

Using the ESA's Planetary Science Archive to Search for Mars Express VMC Data of an Elongated Cloud Near Arsia Mons. E. Grotheer¹, I. Barbarisi¹, M. Bentley², S. Besse³, M. Breittfellner¹, A. Cardesín-Moinelo¹, M. Castillo¹, D. Coia⁴, T. del Río-Gaztelurrutia⁵, R. Docasal³, B. Grieger³, D. Heather⁶, J. Hernández-Bernal⁵, R. Hueso⁵, T. Lim⁴, N. Manaud⁷, J. Marín-Yaseli³, P. Martin⁶, B. Merin⁶, D. Merritt⁴, A. Montero¹, J. Osinde-López⁸, F. Raga-López⁴, E. Ravanis⁹, J. Saiz-Santos⁸, A. Sánchez-Lavega⁵, D. Titov¹⁰, and M. Voelker⁶,

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Introduction: The European Space Agency's (ESA) Mars Express (MEX) mission to Mars has been returning valuable scientific data for 17+ years. This data is available to the public for free via the Planetary Science Archive (PSA), which houses the raw, calibrated, and higher-level data returned by the ESA's planetary missions, including data provided by the various MEX instrument teams. The Visual Monitoring Camera (VMC) was originally used to monitor the deployment of the Beagle 2 lander. In recent years, these images have been worked on by a science team from Bilbao for scientific research. These raw and processed images of this new '8th instrument' have been included in the PSA, including observations of an elongated cloud near Arsia Mons that garnered considerable public attention [1, 2, 3]. In this presentation we will show how to use the PSA user interface to find this data.



Figure 1. The elongated cloud at Arsia Mons (courtesy of MEX-VMC)

The PSA user interfaces: The ESA's PSA uses the Planetary Data System (PDS) format developed by NASA to store the data from its various planetary missions. For more information on the PSA in general, see the presentation "ESA's Planetary Science Archive efforts to support the scientific community" by Besse et al. In the case of MEX, the data is stored in the PDS3 format, which primarily uses ASCII files to store and describe the data. There are two primary ways in which to find the data. One is the FTP area, which houses all the public data in the PSA. Here, there are

no advanced search capabilities, but it does provide access to all the supporting files and documentation for the various datasets. When first searching for new data, users would benefit from using the web-based search interfaces [4]. Here the user can search using various parameters, such as mission name, target (e.g. Mars), instrument name, processing level, observation times, etc. The development of the PSA's search capabilities continues, thus more search parameters continue to be added. The Image View interface is particularly helpful when looking through browse images provided by the instrument teams. Recently, a new Map View has been made public, in which most of the MEX data can be seen. For more information on the PSA's Map Views, see the presentation "PSA 2020: Toward the Discovery of ESA Planetary Data through 2D and 3D Interfaces" by Barbarisi et al. These various search methods rely on the metadata provided by the instrument teams in the labels associated with each of the data products.

Access and Feedback: All this data can be freely accessed at the ESA's PSA, at <https://archives.esac.esa.int/psa/>. There are multiple ways of browsing the data. The development of the PSA's user interface is an ongoing project, and we welcome feedback from the community for suggestions on new ways to search this wealth of data. Feedback and suggestions can be sent to psahelp@cosmos.esa.int.

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References:

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