bins Low Energy
NO_HETC_FE_D_Bins_Width	OBS_MODE SPECIES_FE_D BINS_11	[2, 1, 11]	HET C Iron, south direction Bins Width
NO_HETP_FE_N_GF	OBS_MODE SPECIES_FE_N BINS_2	[2, 1, 2]	HET Penetrating Iron, north direction Geometric factor
NO_HETP_FE_N_Bins_Low_Energy	OBS_MODE SPECIES_FE_N BINS_2	[2, 1, 2]	HET Penetrating Iron, north direction Bins Low Energy
NO_HETP_FE_N_Bins_Width	OBS_MODE SPECIES_FE_N BINS_2	[2, 1, 2]	HET Penetrating Iron, north direction Bins Width
NO_HETP_FE_D_GF	OBS_MODE SPECIES_FE_D BINS_2	[2, 1, 2]	HET Penetrating Iron, south direction Geometric factor
NO_HETP_FE_D_Bins_Low_Energy	OBS_MODE SPECIES_FE_D BINS_2	[2, 1, 2]	HET Penetrating Iron, south direction Bins Low Energy

Name	Depend	Dims.	Description
NO_HETP_FE_D_Bins_Width	OBS_MODE SPECIES_FE_D BINS_2	[2, 1, 2]	HET Penetrating Iron, south direction Bins Width
NO_HETP_FE_P_GF	OBS_MODE SPECIES_FE_P BINS_3	[2, 2, 3]	HET Penetrating Relativistic Iron, polar (north + south) direction Geometric factor
NO_HETP_FE_P_Bins_Low_Energy	OBS_MODE SPECIES_FE_P BINS_3	[2, 2, 3]	HET Penetrating Relativistic Iron, polar (north + south) direction Bins Low Energy
NO_HETP_FE_P_Bins_Width	OBS_MODE SPECIES_FE_P BINS_3	[2, 2, 3]	HET Penetrating Relativistic Iron, polar (north + south) direction Bins Width
NO_HETB_BG_N_GF	OBS_MODE SPECIES_HETB_BG_N	[2, 1]	HET B background, north direction Geometric factor
NO_HETB_BG_N_Bins_Low_Energy	OBS_MODE SPECIES_HETB_BG_N	[2, 1]	HET B background, north direction Bins Low Energy
NO_HETB_BG_N_Bins_Width	OBS_MODE SPECIES_HETB_BG_N	[2, 1]	HET B background, north direction Bins Width
NO_HETB_BG_D_GF	OBS_MODE SPECIES_HETB_BG_D	[2, 1]	HET B background, south direction Geometric factor
NO_HETB_BG_D_Bins_Low_Energy	OBS_MODE SPECIES_HETB_BG_D	[2, 1]	HET B background, south direction Bins Low Energy
NO_HETB_BG_D_Bins_Width	OBS_MODE SPECIES_HETB_BG_D	[2, 1]	HET B background, south direction Bins Width
NO_HETP_BG_N_GF	OBS_MODE SPECIES_HETP_BG_N	[2, 1]	HET Penetrating background, north direction Geometric factor
NO_HETP_BG_N_Bins_Low_Energy	OBS_MODE SPECIES_HETP_BG_N	[2, 1]	HET Penetrating background, north direction Bins Low Energy
NO_HETP_BG_N_Bins_Width	OBS_MODE SPECIES_HETP_BG_N	[2, 1]	HET Penetrating background, north direction Bins Width
NO_HETP_BG_D_GF	OBS_MODE SPECIES_HETP_BG_D	[2, 1]	HET Penetrating background, south direction Geometric factor

Name	Depend	Dims.	Description
NO_HETP_BG_D_Bins_Low_Energy	OBS_MODE SPECIES_HETP_BG_D	[2, 1]	HET Penetrating background, south direction Bins Low Energy
NO_HETP_BG_D_Bins_Width	OBS_MODE SPECIES_HETP_BG_D	[2, 1]	HET Penetrating background, south direction Bins Width
BINS_2		[2]	Energy bin number for 2 bins
BINS_3		[3]	Energy bin number for 3 bins
BINS_4		[4]	Energy bin number for 4 bins
BINS_5		[5]	Energy bin number for 5 bins
BINS_6		[6]	Energy bin number for 6 bins
BINS_8		[8]	Energy bin number for 8 bins
BINS_11		[11]	Energy bin number for 11 bins
BINS_12		[12]	Energy bin number for 12 bins
BINS_17		[17]	Energy bin number for 17 bins
BINS_31		[31]	Energy bin number for 31 bins
BINS_34		[34]	Energy bin number for 34 bins
BINS_64		[64]	Energy bin number for 64 bins
SPECIES_EPT_N		[3]	Species
SPECIES_EPT_D		[3]	Species
SPECIES_E_N		[1]	Species
SPECIES_E_D		[1]	Species
SPECIES_P_N		[1]	Species
SPECIES_P_D		[1]	Species
SPECIES_P_P		[2]	Species
SPECIES_HE_N		[2]	Species
SPECIES_HE_D		[2]	Species
SPECIES_HE_P		[4]	Species
SPECIES_HE3_N		[1]	Species
SPECIES_HE3_D		[1]	Species
SPECIES_HE3_P		[2]	Species
SPECIES_HE4_N		[1]	Species

Name	Depend	Dims.	Description
SPECIES_HE4_D		[1]	Species
SPECIES_HE4_P		[2]	Species
SPECIES_CNO_N		[3]	Species
SPECIES_CNO_D		[3]	Species
SPECIES_CNO_P		[6]	Species
SPECIES_C_N		[1]	Species
SPECIES_C_D		[1]	Species
SPECIES_N_N		[1]	Species
SPECIES_N_D		[1]	Species
SPECIES_O_N		[1]	Species
SPECIES_O_D		[1]	Species
SPECIES_FE_N		[1]	Species
SPECIES_FE_D		[1]	Species
SPECIES_FE_P		[2]	Species
SPECIES_HETB_BG_N		[1]	Species
SPECIES_HETB_BG_D		[1]	Species
SPECIES_HETP_BG_N		[1]	Species
SPECIES_HETP_BG_D		[1]	Species
OBS_MODE		[2]	Observing mode
XYZ_N		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates)
XYZ_Labels		[3]	Labels for vector components in spacecraft XYZ coordinates
XYZ_D		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates)
ENERGY		[1720]	Incident energy
NO_EPT_E_N_Response	ENERGY OBS_MODE SPECIES_EPT_N BINS_34	[1720, 2, 3, 34]	EPT foil, north direction Energy response
NO_EPT_E_D_Response	ENERGY OBS_MODE SPECIES_EPT_D BINS_34	[1720, 2, 3, 34]	EPT foil, south direction Energy response
NO_EPT_T_E_N_Response	ENERGY OBS_MODE SPECIES_EPT_N BINS_17	[1720, 2, 3, 17]	EPT foil high time resolution, north direction Energy response

Name	Depend	Dims.	Description
NO_EPT_T_E_D_Response	ENERGY OBS_MODE SPECIES_EPT_D BINS_17	[1720, 2, 3, 17]	EPT foil high time resolution, south direction Energy response
NO_EPT_I_N_Response	ENERGY OBS_MODE SPECIES_EPT_N BINS_64	[1720, 2, 3, 64]	EPT magnet, north direction Energy response
NO_EPT_I_D_Response	ENERGY OBS_MODE SPECIES_EPT_D BINS_64	[1720, 2, 3, 64]	EPT magnet, south direction Energy response
NO_EPT_C_I_N_Response	ENERGY OBS_MODE SPECIES_EPT_N BINS_8	[1720, 2, 3, 8]	EPT magnet, north direction Energy response
NO_EPT_C_I_D_Response	ENERGY OBS_MODE SPECIES_EPT_D BINS_8	[1720, 2, 3, 8]	EPT magnet, south direction Energy response
NO_EPT_T_I_N_Response	ENERGY OBS_MODE SPECIES_EPT_N BINS_12	[1720, 2, 3, 12]	EPT magnet high time resolution, north direction Energy response
NO_EPT_T_I_D_Response	ENERGY OBS_MODE SPECIES_EPT_D BINS_12	[1720, 2, 3, 12]	EPT magnet high time resolution, south direction Energy response
NO_EPT_HE_N_Response	ENERGY OBS_MODE SPECIES_HE4_N BINS_8	[1720, 2, 1, 8]	EPT magnet high energy, north direction Energy response
NO_EPT_HE_D_Response	ENERGY OBS_MODE SPECIES_HE4_D BINS_8	[1720, 2, 1, 8]	EPT magnet high energy, south direction Energy response
NO_HETB_E_N_Response	ENERGY OBS_MODE SPECIES_E_N	[1720, 2, 1]	HET B Electrons, north direction Energy response
NO_HETB_E_D_Response	ENERGY OBS_MODE SPECIES_E_D	[1720, 2, 1]	HET B Electrons, south direction Energy response
NO_HETC_E_N_Response	ENERGY OBS_MODE SPECIES_E_N BINS_3	[1720, 2, 1, 3]	HET C Electrons, north direction Energy response
NO_HETC_E_D_Response	ENERGY OBS_MODE SPECIES_E_D BINS_3	[1720, 2, 1, 3]	HET C Electrons, south direction Energy response

