



The new Planetary Science Archive: A tool for exploration and discovery of scientific datasets from ESA's planetary missions.

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Introduction:

The Planetary Science Archive (PSA) is the European Space Agency's (ESA) repository of science data from all planetary science and exploration missions. The PSA provides access to scientific datasets through various interfaces (e.g. FTP browser, Map based, Advanced search, and Machine interface):

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

All datasets are scientifically peer-reviewed by independent scientists, and are compliant with the Planetary Data System (PDS) standards.

Updating the PSA:

The PSA is currently implementing a number of significant changes, both to its web-based interface to the scientific community, and to its database structure. The new PSA will be up-to-date with versions 3 and 4 of the PDS standards, as PDS4 will be used for ESA's upcoming ExoMars and BepiColombo missions.

The newly designed PSA homepage will provide direct access to scientific datasets via a text search for targets or missions. This will significantly reduce the complexity for users to find their data and will promote one-click access to the datasets. Additionally, the homepage will provide direct access to advanced views and searches of the datasets. Users will have direct access to documentation, information and tools that are relevant to the scientific use of the dataset, including ancillary datasets, Software Interface Specification (SIS) documents, and any tools/help that the PSA team can provide. A login mechanism will provide additional functionalities to the users to aid / ease their searches (e.g. saving queries, managing default views).

Queries to the PSA database will be possible either via the homepage (for simple searches of missions or targets), or through a filter menu for more tailored queries. The filter menu will offer multiple options to search for a particular dataset or product, and will manage queries for both in-situ and remote sensing instruments. Parameters such as start-time, phase angle, and heliocentric distance will be emphasized. A further advanced search function will allow users to query all the metadata present in the PSA database.

Results will be displayed in 3 different ways: 1) A table listing all the corresponding data matching the criteria in the filter menu, 2) a projection of the products onto the surface of the object when applicable (i.e. planets, small bodies), and 3) a list of images for the relevant instruments to enjoy the beauty of our Solar System. These different ways of viewing the datasets will ensure that scientists and non-professionals alike will have access to the specific data they are looking for, regardless of their background.

Conclusions:

The new PSA will maintain the various interfaces and services it had in the past, and will include significant improvements designed to allow easier and more effective access to the scientific data and supporting materials. The new PSA is expected to be released by mid-2016. It will support the past, present and future missions, ancillary datasets, and will enhance the scientific output of ESA's missions. As such, the PSA will become a unique archive ensuring the long-term preservation and usage of scientific datasets together with user-friendly access.