The Planck Legacy Archive

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The Planck Collaboration is releasing end of December 2014 their second major dataset through the Planck Legacy Archive. It includes cosmological, Extragalactic and Galactic science data in temperature (intensity) and polarization. High angular resolution full-sky maps of the Cosmic Microwave Background fluctuations are provided in temperature and polarization, as well as the corresponding angular power spectra. Full-sky maps are released at nine frequencies (30 GHz to 857 GHz) with unprecedented angular resolution (4' for the High-Frequency Instrument dust channels) and sensitivity, together with a large number of ancillary maps, catalogues and other information. A new web-based Planck Legacy Archive user interface is made public since Dec. 3rd 2014, allowing easier and faster access to all Planck data.

The Planck Legacy Archive is freely accessible via the URL

http://archives.esac.esa.int/pla

The new PLA user interface

Since Dec. 3rd 2014, the Planck Legacy Archive benefits from a completely new web-based user interface. It is accessible from any browser and operating system and does not require any installation on the part of the user.

It features sections corresponding to broad categories of Planck products: maps, effective beams, catalogues, cosmology products, timelines, documents and software, operational data, simulations.

The PLA allows all users to browse and search the data products, preview many of them, inspect them, process them (in the case of maps) and download them.
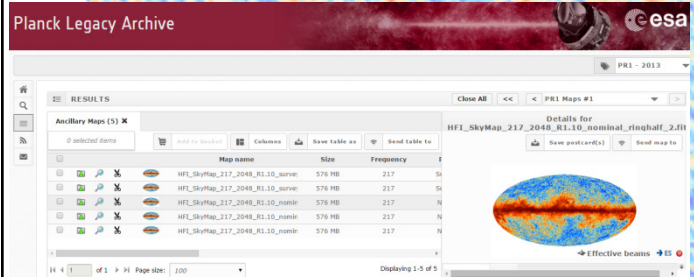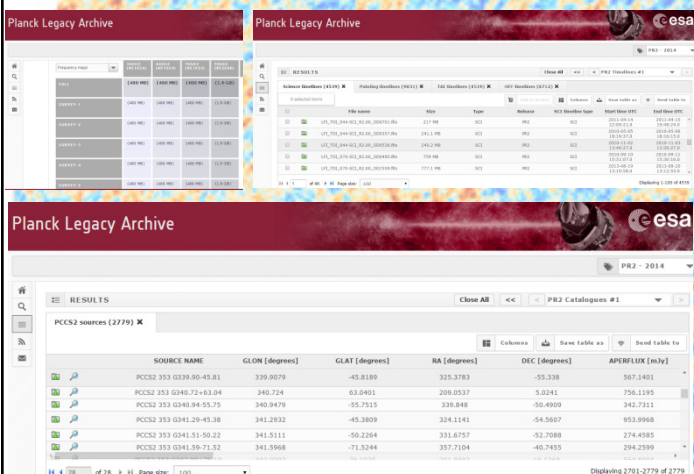
The PLA shares the same framework and design of ESA's scientific archives for space-based missions (Osuna et al. 2010, Arviset et al. 2011). The storage layer consists of an online data repository with the capability to store and handle hundreds of terabytes. Additionally, the PLA Archive Inter-Operability Subsystem (PLAIO) allows users to have direct access to the contents of the PLA without invoking the user interface. All data are distributed through the internet via a standard HTTP protocol.

In addition, the PLA adopts the Simple Application Messaging Protocol (SAMP) which allows inter-operability with other tools to be achieved. Currently, the PLA inter-operates with the astronomical catalogues served by the Centre de Données Astronomiques de Strasbourg (CDS), and it allows data to be automatically transferred to the interactive software *Aladin* (Bonnarel et al. 2000) and *TOPCAT* (Taylor 2005) which provide additional functionalities for, respectively, image and tabular data manipulation.

The PLA also handles proprietary data and internal releases since 2009, whose access is restricted to members of the Planck Collaboration.

PLA data and tools

Since January 2011, the PLA has been providing online public access to the Early-Release Compact-Source Catalogue (Planck Coll. 2011).

In March 2013, the PLA provided access to public products from the first 15.5 months of Planck operations (Planck Coll. I 2013).

By the end of December 2014, the PLA will contain data from the full Planck mission (until the end of science operations in Oct. 2013, including the extended LFI-only phase), in temperature and polarization.

Time-ordered data, frequency maps, foreground maps and Cosmic Microwave Background fluctuation maps will be provided, as well as catalogues of sources at each frequency, a Galactic Cold Cores catalogue and a catalogue of Sunyaev-Zel'dovich effect-detected galaxy clusters. Many types of ancillary data and information will also be released at the same time, including the PLA Explanatory Supplement and the Planck Operational State History.

The PLA gives users the possibility to project seamlessly any part of the sky of any full-sky map stored in the archive onto a Gnomonic grid. The user may choose between a simple pixel-to-pixel re-projection algorithm and the more sophisticated "drizzling" one.
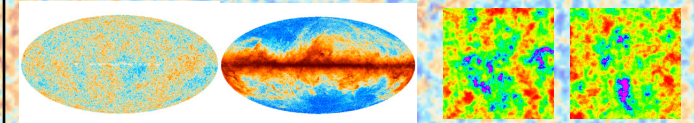
Full-sky CMB and foreground dust component from March 2013 data release, Mollweide projection (left panel).

An example of re-projected maps from the PLA user interface is shown in the right panel (here the SMICA-separated CMB component from the 2013 data release, around the Galactic North Pole – left – and around the Galactic South Pole – right).
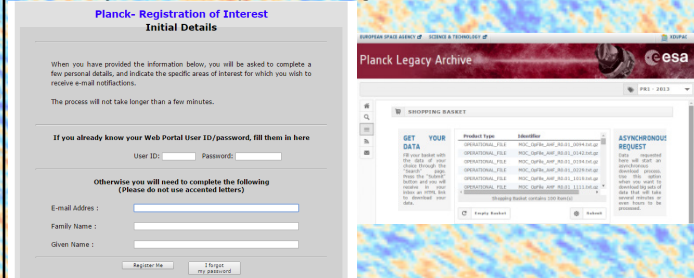
2015 & beyond: the full dataset re-processed by the Planck Collaboration will be made available in the autumn of 2015 via the Planck Legacy Archive.

The PLA will then be maintained by ESA for an indefinite period of time.

Sign up for PLA and use all its features

In order to use all the facilities of the Planck Legacy Archive user interface, please sign in using your LDAP credentials (Planck Collaboration members) or sign up for free.

Once you log in, you will be able to use features like the Shopping Basket, allowing you to download any number of PLA products in one go !

The Planck Legacy Archive also benefits from a powerful tracking system allowing to know in real time which products / features of the PLA are most in-demand, in order for PLA scientists and engineers to improve service accordingly.

The PLA Helpdesk allows all users to raise tickets to ask for support concerning either the software or the data themselves : http://www.sciops.esa.int/helpdesk_pla

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