Name	Depend	Dims.	Description
NO_HETC_H_E_N_Response	ENERGY OBS_MODE SPECIES_E_N	[1720, 2, 1]	HET B Electrons high energy, north direction Energy response
NO_HETC_H_E_D_Response	ENERGY OBS_MODE SPECIES_E_D	[1720, 2, 1]	HET B Electrons high energy, south direction Energy response
NO_HETB_P_N_Response	ENERGY OBS_MODE SPECIES_P_N BINS_5	[1720, 2, 1, 5]	HET B Hydrogen, north direction Energy response
NO_HETB_P_D_Response	ENERGY OBS_MODE SPECIES_P_D BINS_5	[1720, 2, 1, 5]	HET B Hydrogen, south direction Energy response
NO_HETC_P_N_Response	ENERGY OBS_MODE SPECIES_P_N BINS_31	[1720, 2, 1, 31]	HET C Hydrogen, north direction Energy response
NO_HETC_P_D_Response	ENERGY OBS_MODE SPECIES_P_D BINS_31	[1720, 2, 1, 31]	HET C Hydrogen, south direction Energy response
NO_HETP_P_N_Response	ENERGY OBS_MODE SPECIES_P_N BINS_2	[1720, 2, 1, 2]	HET Penetrating Hydrogen, north direction Energy response
NO_HETP_P_D_Response	ENERGY OBS_MODE SPECIES_P_D BINS_2	[1720, 2, 1, 2]	HET Penetrating Hydrogen, south direction Energy response
NO_HETP_P_P_Response	ENERGY OBS_MODE SPECIES_P_P BINS_3	[1720, 2, 2, 3]	HET Penetrating Relativistic Hydrogen, polar (north + south) direction Energy response
NO_HETB_TAIL_HIGH_P_N_Response	ENERGY OBS_MODE SPECIES_P_N	[1720, 2, 1]	HET B Hydrogen tail high, north direction Energy response
NO_HETB_TAIL_HIGH_P_D_Response	ENERGY OBS_MODE SPECIES_P_D	[1720, 2, 1]	HET B Hydrogen tail high, south direction Energy response
NO_HETB_H_P_N_Response	ENERGY OBS_MODE SPECIES_P_N	[1720, 2, 1]	HET B Hydrogen high time resolution, north direction Energy response
NO_HETB_H_P_D_Response	ENERGY OBS_MODE SPECIES_P_D	[1720, 2, 1]	HET B Hydrogen high time resolution, south direction Energy response

Name	Depend	Dims.	Description
NO_HETC_H_P_N_Response	ENERGY OBS_MODE SPECIES_P_N BINS_3	[1720, 2, 1, 3]	HET C Hydrogen high time resolution, north direction Energy response
NO_HETC_H_P_D_Response	ENERGY OBS_MODE SPECIES_P_D BINS_3	[1720, 2, 1, 3]	HET C Hydrogen high time resolution, south direction Energy response
NO_HETB_HE_N_Response	ENERGY OBS_MODE SPECIES_HE_N BINS_6	[1720, 2, 2, 6]	HET B Helium, north direction Energy response
NO_HETB_HE_D_Response	ENERGY OBS_MODE SPECIES_HE_D BINS_6	[1720, 2, 2, 6]	HET B Helium, south direction Energy response
NO_HETP_HE_N_Response	ENERGY OBS_MODE SPECIES_HE4_N BINS_2	[1720, 2, 1, 2]	HET Penetrating Helium, north direction Energy response
NO_HETP_HE_D_Response	ENERGY OBS_MODE SPECIES_HE4_D BINS_2	[1720, 2, 1, 2]	HET Penetrating Helium, south direction Energy response
NO_HETP_HE_P_Response	ENERGY OBS_MODE SPECIES_HE4_P BINS_4	[1720, 2, 2, 4]	HET Penetrating Relativistic Helium, polar (north + south) direction Energy response
NO_HETB_HE3_N_Response	ENERGY OBS_MODE SPECIES_HE3_N BINS_4	[1720, 2, 1, 4]	HET B Helium-3, north direction Energy response
NO_HETB_HE3_D_Response	ENERGY OBS_MODE SPECIES_HE3_D BINS_4	[1720, 2, 1, 4]	HET B Helium-3, south direction Energy response
NO_HETC_HE3_N_Response	ENERGY OBS_MODE SPECIES_HE3_N BINS_5	[1720, 2, 1, 5]	HET C Helium-3, north direction Energy response
NO_HETC_HE3_D_Response	ENERGY OBS_MODE SPECIES_HE3_D BINS_5	[1720, 2, 1, 5]	HET C Helium-3, south direction Energy response
NO_HETB_HE4_N_Response	ENERGY OBS_MODE SPECIES_HE4_N BINS_4	[1720, 2, 1, 4]	HET B Helium-4, north direction Energy response

Name	Depend	Dims.	Description
NO_HETB_HE4_D_Response	ENERGY OBS_MODE SPECIES_HE4_D BINS_4	[1720, 2, 1, 4]	HET B Helium-4, south direction Energy response
NO_HETC_HE4_N_Response	ENERGY OBS_MODE SPECIES_HE4_N BINS_11	[1720, 2, 1, 11]	HET C Helium-4, north direction Energy response
NO_HETC_HE4_D_Response	ENERGY OBS_MODE SPECIES_HE4_D BINS_11	[1720, 2, 1, 11]	HET C Helium-4, south direction Energy response
NO_HETB_C_N_Response	ENERGY OBS_MODE SPECIES_C_N BINS_5	[1720, 2, 1, 5]	HET B Carbon, north direction Energy response
NO_HETB_C_D_Response	ENERGY OBS_MODE SPECIES_C_D BINS_5	[1720, 2, 1, 5]	HET B Carbon, south direction Energy response
NO_HETC_C_N_Response	ENERGY OBS_MODE SPECIES_C_N BINS_12	[1720, 2, 1, 12]	HET C Carbon, north direction Energy response
NO_HETC_C_D_Response	ENERGY OBS_MODE SPECIES_C_D BINS_12	[1720, 2, 1, 12]	HET C Carbon, south direction Energy response
NO_HETB_N_N_Response	ENERGY OBS_MODE SPECIES_N_N BINS_5	[1720, 2, 1, 5]	HET B Nitrogen, north direction Energy response
NO_HETB_N_D_Response	ENERGY OBS_MODE SPECIES_N_D BINS_5	[1720, 2, 1, 5]	HET B Nitrogen, south direction Energy response
NO_HETC_N_N_Response	ENERGY OBS_MODE SPECIES_N_N BINS_12	[1720, 2, 1, 12]	HET C Nitrogen, north direction Energy response
NO_HETC_N_D_Response	ENERGY OBS_MODE SPECIES_N_D BINS_12	[1720, 2, 1, 12]	HET C Nitrogen, south direction Energy response
NO_HETB_O_N_Response	ENERGY OBS_MODE SPECIES_O_N BINS_5	[1720, 2, 1, 5]	HET B Oxygen, north direction Energy response
NO_HETB_O_D_Response	ENERGY OBS_MODE SPECIES_O_D BINS_5	[1720, 2, 1, 5]	HET B Oxygen, south direction Energy response

Name	Depend	Dims.	Description
NO_HETC_O_N_Response	ENERGY OBS_MODE SPECIES_O_N BINS_12	[1720, 2, 1, 12]	HET C Oxygen, north direction Energy response
NO_HETC_O_D_Response	ENERGY OBS_MODE SPECIES_O_D BINS_12	[1720, 2, 1, 12]	HET C Oxygen, south direction Energy response
NO_HETP_CNO_N_Response	ENERGY OBS_MODE SPECIES_CNO_N BINS_2	[1720, 2, 3, 2]	HET Penetrating CNO, north direction Energy response
NO_HETP_CNO_D_Response	ENERGY OBS_MODE SPECIES_CNO_D BINS_2	[1720, 2, 3, 2]	HET Penetrating CNO, south direction Energy response
NO_HETP_CNO_P_Response	ENERGY OBS_MODE SPECIES_CNO_P BINS_6	[1720, 2, 6, 6]	HET Penetrating Relativistic CNO, polar (north + south) direction Energy response
NO_HETB_FE_N_Response	ENERGY OBS_MODE SPECIES_FE_N BINS_5	[1720, 2, 1, 5]	HET B Iron, north direction Energy response
NO_HETB_FE_D_Response	ENERGY OBS_MODE SPECIES_FE_D BINS_5	[1720, 2, 1, 5]	HET B Iron, south direction Energy response
NO_HETC_FE_N_Response	ENERGY OBS_MODE SPECIES_FE_N BINS_11	[1720, 2, 1, 11]	HET C Iron, north direction Energy response
NO_HETC_FE_D_Response	ENERGY OBS_MODE SPECIES_FE_D BINS_11	[1720, 2, 1, 11]	HET C Iron, south direction Energy response
NO_HETP_FE_N_Response	ENERGY OBS_MODE SPECIES_FE_N BINS_2	[1720, 2, 1, 2]	HET Penetrating Iron, north direction Energy response
NO_HETP_FE_D_Response	ENERGY OBS_MODE SPECIES_FE_D BINS_2	[1720, 2, 1, 2]	HET Penetrating Iron, south direction Energy response
NO_HETP_FE_P_Response	ENERGY OBS_MODE SPECIES_FE_P BINS_3	[1720, 2, 2, 3]	HET Penetrating Relativistic Iron, polar (north + south) direction Energy response

