

# Planck Legacy Archive

The public repository for distribution of *Planck* data products to the world-wide community

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The European Space Agency (ESA) is charged with implementing the astronomical archive which makes available *Planck* data products to the world-wide community for their scientific exploitation (e.g. Tauber et al. 2010). ESA is fulfilling this obligation via the *Planck* Legacy Archive (PLA), which is the repository of all public products originating from the *Planck* mission. In this poster contribution, we review the status of the PLA, and we anticipate some of the product that are expected in upcoming releases.

The PLA is freely accessible via the URL

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

The PLA is hosted at the ESA's European Space Astronomy Centre (ESAC) in Madrid, Spain.

## CURRENT STATUS

Since January 2011, the PLA has been providing online public access to the ERCSC (*Planck* Collaboration 2011). As of March 2013, the PLA provides access to public products from the first 15.5 months of *Planck* operations (*Planck* Collaboration I 2013). It notably includes full-sky intensity maps at all nine *Planck* frequencies, maps of foregrounds components at high resolution, and the Cosmic Microwave Background (CMB) fluctuations at unprecedented angular resolution. Angular power spectra and cosmological parameter grids are also provided, as well as the *Planck* Catalogue of Compact Sources and the *Planck* Sunyaev-Zeldovich clusters catalogue. Many additional data sets are also provided.



Fig. 1. The PLA GUI interface.

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 capability to store and handle dozens of terabytes. The PLA Graphical User Interface, illustrated in Figure 1, manages the queries and ensures proper access to stored data. The PLA is accessible via the World Wide Web, and it allows users to browse the archive, visualize items of interest, and select data for immediate download. 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 standard HTTP protocol.

In addition, the PLA adopts the Simple Application Messaging Protocol (SAMP) which allows interoperability 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, access to which is currently restricted to members of the *Planck* Collaboration.

## RELEASES

The PLA provides online public access to a high-quality dataset to address modern cosmology, and a wide range of galactic and extragalactic science.

March 2013 release: the PLA provides online public access to *Planck* products based on data acquired during its nominal mission and processed by the *Planck* Collaboration. This includes high resolution temperature maps of the whole sky in nine frequency bands from 30 to 857 GHz (as shown in Figure 2); component maps (CMB and foregrounds); CMB angular power spectra, likelihood, and cosmological parameters; the *Planck* Catalogue of Compact Sources (PCCS), and the *Planck* SZ catalogue; the *Planck* Operational Status History; the performance and characteristics of its payload; ancillary data; related documentation; and some other additional data products.

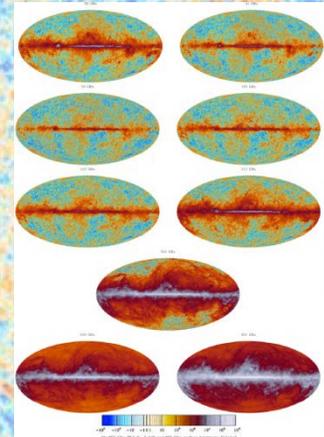


Fig. 2. Example of data released: The nine *Planck* frequency maps showing the broad frequency response of the individual channels. The color scale has been tailored to show the full dynamic range of the maps. Adapted from *Planck* Collaboration I 2013.

Mid 2014 release: the PLA will provide online public access to *Planck* data products based on data acquired until the end of science operations (including the extended LFI-only phase). Much more data will be delivered, including temperature and polarization data, together with *Planck* time-ordered data (TOD), and improvements in previously released products.

2015 & beyond: data reprocessed by the *Planck* Collaboration will also be made available via the PLA. The PLA will be maintained by ESA for an indefinite period of time and, as the case may be, it will provide online public access to further data in view of new results and improvements.

### REFERENCES:

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Background: adapted from the image 'The anisotropies of the CMB as observed by Planck'. Credits: ESA, Planck Collaboration.