



## **The New Planetary Science Archive (PSA): Exploration and Discovery of Scientific Datasets from ESA's Planetary Missions**

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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 at <http://psa.esa.int>. All datasets are scientifically peer-reviewed by independent scientists, and are compliant with the Planetary Data System (PDS) standards. The PSA is currently implementing a number of significant improvements, mostly driven by the evolution of the PDS standard, and the growing need for better interfaces and advanced applications to support science exploitation.

As of the end of 2016, the PSA is hosting data from all of ESA's planetary missions. This includes ESA's first planetary mission Giotto that encountered comet 1P/Halley in 1986 with a flyby at 800km. Science data from Venus Express, Mars Express, Huygens and the SMART-1 mission are also all available at the PSA. The PSA also contains all science data from Rosetta, which explored comet 67P/Churyumov-Gerasimenko and asteroids Steins and Lutetia. The year 2016 has seen the arrival of the ExoMars 2016 data in the archive.

In the upcoming years, at least three new projects are foreseen to be fully archived at the PSA. The Bepi-Colombo mission is scheduled for launch in 2018. Following that, the ExoMars Rover Surface Platform (RSP) in 2020, and then the JUPiter ICy moon Explorer (JUICE). All of these will archive their data in the PSA. In addition, a few ground-based support programmes are also available, especially for the Venus Express and Rosetta missions.

The newly designed PSA will enhance the user experience and will significantly reduce the complexity for users to find their data promoting one-click access to the scientific datasets with more customized views when needed. This includes a better integration with Planetary GIS analysis tools and Planetary interoperability services (search and retrieve data, supporting e.g. PDAP, EPN-TAP). It will also be up-to-date with versions 3 and 4 of the PDS standards, as PDS4 will be used for ESA's ExoMars and upcoming BepiColombo missions. 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.

The new PSA interface was released in January 2017. The home page provides a direct and simple access to the scientific data, aiming to help scientists to discover and explore its content. The archive can be explored through a set of parameters that allow the selection of products through space and time. Quick views provide information needed for the selection of appropriate scientific products.

During 2017, the PSA team will focus their efforts on developing a map search interface using GIS technologies to display ESA planetary datasets, an image gallery providing navigation through images to explore the datasets, and interoperability with international partners. This will be done in parallel with additional metadata searchable through the interface (i.e. geometry), and with a dedication to improve the content of 20 years of space exploration.