4.1.4.8 EPT-HET2 CAL Quicklook

Description: EPT-HET2 quicklook product calibration file

Descriptor: epd-epthet2-quicklook

Free field: None

Level: CAL

Dataset dependencies:

Associated calibration set: N/A

Expected cadence and dataset volume: Single file, updated only when a new calibration is available

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	CAL>Calibration Data
Descriptor	EPD-EPTHET2-QUICKLOOK>Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, polar unit, Quicklook product
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_CAL_epd-epthet2-quicklook
Logical_source_description	Solar Orbiter, Calibration Data, Energetic Particle Detector, Electron Proton Telescope, High Energy Telescope, polar unit, Quicklook product
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	QUICKLOOK>Quicklook product
LEVEL	CAL>Calibration Data

Variables

Name	Depend	Dims.	Description
LL_EPT_E_N_GF	OBS_MODE SPECIES_EPT_N BINS_8	[2, 3, 8]	EPT foil, north direction Geometric factor
LL_EPT_E_N_Bins_Low_Energy	OBS_MODE SPECIES_EPT_N BINS_8	[2, 3, 8]	EPT foil, north direction Bins Low Energy

Name	Depend	Dims.	Description
LL_EPT_E_N_Bins_Width	OBS_MODE SPECIES_EPT_N BINS_8	[2, 3, 8]	EPT foil, north direction Bins Width
LL_EPT_E_D_GF	OBS_MODE SPECIES_EPT_D BINS_8	[2, 3, 8]	EPT foil, south direction Geometric factor
LL_EPT_E_D_Bins_Low_Energy	OBS_MODE SPECIES_EPT_D BINS_8	[2, 3, 8]	EPT foil, south direction Bins Low Energy
LL_EPT_E_D_Bins_Width	OBS_MODE SPECIES_EPT_D BINS_8	[2, 3, 8]	EPT foil, south direction Bins Width
LL_EPT_T_E_N_GF	OBS_MODE SPECIES_EPT_N	[2, 3]	EPT foil high time resolution, north direction Geometric factor
LL_EPT_T_E_N_Bins_Low_Energy	OBS_MODE SPECIES_EPT_N	[2, 3]	EPT foil high time resolution, north direction Bins Low Energy
LL_EPT_T_E_N_Bins_Width	OBS_MODE SPECIES_EPT_N	[2, 3]	EPT foil high time resolution, north direction Bins Width
LL_EPT_T_E_D_GF	OBS_MODE SPECIES_EPT_D	[2, 3]	EPT foil high time resolution, south direction Geometric factor
LL_EPT_T_E_D_Bins_Low_Energy	OBS_MODE SPECIES_EPT_D	[2, 3]	EPT foil high time resolution, south direction Bins Low Energy
LL_EPT_T_E_D_Bins_Width	OBS_MODE SPECIES_EPT_D	[2, 3]	EPT foil high time resolution, south direction Bins Width
LL_EPT_I_N_GF	OBS_MODE SPECIES_EPT_N BINS_18	[2, 3, 18]	EPT magnet, north direction Geometric factor
LL_EPT_I_N_Bins_Low_Energy	OBS_MODE SPECIES_EPT_N BINS_18	[2, 3, 18]	EPT magnet, north direction Bins Low Energy
LL_EPT_I_N_Bins_Width	OBS_MODE SPECIES_EPT_N BINS_18	[2, 3, 18]	EPT magnet, north direction Bins Width
LL_EPT_I_D_GF	OBS_MODE SPECIES_EPT_D BINS_18	[2, 3, 18]	EPT magnet, south direction Geometric factor
LL_EPT_I_D_Bins_Low_Energy	OBS_MODE SPECIES_EPT_D BINS_18	[2, 3, 18]	EPT magnet, south direction Bins Low Energy
LL_EPT_I_D_Bins_Width	OBS_MODE SPECIES_EPT_D BINS_18	[2, 3, 18]	EPT magnet, south direction Bins Width
LL_EPT_T_I_N_GF	OBS_MODE SPECIES_EPT_N BINS_2	[2, 3, 2]	EPT magnet high time resolution, north direction Geometric factor
LL_EPT_T_I_N_Bins_Low_Energy	OBS_MODE SPECIES_EPT_N BINS_2	[2, 3, 2]	EPT magnet high time resolution, north direction Bins Low Energy

Name	Depend	Dims.	Description
LL_EPT_T_I_N_Bins_Width	OBS_MODE SPECIES_EPT_N BINS_2	[2, 3, 2]	EPT magnet high time resolution, north direction Bins Width
LL_EPT_T_I_D_GF	OBS_MODE SPECIES_EPT_D BINS_2	[2, 3, 2]	EPT magnet high time resolution, south direction Geometric factor
LL_EPT_T_I_D_Bins_Low_Energy	OBS_MODE SPECIES_EPT_D BINS_2	[2, 3, 2]	EPT magnet high time resolution, south direction Bins Low Energy
LL_EPT_T_I_D_Bins_Width	OBS_MODE SPECIES_EPT_D BINS_2	[2, 3, 2]	EPT magnet high time resolution, south direction Bins Width
LL_HETB_E_N_GF	OBS_MODE SPECIES_E_N	[2, 1]	HET B Electrons, north direction Geometric factor
LL_HETB_E_N_Bins_Low_Energy	OBS_MODE SPECIES_E_N	[2, 1]	HET B Electrons, north direction Bins Low Energy
LL_HETB_E_N_Bins_Width	OBS_MODE SPECIES_E_N	[2, 1]	HET B Electrons, north direction Bins Width
LL_HETB_E_D_GF	OBS_MODE SPECIES_E_D	[2, 1]	HET B Electrons, south direction Geometric factor
LL_HETB_E_D_Bins_Low_Energy	OBS_MODE SPECIES_E_D	[2, 1]	HET B Electrons, south direction Bins Low Energy
LL_HETB_E_D_Bins_Width	OBS_MODE SPECIES_E_D	[2, 1]	HET B Electrons, south direction Bins Width
LL_HETC_E_N_GF	OBS_MODE SPECIES_E_N BINS_3	[2, 1, 3]	HET C Electrons, north direction Geometric factor
LL_HETC_E_N_Bins_Low_Energy	OBS_MODE SPECIES_E_N BINS_3	[2, 1, 3]	HET C Electrons, north direction Bins Low Energy
LL_HETC_E_N_Bins_Width	OBS_MODE SPECIES_E_N BINS_3	[2, 1, 3]	HET C Electrons, north direction Bins Width
LL_HETC_E_D_GF	OBS_MODE SPECIES_E_D BINS_3	[2, 1, 3]	HET C Electrons, south direction Geometric factor
LL_HETC_E_D_Bins_Low_Energy	OBS_MODE SPECIES_E_D BINS_3	[2, 1, 3]	HET C Electrons, south direction Bins Low Energy
LL_HETC_E_D_Bins_Width	OBS_MODE SPECIES_E_D BINS_3	[2, 1, 3]	HET C Electrons, south direction Bins Width
LL_HETC_T_E_N_GF	OBS_MODE SPECIES_E_N	[2, 1]	HET B Electrons high time resolution, north direction Geometric factor
LL_HETC_T_E_N_Bins_Low_Energy	OBS_MODE SPECIES_E_N	[2, 1]	HET B Electrons high time resolution, north direction Bins Low Energy
LL_HETC_T_E_N_Bins_Width	OBS_MODE SPECIES_E_N	[2, 1]	HET B Electrons high time resolution, north direction Bins Width

Name	Depend	Dims.	Description
LL_HETC_T_E_D_GF	OBS_MODE SPECIES_E_D	[2, 1]	HET B Electrons high time resolution, south direction Geometric factor
LL_HETC_T_E_D_Bins_Low_Energy	OBS_MODE SPECIES_E_D	[2, 1]	HET B Electrons high time resolution, south direction Bins Low Energy
LL_HETC_T_E_D_Bins_Width	OBS_MODE SPECIES_E_D	[2, 1]	HET B Electrons high time resolution, south direction Bins Width
LL_HETB_P_N_GF	OBS_MODE SPECIES_P_N BINS_2	[2, 1, 2]	HET B Hydrogen, north direction Geometric factor
LL_HETB_P_N_Bins_Low_Energy	OBS_MODE SPECIES_P_N BINS_2	[2, 1, 2]	HET B Hydrogen, north direction Bins Low Energy
LL_HETB_P_N_Bins_Width	OBS_MODE SPECIES_P_N BINS_2	[2, 1, 2]	HET B Hydrogen, north direction Bins Width
LL_HETB_P_D_GF	OBS_MODE SPECIES_P_D BINS_2	[2, 1, 2]	HET B Hydrogen, south direction Geometric factor
LL_HETB_P_D_Bins_Low_Energy	OBS_MODE SPECIES_P_D BINS_2	[2, 1, 2]	HET B Hydrogen, south direction Bins Low Energy
LL_HETB_P_D_Bins_Width	OBS_MODE SPECIES_P_D BINS_2	[2, 1, 2]	HET B Hydrogen, south direction Bins Width
LL_HETC_P_N_GF	OBS_MODE SPECIES_P_N BINS_10	[2, 1, 10]	HET C Hydrogen, north direction Geometric factor
LL_HETC_P_N_Bins_Low_Energy	OBS_MODE SPECIES_P_N BINS_10	[2, 1, 10]	HET C Hydrogen, north direction Bins Low Energy
LL_HETC_P_N_Bins_Width	OBS_MODE SPECIES_P_N BINS_10	[2, 1, 10]	HET C Hydrogen, north direction Bins Width
LL_HETC_P_D_GF	OBS_MODE SPECIES_P_D BINS_10	[2, 1, 10]	HET C Hydrogen, south direction Geometric factor
LL_HETC_P_D_Bins_Low_Energy	OBS_MODE SPECIES_P_D BINS_10	[2, 1, 10]	HET C Hydrogen, south direction Bins Low Energy
LL_HETC_P_D_Bins_Width	OBS_MODE SPECIES_P_D BINS_10	[2, 1, 10]	HET C Hydrogen, south direction Bins Width
LL_HETP_P_N_GF	OBS_MODE SPECIES_P_N BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, north direction Geometric factor
LL_HETP_P_N_Bins_Low_Energy	OBS_MODE SPECIES_P_N BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, north direction Bins Low Energy

