ESA's Planetary Science Archive efforts to support the scientific community. S. Besse[1], I. Barbarisi[2], G. de Marchi[3], B. Merín[4], J. Arenas[5], M. Bentley[6], R. Docasal[1], D. Coia[5], E. Grotheer[2], D. Heather[3], T. Lim[5], S. Martinez[4], A. Montero[2], J. Osinde[7], F. Raga[5], J. Ruano[5] and J. Saiz[7].
[1]Aurora Technology BV for ESA, Camino Bajo del Castillo s/n, Urb. Villafranca del Castillo, 28692 Villanueva de la Cañada, Madrid, Spain (Sebastien.Besse@esa.int), [2]Serco for ESA, [3]ESA/ESTEC, [4]ESA/ESAC, [5]Telespazio for ESA, [6]HE Space for ESA, [7]Rhea for ESA.

Introduction: With new missions being selected, missions moving to post-operations, and missions starting their journey to various targets in the Solar System, the European Space Agency's Planetary Science Archive [1] (http://psa.esa.int) (PSA) is in constant evolution to support the needs of the projects and of the scientific community.

Geometry as a key input for users: While analysing the various services that the PSA already offers, geometrical information was lacking in many ways. Feedback received by the users and the PSA User Group pointed to improvements in this area.

During the past years, the PSA structured its internal architecture to provide excellent services to the community. Through external partnership [2], we developed the GEOmetry GENerator that allows a consistent way of deriving geometrical information. This input provides a solid foundation to develop Geographical Information System (GIS) services into the PSA. At the end of 2020, the PSA released its 3D and 2D interfaces for Mars Express and Rosetta [3,4], providing a new generation of geometrical services. Although currently focused on Mars and comet 67P/C-G, our architecture enables a rapid growth to support in particular BepiColombo and JUICE.

High level products through the Guest Storage Facility: One of the other new service provided to the scientific community recently is the Guest Storage Facility (GSF), which allows users to store derived products. Products such as geological maps, Digital Terrain Models, new calibrated files, and others can be stored in the GSF in the format most used by the users. The philosophy of the GSF service is to impose minimum requirements on the data producers, while delivering maximum usability to the end users. Various products related to Titan and Mars are available in the GSF. Products related to the Moon, comet 67P/C-G and other targets are in preparation. Contact us to preserve your science!

Interact with the PSA and expect more in the years to come: The PSA aims to build on the previous development to further enrich its services. New GIS interfaces related to Phobos, the Moon and Mars are in development to facilitate the searching capabilities on those targets. In parallel to those major developments, new functionalities will be developed to support ESA missions, in particular ExoMars [5,6], Mars Express [7], and BepiColombo [8].

At the PSA we constantly interact with our users to ensure that our services are in line with the expectations and needs of the community (despite massive disruptions in 2019 and 2020). We encourage feedback from community scientists through:
- PSA Users Group: A group of scientific experts advising the PSA on strategic development;
- Direct interactions: Scientists from the PSA are available and eager to receive your comments and suggestions;
- ESA missions: If you are part of a mission archiving its data at the PSA, tell us how your data should best be searched and used.

References: [1] Besse, S. et al. (2017) *Planetary and Space Science,* 10.1016/j.pss.2017.07.013, ESA's Planetary Science Archive: Preserve and present reliable scientific data sets. [2] Manaud, N. et al., GEOGEN: A new approach and tool for computing the geometry metadata of ESA's PSA observational data products, this conference. [3] Barbarisi, I. et al., PSA 2020: Toward the Discovery of ESA Planetary Data Through 2D and 3D Interfaces, this conference. [4] Heather, D. et al., The Rosetta science archive: preparing for legacy science [5] Lim, T. et al., An update on the EXOMARS 2022 rover data archive, this conference. [6] Coia, D. et al., Advanced search in the PSA for ExoMars TGO data discovery, this conference. [7] Grotheer, E. et al., How to find VMC elongated cloud data in the PSA, this conference. [8] Bentley, M. et al., Scientific validation in an operational archive – experience from BepiColombo, this conference.