Name	Depend	Dims.	Description
LL_HETP_P_N_Bins_Width	OBS_MODE SPECIES_P_N BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, north direction Bins Width
LL_HETP_P_D_GF	OBS_MODE SPECIES_P_D BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, south direction Geometric factor
LL_HETP_P_D_Bins_Low_Energy	OBS_MODE SPECIES_P_D BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, south direction Bins Low Energy
LL_HETP_P_D_Bins_Width	OBS_MODE SPECIES_P_D BINS_2	[2, 1, 2]	HET Penetrating Hydrogen, south direction Bins Width
LL_HETP_P_P_GF	OBS_MODE SPECIES_P_P BINS_2	[2, 2, 2]	HET Penetrating Relativistic Hydrogen, polar (north + south) direction Geometric factor
LL_HETP_P_P_Bins_Low_Energy	OBS_MODE SPECIES_P_P BINS_2	[2, 2, 2]	HET Penetrating Relativistic Hydrogen, polar (north + south) direction Bins Low Energy
LL_HETP_P_P_Bins_Width	OBS_MODE SPECIES_P_P BINS_2	[2, 2, 2]	HET Penetrating Relativistic Hydrogen, polar (north + south) direction Bins Width
LL_HETC_T_P_N_GF	OBS_MODE SPECIES_P_N BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, north direction Geometric factor
LL_HETC_T_P_N_Bins_Low_Energy	OBS_MODE SPECIES_P_N BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, north direction Bins Low Energy
LL_HETC_T_P_N_Bins_Width	OBS_MODE SPECIES_P_N BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, north direction Bins Width
LL_HETC_T_P_D_GF	OBS_MODE SPECIES_P_D BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, south direction Geometric factor
LL_HETC_T_P_D_Bins_Low_Energy	OBS_MODE SPECIES_P_D BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, south direction Bins Low Energy
LL_HETC_T_P_D_Bins_Width	OBS_MODE SPECIES_P_D BINS_3	[2, 1, 3]	HET C Hydrogen high time resolution, south direction Bins Width
LL_HETB_HE_N_GF	OBS_MODE SPECIES_HE_N BINS_4	[2, 2, 4]	HET B Helium, north direction Geometric factor
LL_HETB_HE_N_Bins_Low_Energy	OBS_MODE SPECIES_HE_N BINS_4	[2, 2, 4]	HET B Helium, north direction Bins Low Energy
LL_HETB_HE_N_Bins_Width	OBS_MODE SPECIES_HE_N BINS_4	[2, 2, 4]	HET B Helium, north direction Bins Width

Name	Depend	Dims.	Description
LL_HETB_HE_D_GF	OBS_MODE SPECIES_HE_D BINS_4	[2, 2, 4]	HET B Helium, south direction Geometric factor
LL_HETB_HE_D_Bins_Low_Energy	OBS_MODE SPECIES_HE_D BINS_4	[2, 2, 4]	HET B Helium, south direction Bins Low Energy
LL_HETB_HE_D_Bins_Width	OBS_MODE SPECIES_HE_D BINS_4	[2, 2, 4]	HET B Helium, south direction Bins Width
LL_HETP_HE_N_GF	OBS_MODE SPECIES_HE4_N BINS_2	[2, 1, 2]	HET Penetrating Helium, north direction Geometric factor
LL_HETP_HE_N_Bins_Low_Energy	OBS_MODE SPECIES_HE4_N BINS_2	[2, 1, 2]	HET Penetrating Helium, north direction Bins Low Energy
LL_HETP_HE_N_Bins_Width	OBS_MODE SPECIES_HE4_N BINS_2	[2, 1, 2]	HET Penetrating Helium, north direction Bins Width
LL_HETP_HE_D_GF	OBS_MODE SPECIES_HE4_D BINS_2	[2, 1, 2]	HET Penetrating Helium, south direction Geometric factor
LL_HETP_HE_D_Bins_Low_Energy	OBS_MODE SPECIES_HE4_D BINS_2	[2, 1, 2]	HET Penetrating Helium, south direction Bins Low Energy
LL_HETP_HE_D_Bins_Width	OBS_MODE SPECIES_HE4_D BINS_2	[2, 1, 2]	HET Penetrating Helium, south direction Bins Width
LL_HETP_HE_P_GF	OBS_MODE SPECIES_HE4_P BINS_2	[2, 2, 2]	HET Penetrating Relativistic Helium, polar (north + south) direction Geometric factor
LL_HETP_HE_P_Bins_Low_Energy	OBS_MODE SPECIES_HE4_P BINS_2	[2, 2, 2]	HET Penetrating Relativistic Helium, polar (north + south) direction Bins Low Energy
LL_HETP_HE_P_Bins_Width	OBS_MODE SPECIES_HE4_P BINS_2	[2, 2, 2]	HET Penetrating Relativistic Helium, polar (north + south) direction Bins Width
LL_HETB_HE3_N_GF	OBS_MODE SPECIES_HE3_N BINS_2	[2, 1, 2]	HET B Helium-3, north direction Geometric factor
LL_HETB_HE3_N_Bins_Low_Energy	OBS_MODE SPECIES_HE3_N BINS_2	[2, 1, 2]	HET B Helium-3, north direction Bins Low Energy
LL_HETB_HE3_N_Bins_Width	OBS_MODE SPECIES_HE3_N BINS_2	[2, 1, 2]	HET B Helium-3, north direction Bins Width
LL_HETB_HE3_D_GF	OBS_MODE SPECIES_HE3_D BINS_2	[2, 1, 2]	HET B Helium-3, south direction Geometric factor

Name	Depend	Dims.	Description
LL_HETB_HE3_D_Bins_Low_Energy	OBS_MODE SPECIES_HE3_D BINS_2	[2, 1, 2]	HET B Helium-3, south direction Bins Low Energy
LL_HETB_HE3_D_Bins_Width	OBS_MODE SPECIES_HE3_D BINS_2	[2, 1, 2]	HET B Helium-3, south direction Bins Width
LL_HETC_HE3_N_GF	OBS_MODE SPECIES_HE3_N BINS_4	[2, 1, 4]	HET C Helium-3, north direction Geometric factor
LL_HETC_HE3_N_Bins_Low_Energy	OBS_MODE SPECIES_HE3_N BINS_4	[2, 1, 4]	HET C Helium-3, north direction Bins Low Energy
LL_HETC_HE3_N_Bins_Width	OBS_MODE SPECIES_HE3_N BINS_4	[2, 1, 4]	HET C Helium-3, north direction Bins Width
LL_HETC_HE3_D_GF	OBS_MODE SPECIES_HE3_D BINS_4	[2, 1, 4]	HET C Helium-3, south direction Geometric factor
LL_HETC_HE3_D_Bins_Low_Energy	OBS_MODE SPECIES_HE3_D BINS_4	[2, 1, 4]	HET C Helium-3, south direction Bins Low Energy
LL_HETC_HE3_D_Bins_Width	OBS_MODE SPECIES_HE3_D BINS_4	[2, 1, 4]	HET C Helium-3, south direction Bins Width
LL_HETB_HE4_N_GF	OBS_MODE SPECIES_HE4_N BINS_2	[2, 1, 2]	HET B Helium-4, north direction Geometric factor
LL_HETB_HE4_N_Bins_Low_Energy	OBS_MODE SPECIES_HE4_N BINS_2	[2, 1, 2]	HET B Helium-4, north direction Bins Low Energy
LL_HETB_HE4_N_Bins_Width	OBS_MODE SPECIES_HE4_N BINS_2	[2, 1, 2]	HET B Helium-4, north direction Bins Width
LL_HETB_HE4_D_GF	OBS_MODE SPECIES_HE4_D BINS_2	[2, 1, 2]	HET B Helium-4, south direction Geometric factor
LL_HETB_HE4_D_Bins_Low_Energy	OBS_MODE SPECIES_HE4_D BINS_2	[2, 1, 2]	HET B Helium-4, south direction Bins Low Energy
LL_HETB_HE4_D_Bins_Width	OBS_MODE SPECIES_HE4_D BINS_2	[2, 1, 2]	HET B Helium-4, south direction Bins Width
LL_HETC_HE4_N_GF	OBS_MODE SPECIES_HE4_N BINS_8	[2, 1, 8]	HET C Helium-4, north direction Geometric factor
LL_HETC_HE4_N_Bins_Low_Energy	OBS_MODE SPECIES_HE4_N BINS_8	[2, 1, 8]	HET C Helium-4, north direction Bins Low Energy

Name	Depend	Dims.	Description
LL_HETC_HE4_N_Bins_Width	OBS_MODE SPECIES_HE4_N BINS_8	[2, 1, 8]	HET C Helium-4, north direction Bins Width
LL_HETC_HE4_D_GF	OBS_MODE SPECIES_HE4_D BINS_8	[2, 1, 8]	HET C Helium-4, south direction Geometric factor
LL_HETC_HE4_D_Bins_Low_Energy	OBS_MODE SPECIES_HE4_D BINS_8	[2, 1, 8]	HET C Helium-4, south direction Bins Low Energy
LL_HETC_HE4_D_Bins_Width	OBS_MODE SPECIES_HE4_D BINS_8	[2, 1, 8]	HET C Helium-4, south direction Bins Width
LL_HETB_CNO_N_GF	OBS_MODE SPECIES_CNO_N BINS_6	[2, 3, 6]	HET B CNO, north direction Geometric factor
LL_HETB_CNO_N_Bins_Low_Energy	OBS_MODE SPECIES_CNO_N BINS_6	[2, 3, 6]	HET B CNO, north direction Bins Low Energy
LL_HETB_CNO_N_Bins_Width	OBS_MODE SPECIES_CNO_N BINS_6	[2, 3, 6]	HET B CNO, north direction Bins Width
LL_HETB_CNO_D_GF	OBS_MODE SPECIES_CNO_D BINS_6	[2, 3, 6]	HET B CNO, south direction Geometric factor
LL_HETB_CNO_D_Bins_Low_Energy	OBS_MODE SPECIES_CNO_D BINS_6	[2, 3, 6]	HET B CNO, south direction Bins Low Energy
LL_HETB_CNO_D_Bins_Width	OBS_MODE SPECIES_CNO_D BINS_6	[2, 3, 6]	HET B CNO, south direction Bins Width
LL_HETC_CNO_N_GF	OBS_MODE SPECIES_CNO_N BINS_9	[2, 3, 9]	HET C CNO, north direction Geometric factor
LL_HETC_CNO_N_Bins_Low_Energy	OBS_MODE SPECIES_CNO_N BINS_9	[2, 3, 9]	HET C CNO, north direction Bins Low Energy
LL_HETC_CNO_N_Bins_Width	OBS_MODE SPECIES_CNO_N BINS_9	[2, 3, 9]	HET C CNO, north direction Bins Width
LL_HETC_CNO_D_GF	OBS_MODE SPECIES_CNO_D BINS_9	[2, 3, 9]	HET C CNO, south direction Geometric factor
LL_HETC_CNO_D_Bins_Low_Energy	OBS_MODE SPECIES_CNO_D BINS_9	[2, 3, 9]	HET C CNO, south direction Bins Low Energy
LL_HETC_CNO_D_Bins_Width	OBS_MODE SPECIES_CNO_D BINS_9	[2, 3, 9]	HET C CNO, south direction Bins Width

Name	Depend	Dims.	Description
LL_HETP_CNO_N_GF	OBS_MODE SPECIES_CNO_N BINS_2	[2, 3, 2]	HET Penetrating CNO, north direction Geometric factor
LL_HETP_CNO_N_Bins_Low_Energy	OBS_MODE SPECIES_CNO_N BINS_2	[2, 3, 2]	HET Penetrating CNO, north direction Bins Low Energy
LL_HETP_CNO_N_Bins_Width	OBS_MODE SPECIES_CNO_N BINS_2	[2, 3, 2]	HET Penetrating CNO, north direction Bins Width
LL_HETP_CNO_D_GF	OBS_MODE SPECIES_CNO_D BINS_2	[2, 3, 2]	HET Penetrating CNO, south direction Geometric factor
LL_HETP_CNO_D_Bins_Low_Energy	OBS_MODE SPECIES_CNO_D BINS_2	[2, 3, 2]	HET Penetrating CNO, south direction Bins Low Energy
LL_HETP_CNO_D_Bins_Width	OBS_MODE SPECIES_CNO_D BINS_2	[2, 3, 2]	HET Penetrating CNO, south direction Bins Width
LL_HETP_CNO_P_GF	OBS_MODE SPECIES_CNO_P BINS_2	[2, 6, 2]	HET Penetrating Relativistic CNO, polar (north + south) direction Geometric factor
LL_HETP_CNO_P_Bins_Low_Energy	OBS_MODE SPECIES_CNO_P BINS_2	[2, 6, 2]	HET Penetrating Relativistic CNO, polar (north + south) direction Bins Low Energy
LL_HETP_CNO_P_Bins_Width	OBS_MODE SPECIES_CNO_P BINS_2	[2, 6, 2]	HET Penetrating Relativistic CNO, polar (north + south) direction Bins Width
LL_HETB_FE_N_GF	OBS_MODE SPECIES_FE_N BINS_2	[2, 1, 2]	HET B Iron, north direction Geometric factor
LL_HETB_FE_N_Bins_Low_Energy	OBS_MODE SPECIES_FE_N BINS_2	[2, 1, 2]	HET B Iron, north direction Bins Low Energy
LL_HETB_FE_N_Bins_Width	OBS_MODE SPECIES_FE_N BINS_2	[2, 1, 2]	HET B Iron, north direction Bins Width
LL_HETB_FE_D_GF	OBS_MODE SPECIES_FE_D BINS_2	[2, 1, 2]	HET B Iron, south direction Geometric factor
LL_HETB_FE_D_Bins_Low_Energy	OBS_MODE SPECIES_FE_D BINS_2	[2, 1, 2]	HET B Iron, south direction Bins Low Energy
LL_HETB_FE_D_Bins_Width	OBS_MODE SPECIES_FE_D BINS_2	[2, 1, 2]	HET B Iron, south direction Bins Width
LL_HETC_FE_N_GF	OBS_MODE SPECIES_FE_N BINS_3	[2, 1, 3]	HET C Iron, north direction Geometric factor

Name	Depend	Dims.	Description
LL_HETC_FE_N_Bins_Low_Energy	OBS_MODE SPECIES_FE_N BINS_3	[2, 1, 3]	HET C Iron, north direction Bins Low Energy
LL_HETC_FE_N_Bins_Width	OBS_MODE SPECIES_FE_N BINS_3	[2, 1, 3]	HET C Iron, north direction Bins Width
LL_HETC_FE_D_GF	OBS_MODE SPECIES_FE_D BINS_3	[2, 1, 3]	HET C Iron, south direction Geometric factor
LL_HETC_FE_D_Bins_Low_Energy	OBS_MODE SPECIES_FE_D BINS_3	[2, 1, 3]	HET C Iron, south direction Bins Low Energy
LL_HETC_FE_D_Bins_Width	OBS_MODE SPECIES_FE_D BINS_3	[2, 1, 3]	HET C Iron, south direction Bins Width
LL_HETP_FE_N_GF	OBS_MODE SPECIES_FE_N	[2, 1]	HET Penetrating Iron, north direction Geometric factor
LL_HETP_FE_N_Bins_Low_Energy	OBS_MODE SPECIES_FE_N	[2, 1]	HET Penetrating Iron, north direction Bins Low Energy
LL_HETP_FE_N_Bins_Width	OBS_MODE SPECIES_FE_N	[2, 1]	HET Penetrating Iron, north direction Bins Width
LL_HETP_FE_D_GF	OBS_MODE SPECIES_FE_D	[2, 1]	HET Penetrating Iron, south direction Geometric factor
LL_HETP_FE_D_Bins_Low_Energy	OBS_MODE SPECIES_FE_D	[2, 1]	HET Penetrating Iron, south direction Bins Low Energy
LL_HETP_FE_D_Bins_Width	OBS_MODE SPECIES_FE_D	[2, 1]	HET Penetrating Iron, south direction Bins Width
BINS_2		[2]	Energy bin number for 2 bins
BINS_3		[3]	Energy bin number for 3 bins
BINS_4		[4]	Energy bin number for 4 bins
BINS_6		[6]	Energy bin number for 6 bins
BINS_8		[8]	Energy bin number for 8 bins
BINS_9		[9]	Energy bin number for 9 bins
BINS_10		[10]	Energy bin number for 10 bins
BINS_18		[18]	Energy bin number for 18 bins
SPECIES_EPT_N		[3]	Species
SPECIES_EPT_D		[3]	Species
SPECIES_E_N		[1]	Species
SPECIES_E_D		[1]	Species
SPECIES_P_N		[1]	Species
SPECIES_P_D		[1]	Species
SPECIES_P_P		[2]	Species
SPECIES_HE_N		[2]	Species

Name	Depend	Dims.	Description
SPECIES_HE_D		[2]	Species
SPECIES_HE3_N		[1]	Species
SPECIES_HE3_D		[1]	Species
SPECIES_HE4_N		[1]	Species
SPECIES_HE4_D		[1]	Species
SPECIES_HE4_P		[2]	Species
SPECIES_CNO_N		[3]	Species
SPECIES_CNO_D		[3]	Species
SPECIES_CNO_P		[6]	Species
SPECIES_FE_N		[1]	Species
SPECIES_FE_D		[1]	Species
OBS_MODE		[2]	Observing mode
XYZ_N		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates)
XYZ_Labels		[3]	Labels for vector components in spacecraft XYZ coordinates
XYZ_D		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates)
ENERGY		[1720]	Incident energy
LL_EPT_E_N_Response	ENERGY OBS_MODE SPECIES_EPT_N BINS_8	[1720, 2, 3, 8]	EPT foil, north direction Energy response
LL_EPT_E_D_Response	ENERGY OBS_MODE SPECIES_EPT_D BINS_8	[1720, 2, 3, 8]	EPT foil, south direction Energy response
LL_EPT_T_E_N_Response	ENERGY OBS_MODE SPECIES_EPT_N	[1720, 2, 3]	EPT foil high time resolution, north direction Energy response
LL_EPT_T_E_D_Response	ENERGY OBS_MODE SPECIES_EPT_D	[1720, 2, 3]	EPT foil high time resolution, south direction Energy response
LL_EPT_I_N_Response	ENERGY OBS_MODE SPECIES_EPT_N BINS_18	[1720, 2, 3, 18]	EPT magnet, north direction Energy response
LL_EPT_I_D_Response	ENERGY OBS_MODE SPECIES_EPT_D BINS_18	[1720, 2, 3, 18]	EPT magnet, south direction Energy response
LL_EPT_T_I_N_Response	ENERGY OBS_MODE SPECIES_EPT_N BINS_2	[1720, 2, 3, 2]	EPT magnet high time resolution, north direction Energy response

Name	Depend	Dims.	Description
LL_EPT_T_I_D_Response	ENERGY OBS_MODE SPECIES_EPT_D BINS_2	[1720, 2, 3, 2]	EPT magnet high time resolution, south direction Energy response
LL_HETB_E_N_Response	ENERGY OBS_MODE SPECIES_E_N	[1720, 2, 1]	HET B Electrons, north direction Energy response
LL_HETB_E_D_Response	ENERGY OBS_MODE SPECIES_E_D	[1720, 2, 1]	HET B Electrons, south direction Energy response
LL_HETC_E_N_Response	ENERGY OBS_MODE SPECIES_E_N BINS_3	[1720, 2, 1, 3]	HET C Electrons, north direction Energy response
LL_HETC_E_D_Response	ENERGY OBS_MODE SPECIES_E_D BINS_3	[1720, 2, 1, 3]	HET C Electrons, south direction Energy response
LL_HETC_T_E_N_Response	ENERGY OBS_MODE SPECIES_E_N	[1720, 2, 1]	HET B Electrons high time resolution, north direction Energy response
LL_HETC_T_E_D_Response	ENERGY OBS_MODE SPECIES_E_D	[1720, 2, 1]	HET B Electrons high time resolution, south direction Energy response
LL_HETB_P_N_Response	ENERGY OBS_MODE SPECIES_P_N BINS_2	[1720, 2, 1, 2]	HET B Hydrogen, north direction Energy response
LL_HETB_P_D_Response	ENERGY OBS_MODE SPECIES_P_D BINS_2	[1720, 2, 1, 2]	HET B Hydrogen, south direction Energy response
LL_HETC_P_N_Response	ENERGY OBS_MODE SPECIES_P_N BINS_10	[1720, 2, 1, 10]	HET C Hydrogen, north direction Energy response
LL_HETC_P_D_Response	ENERGY OBS_MODE SPECIES_P_D BINS_10	[1720, 2, 1, 10]	HET C Hydrogen, south direction Energy response
LL_HETP_P_N_Response	ENERGY OBS_MODE SPECIES_P_N BINS_2	[1720, 2, 1, 2]	HET Penetrating Hydrogen, north direction Energy response
LL_HETP_P_D_Response	ENERGY OBS_MODE SPECIES_P_D BINS_2	[1720, 2, 1, 2]	HET Penetrating Hydrogen, south direction Energy response

Name	Depend	Dims.	Description
LL_HETP_P_P_Response	ENERGY OBS_MODE SPECIES_P_P BINS_2	[1720, 2, 2, 2]	HET Penetrating Relativistic Hydrogen, polar (north + south) direction Energy response
LL_HETC_T_P_N_Response	ENERGY OBS_MODE SPECIES_P_N BINS_3	[1720, 2, 1, 3]	HET C Hydrogen high time resolution, north direction Energy response
LL_HETC_T_P_D_Response	ENERGY OBS_MODE SPECIES_P_D BINS_3	[1720, 2, 1, 3]	HET C Hydrogen high time resolution, south direction Energy response
LL_HETB_HE_N_Response	ENERGY OBS_MODE SPECIES_HE_N BINS_4	[1720, 2, 2, 4]	HET B Helium, north direction Energy response
LL_HETB_HE_D_Response	ENERGY OBS_MODE SPECIES_HE_D BINS_4	[1720, 2, 2, 4]	HET B Helium, south direction Energy response
LL_HETP_HE_N_Response	ENERGY OBS_MODE SPECIES_HE4_N BINS_2	[1720, 2, 1, 2]	HET Penetrating Helium, north direction Energy response
LL_HETP_HE_D_Response	ENERGY OBS_MODE SPECIES_HE4_D BINS_2	[1720, 2, 1, 2]	HET Penetrating Helium, south direction Energy response
LL_HETP_HE_P_Response	ENERGY OBS_MODE SPECIES_HE4_P BINS_2	[1720, 2, 2, 2]	HET Penetrating Relativistic Helium, polar (north + south) direction Energy response
LL_HETB_HE3_N_Response	ENERGY OBS_MODE SPECIES_HE3_N BINS_2	[1720, 2, 1, 2]	HET B Helium-3, north direction Energy response
LL_HETB_HE3_D_Response	ENERGY OBS_MODE SPECIES_HE3_D BINS_2	[1720, 2, 1, 2]	HET B Helium-3, south direction Energy response
LL_HETC_HE3_N_Response	ENERGY OBS_MODE SPECIES_HE3_N BINS_4	[1720, 2, 1, 4]	HET C Helium-3, north direction Energy response
LL_HETC_HE3_D_Response	ENERGY OBS_MODE SPECIES_HE3_D BINS_4	[1720, 2, 1, 4]	HET C Helium-3, south direction Energy response
LL_HETB_HE4_N_Response	ENERGY OBS_MODE SPECIES_HE4_N BINS_2	[1720, 2, 1, 2]	HET B Helium-4, north direction Energy response

Name	Depend	Dims.	Description
LL_HETB_HE4_D_Response	ENERGY OBS_MODE SPECIES_HE4_D BINS_2	[1720, 2, 1, 2]	HET B Helium-4, south direction Energy response
LL_HETC_HE4_N_Response	ENERGY OBS_MODE SPECIES_HE4_N BINS_8	[1720, 2, 1, 8]	HET C Helium-4, north direction Energy response
LL_HETC_HE4_D_Response	ENERGY OBS_MODE SPECIES_HE4_D BINS_8	[1720, 2, 1, 8]	HET C Helium-4, south direction Energy response
LL_HETB_CNO_N_Response	ENERGY OBS_MODE SPECIES_CNO_N BINS_6	[1720, 2, 3, 6]	HET B CNO, north direction Energy response
LL_HETB_CNO_D_Response	ENERGY OBS_MODE SPECIES_CNO_D BINS_6	[1720, 2, 3, 6]	HET B CNO, south direction Energy response
LL_HETC_CNO_N_Response	ENERGY OBS_MODE SPECIES_CNO_N BINS_9	[1720, 2, 3, 9]	HET C CNO, north direction Energy response
LL_HETC_CNO_D_Response	ENERGY OBS_MODE SPECIES_CNO_D BINS_9	[1720, 2, 3, 9]	HET C CNO, south direction Energy response
LL_HETP_CNO_N_Response	ENERGY OBS_MODE SPECIES_CNO_N BINS_2	[1720, 2, 3, 2]	HET Penetrating CNO, north direction Energy response
LL_HETP_CNO_D_Response	ENERGY OBS_MODE SPECIES_CNO_D BINS_2	[1720, 2, 3, 2]	HET Penetrating CNO, south direction Energy response
LL_HETP_CNO_P_Response	ENERGY OBS_MODE SPECIES_CNO_P BINS_2	[1720, 2, 6, 2]	HET Penetrating Relativistic CNO, polar (north + south) direction Energy response
LL_HETB_FE_N_Response	ENERGY OBS_MODE SPECIES_FE_N BINS_2	[1720, 2, 1, 2]	HET B Iron, north direction Energy response
LL_HETB_FE_D_Response	ENERGY OBS_MODE SPECIES_FE_D BINS_2	[1720, 2, 1, 2]	HET B Iron, south direction Energy response
LL_HETC_FE_N_Response	ENERGY OBS_MODE SPECIES_FE_N BINS_3	[1720, 2, 1, 3]	HET C Iron, north direction Energy response

Name	Depend	Dims.	Description
LL_HETC_FE_D_Response	ENERGY OBS_MODE SPECIES_FE_D BINS_3	[1720, 2, 1, 3]	HET C Iron, south direction Energy response
LL_HETP_FE_N_Response	ENERGY OBS_MODE SPECIES_FE_N	[1720, 2, 1]	HET Penetrating Iron, north direction Energy response
LL_HETP_FE_D_Response	ENERGY OBS_MODE SPECIES_FE_D	[1720, 2, 1]	HET Penetrating Iron, south direction Energy response

4.1.4.9 SIS A CAL Rates

Description: SIS A particle rates calibration file

Descriptor: epd-sis-a-rates

Free field: None

Level: CAL

Dataset dependencies:

Associated calibration set: N/A

Expected cadence and dataset volume: Single file, updated only when a new calibration is available

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	CAL>Calibration Data
Descriptor	EPD-SIS-A-RATES>Energetic Particle Detector, Suprathermal Ion Spectrograph, A Telescope, Particle rates
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_CAL_epd-sis-a-rates
Logical_source_description	Solar Orbiter, Calibration Data, Energetic Particle Detector, Suprathermal Ion Spectrograph, A Telescope, Particle rates
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES>Particle rates
LEVEL	CAL>Calibration Data

Variables

Name	Depend	Dims.	Description
H_GF	IRIS_Setting SPECIES_H BINS_21	[4, 1, 21]	Hydrogen Geometric factor
H_Bins_Low_Energy	IRIS_Setting SPECIES_H BINS_21	[4, 1, 21]	Hydrogen Bins Low Energy

Name	Depend	Dims.	Description
H_Bins_Width	IRIS_Setting SPECIES_H BINS_21	[4, 1, 21]	Hydrogen Bins Width
HE3_GF	IRIS_Setting SPECIES_HE3 BINS_21	[4, 1, 21]	Helium-3 Geometric factor
HE3_Bins_Low_Energy	IRIS_Setting SPECIES_HE3 BINS_21	[4, 1, 21]	Helium-3 Bins Low Energy
HE3_Bins_Width	IRIS_Setting SPECIES_HE3 BINS_21	[4, 1, 21]	Helium-3 Bins Width
HE4_GF	IRIS_Setting SPECIES_HE4 BINS_21	[4, 1, 21]	Helium-4 Geometric factor
HE4_Bins_Low_Energy	IRIS_Setting SPECIES_HE4 BINS_21	[4, 1, 21]	Helium-4 Bins Low Energy
HE4_Bins_Width	IRIS_Setting SPECIES_HE4 BINS_21	[4, 1, 21]	Helium-4 Bins Width
C_GF	IRIS_Setting SPECIES_C BINS_21	[4, 1, 21]	Carbon Geometric factor
C_Bins_Low_Energy	IRIS_Setting SPECIES_C BINS_21	[4, 1, 21]	Carbon Bins Low Energy
C_Bins_Width	IRIS_Setting SPECIES_C BINS_21	[4, 1, 21]	Carbon Bins Width
N_GF	IRIS_Setting SPECIES_N BINS_21	[4, 1, 21]	Nitrogen Geometric factor
N_Bins_Low_Energy	IRIS_Setting SPECIES_N BINS_21	[4, 1, 21]	Nitrogen Bins Low Energy
N_Bins_Width	IRIS_Setting SPECIES_N BINS_21	[4, 1, 21]	Nitrogen Bins Width
O_GF	IRIS_Setting SPECIES_O BINS_21	[4, 1, 21]	Oxygen Geometric factor
O_Bins_Low_Energy	IRIS_Setting SPECIES_O BINS_21	[4, 1, 21]	Oxygen Bins Low Energy
O_Bins_Width	IRIS_Setting SPECIES_O BINS_21	[4, 1, 21]	Oxygen Bins Width

Name	Depend	Dims.	Description
NE_GF	IRIS_Setting SPECIES_NE BINS_21	[4, 1, 21]	Neon Geometric factor
NE_Bins_Low_Energy	IRIS_Setting SPECIES_NE BINS_21	[4, 1, 21]	Neon Bins Low Energy
NE_Bins_Width	IRIS_Setting SPECIES_NE BINS_21	[4, 1, 21]	Neon Bins Width
MG_GF	IRIS_Setting SPECIES_MG BINS_21	[4, 1, 21]	Magnesium Geometric factor
MG_Bins_Low_Energy	IRIS_Setting SPECIES_MG BINS_21	[4, 1, 21]	Magnesium Bins Low Energy
MG_Bins_Width	IRIS_Setting SPECIES_MG BINS_21	[4, 1, 21]	Magnesium Bins Width
SI_GF	IRIS_Setting SPECIES_SI BINS_21	[4, 1, 21]	Silicon Geometric factor
SI_Bins_Low_Energy	IRIS_Setting SPECIES_SI BINS_21	[4, 1, 21]	Silicon Bins Low Energy
SI_Bins_Width	IRIS_Setting SPECIES_SI BINS_21	[4, 1, 21]	Silicon Bins Width
S_GF	IRIS_Setting SPECIES_S BINS_21	[4, 1, 21]	Sulfur Geometric factor
S_Bins_Low_Energy	IRIS_Setting SPECIES_S BINS_21	[4, 1, 21]	Sulfur Bins Low Energy
S_Bins_Width	IRIS_Setting SPECIES_S BINS_21	[4, 1, 21]	Sulfur Bins Width
CA_GF	IRIS_Setting SPECIES_CA BINS_21	[4, 1, 21]	Calcium Geometric factor
CA_Bins_Low_Energy	IRIS_Setting SPECIES_CA BINS_21	[4, 1, 21]	Calcium Bins Low Energy
CA_Bins_Width	IRIS_Setting SPECIES_CA BINS_21	[4, 1, 21]	Calcium Bins Width
FE_GF	IRIS_Setting SPECIES_FE BINS_21	[4, 1, 21]	Iron Geometric factor

Name	Depend	Dims.	Description
FE_Bins_Low_Energy	IRIS_Setting SPECIES_FE BINS_21	[4, 1, 21]	Iron Bins Low Energy
FE_Bins_Width	IRIS_Setting SPECIES_FE BINS_21	[4, 1, 21]	Iron Bins Width
SPECIES_H		[1]	Species
SPECIES_HE3		[1]	Species
SPECIES_HE4		[1]	Species
SPECIES_C		[1]	Species
SPECIES_N		[1]	Species
SPECIES_O		[1]	Species
SPECIES_NE		[1]	Species
SPECIES_MG		[1]	Species
SPECIES_SI		[1]	Species
SPECIES_S		[1]	Species
SPECIES_CA		[1]	Species
SPECIES_FE		[1]	Species
IRIS_Setting		[4]	Iris mode number
IRIS_Low_Limit	IRIS_Setting	[4]	Iris position lower value for each iris setting
IRIS_Delta	IRIS_Setting	[4]	Iris position width for each iris setting
BINS_21		[21]	Energy bin number for 21 bins
XYZ		[3]	Particle flow direction (unit vector) in spacecraft XYZ coordinates)
XYZ_Labels		[3]	Labels for vector components in spacecraft XYZ coordinates

4.1.4.10 SIS B CAL Rates

Description: SIS B particle rates calibration file

Descriptor: epd-sis-b-rates

Free field: None

Level: CAL

Dataset dependencies:

Associated calibration set: N/A

Expected cadence and dataset volume: Single file, updated only when a new calibration is available

Global attributes

Project	SOLO>Solar Orbiter
Source_name	SOLO>Solar Orbiter
Discipline	Space Physics>Interplanetary Studies
Data_type	CAL>Calibration Data
Descriptor	EPD-SIS-B-RATES>Energetic Particle Detector, Suprathermal Ion Spectrograph, B Telescope, Particle rates
Data_version	***nn***
Software_version	***nn.nn.nn***
PI_name	J. Rodriguez-Pacheco
PI_affiliation	Space Research Group, Universidad de Alcala
TEXT	***[...]***
Instrument_type	Particles (Space)
Mission_group	Solar Orbiter
Logical_source	solo_CAL_epd-sis-b-rates
Logical_source_description	Solar Orbiter, Calibration Data, Energetic Particle Detector, Suprathermal Ion Spectrograph, B Telescope, Particle rates
Logical_file_id	***filename***
Rules_of_use	See http://espada.uah.es/epd/EPD_data.php
Generated_by	Space Research Group, Universidad de Alcala
Generation_date	***YYYY-MM-DDTHH:MM:SS***
Acknowledgement	See http://espada.uah.es/epd/EPD_data.php
MODS	
HTTP_LINK	http://espada.uah.es/epd/EPD_data.php
Parents	***List of parent files***
Data_product	RATES>Particle rates
LEVEL	CAL>Calibration Data

Variables

Variables coincide with those of SIS A CAL Rates

A Data Products Matrix

Product name	Description	Descriptor	Free field	Level
ICU L0 Housekeeping	ICU housekeeping raw telemetry	epd-icu-hk	–	L0
SIS L0 Housekeeping	SIS housekeeping raw telemetry	epd-sis-hk	–	L0
SIS L0 Low Latency	SIS low latency science raw telemetry	epd-sis-ll	–	L0
SIS L0 Nominal	SIS nominal science raw telemetry	epd-sis-nom	–	L0
SIS L0 Sel. downlink	SIS selective downlink raw telemetry	epd-sis-seldl	–	L0
STEP L0 Low Latency	STEP low latency science raw telemetry	epd-step-ll	–	L0
STEP L0 Nominal	STEP nominal science raw telemetry	epd-step-nom	–	L0
STEP L0 Sel. downlink	STEP selective downlink raw telemetry	epd-step-seldl	–	L0
EPT-HET1 L0 Low Latency	EPT-HET 1 low latency science raw telemetry	epd-epthet1-ll	–	L0
EPT-HET1 L0 Nominal	EPT-HET 1 nominal science raw telemetry	epd-epthet1-nom	–	L0
EPT-HET1 L0 Sel. downlink	EPT-HET 1 selective downlink raw telemetry	epd-epthet1-seldl	–	L0
EPT-HET2 L0 Low Latency	EPT-HET 2 low latency science raw telemetry	epd-epthet2-ll	–	L0
EPT-HET2 L0 Nominal	EPT-HET 2 nominal science raw telemetry	epd-epthet2-nom	–	L0
EPT-HET2 L0 Sel. downlink	EPT-HET 2 selective downlink raw telemetry	epd-epthet2-seldl	–	L0
STEP L1 Main (far mode)	STEP Level 1 main product in *far* mode (started on October 22nd, 2021)	epd-step-main-far	–	L1
STEP L1 Main (close mode)	STEP Level 1 main product in *close* mode (started on October 22nd, 2021)	epd-step-main-close	–	L1
STEP L1 Auxiliary	STEP Level 1 auxiliary product (started on October 22nd, 2021)	epd-step-aux	–	L1
STEP L1 Nominal (far mode)	STEP Level 1 nominal product in *far* mode (discontinued on October 22nd, 2021)	epd-step-nom-far	–	L1
STEP L1 Nominal (close mode)	STEP Level 1 nominal product in *close* mode (discontinued on October 22nd, 2021)	epd-step-nom-close	–	L1
STEP L1 Burst1 (far mode)	STEP Level 1 burst product in *far* mode (discontinued on October 22nd, 2021)	epd-step-burst1-far	–	L1

Product name	Description	Descriptor	Free field	Level
STEP L1 Burst1 (close mode)	STEP Level 1 burst product in *close* mode (discontinued on October 22nd, 2021)	epd-step-burst1-close	–	L1
STEP L1 Quicklook	STEP Level 1 quicklook product	epd-step-quicklook	–	L1
EPT-HET1 L1 Nominal (far mode, version 1)	EPT-HET1 Level 1 nominal product in *far* mode (version 1, before March 24th, 2021)	epd-epthet1-nom-far	–	L1
EPT-HET1 L1 Nominal (far mode, version 2)	EPT-HET1 Level 1 nominal product in *far* mode (version 2, after March 24th, 2021)	epd-epthet1-nom-far	–	L1
EPT-HET1 L1 Nominal (close mode, version 1)	EPT-HET1 Level 1 nominal product in *close* mode (version 1, before March 24th, 2021)	epd-epthet1-nom-close	–	L1
EPT-HET1 L1 Nominal (close mode, version 2)	EPT-HET1 Level 1 nominal product in *close* mode (version 2, after March 24th, 2021)	epd-epthet1-nom-close	–	L1
EPT-HET1 L1 Quicklook	EPT-HET1 Level 1 quicklook product	epd-epthet1-quicklook	–	L1
EPT-HET1 L1 Single Counters	EPT-HET1 Level 1 single detector counters	epd-epthet1-sc	–	L1
EPT-HET2 L1 Nominal (far mode, version 1)	EPT-HET2 Level 1 nominal product in *far* mode (version 1, before March 24th, 2021)	epd-epthet2-nom-far	–	L1
EPT-HET2 L1 Nominal (far mode, version 2)	EPT-HET2 Level 1 nominal product in *far* mode (version 2, after March 24th, 2021)	epd-epthet2-nom-far	–	L1
EPT-HET2 L1 Nominal (close mode, version 1)	EPT-HET1 Level 1 nominal product in *close* mode (version 1, before March 24th, 2021)	epd-epthet2-nom-close	–	L1
EPT-HET2 L1 Nominal (close mode, version 2)	EPT-HET1 Level 1 nominal product in *close* mode (version 2, after March 24th, 2021)	epd-epthet2-nom-close	–	L1
EPT-HET2 L1 Quicklook	EPT-HET2 Level 1 quicklook product	epd-epthet2-quicklook	–	L1
EPT-HET2 L1 Single Counters	EPT-HET2 Level 1 single detector counters	epd-epthet2-sc	–	L1
SIS A L1 Rates medium	SIS A Level 1 particle rates with medium cadence	epd-sis-a-rates-medium	–	L1
SIS B L1 Rates medium	SIS B Level 1 particle rates with medium cadence	epd-sis-b-rates-medium	–	L1
SIS A L1 Rates slow	SIS A Level 1 particle rates with slow cadence	epd-sis-a-rates-slow	–	L1
SIS B L1 Rates slow	SIS B Level 1 particle rates with slow cadence	epd-sis-b-rates-slow	–	L1

Product name	Description	Descriptor	Free field	Level
SIS A L1 Rates fast	SIS A Level 1 particle rates with fast cadence	epd-sis-a-rates-fast	–	L1
SIS B L1 Rates fast	SIS B Level 1 particle rates with fast cadence	epd-sis-b-rates-fast	–	L1
SIS A L1 Helium Histogram	SIS A Level 1 helium histogram	epd-sis-a-hehist	–	L1
SIS B L1 Helium Histogram	SIS B Level 1 helium histogram	epd-sis-b-hehist	–	L1
STEP L2 Main	STEP Level 2 main product (started on October 22nd, 2021)	epd-step-main	–	L2
STEP L2 Rates	STEP Level 2 particle rates (discontinued on October 22nd, 2021)	epd-step-rates	–	L2
STEP L2 High Cadence	STEP Level 2 high cadence particle rates (discontinued on October 22nd, 2021)	epd-step-hcad	–	L2
STEP L2 Burst	STEP Level 2 particle rates in burst mode (discontinued on October 22nd, 2021)	epd-step-burst	–	L2
EPT Sun L2 Rates	EPT Level 2 particle rates from *sun* direction	epd-ept-sun-rates	–	L2
EPT Anti-Sun L2 Rates	EPT Level 2 particle rates from *anti-sun* direction	epd-ept-asun-rates	–	L2
EPT North L2 Rates	EPT Level 2 particle rates from *north* direction	epd-ept-north-rates	–	L2
EPT South L2 Rates	EPT Level 2 particle rates from *south* direction	epd-ept-south-rates	–	L2
EPT Sun L2 High Cadence	EPT Level 2 high cadence particle rates from *sun* direction (discontinued on March 24th, 2021)	epd-ept-sun-hcad	–	L2
EPT Anti-Sun L2 High Cadence	EPT Level 2 high cadence particle rates from *anti-sun* direction (discontinued on March 24th, 2021)	epd-ept-asun-hcad	–	L2
EPT North L2 High Cadence	EPT Level 2 high cadence particle rates from *north* direction (discontinued on March 24th, 2021)	epd-ept-north-hcad	–	L2
EPT South L2 High Cadence	EPT Level 2 high cadence particle rates from *south* direction (discontinued on March 24th, 2021)	epd-ept-south-hcad	–	L2
HET Sun L2 Rates	HET Level 2 particle rates from *sun* direction	epd-het-sun-rates	–	L2
HET Anti-Sun L2 Rates	HET Level 2 particle rates from *anti-sun* direction	epd-het-asun-rates	–	L2
HET North L2 Rates	HET Level 2 particle rates from *north* direction	epd-het-north-rates	–	L2
HET South L2 Rates	HET Level 2 particle rates from *south* direction	epd-het-south-rates	–	L2

Product name	Description	Descriptor	Free field	Level
SIS A L2 Rates medium	SIS A Level 2 particle rates with medium cadence	epd-sis-a-rates-medium	–	L2
SIS B L2 Rates medium	SIS B Level 2 particle rates with medium cadence	epd-sis-b-rates-medium	–	L2
SIS A L2 Rates slow	SIS A Level 2 particle rates with slow cadence	epd-sis-a-rates-slow	–	L2
SIS B L2 Rates slow	SIS B Level 2 particle rates with slow cadence	epd-sis-b-rates-slow	–	L2
SIS A L2 Rates fast	SIS A Level 2 particle rates with fast cadence	epd-sis-a-rates-fast	–	L2
SIS B L2 Rates fast	SIS B Level 2 particle rates with fast cadence	epd-sis-b-rates-fast	–	L2
SIS A L2 Helium Histogram	SIS A Level 2 helium histogram	epd-sis-a-hehist	–	L2
SIS B L2 Helium Histogram	SIS B Level 2 helium histogram	epd-sis-b-hehist	–	L2
STEP CAL Main	STEP main product calibration file	epd-step-main	–	CAL
STEP CAL Nominal	STEP nominal product calibration file	epd-step-nom	–	CAL
STEP CAL Burst1	STEP burst product calibration file	epd-step-burst1	–	CAL
STEP CAL Quicklook	STEP quicklook product calibration file	epd-step-quicklook	–	CAL
EPT-HET1 CAL Nominal	EPT-HET1 nominal product calibration file	epd-epthet1-nom	–	CAL
EPT-HET1 CAL Quicklook	EPT-HET1 quicklook product calibration file	epd-epthet1-quicklook	–	CAL
EPT-HET2 CAL Nominal	EPT-HET2 nominal product calibration file	epd-epthet2-nom	–	CAL
EPT-HET2 CAL Quicklook	EPT-HET2 quicklook product calibration file	epd-epthet2-quicklook	–	CAL
SIS A CAL Rates	SIS A particle rates calibration file	epd-sis-a-rates	–	CAL
SIS B CAL Rates	SIS B particle rates calibration file	epd-sis-b-rates	–	CAL