

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. Bentley¹, S. Besse¹, M. Breitfellner¹, A. Cardesin-Moinelo¹, M. Castillo¹, D. Coia¹, R. Docasal¹, R. Fraga¹, B. Grieger¹, D. Heather¹, J. Hernandez-Bernal², T. Lim¹, N. Manaud³, J. Marin-Yaseli¹, P. Martin¹, B. Merin¹, D. Merritt¹, A. Montero¹, J. Osinde-Lopez¹, E. Ravanis⁴, C. Rios¹, J. Saiz¹, D. Titov⁵, and M. Voelker¹,

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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, including observations of the Martian atmosphere. 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 it has been used to take images of wide portions of Mars for public outreach. More recently, 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 a considerable amount of public attention. This cloud initially brought to mind potential evidence of volcanic activity, though as it turns out this cloud was not formed due to active volcanism after all [1]. In this presentation we will show how to use the PSA user interface to find this data.

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. In the case of MEX, the data is stored in the PDS3 format, which primarily uses ASCII files to store and describe the data. Newer missions, from ExoMars onward use the PDS4 data standard, which uses XML files. 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 [2]. 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 will be added

over time. One of these interfaces is the Table View, which has a section for "Free Search", allowing one to use Contextual Query Language (CQL) to search over additional parameters. The Image View interface is particularly helpful when looking through browse images provided by the instrument teams. Recently, a prototype of a new Map View has been made public, in which most of the MEX data can be seen. 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 VMC and other instrument teams' data, including from other planetary missions. 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.

Acknowledgments: Our thanks go to the European taxpayers, whose contributions to the European Space Agency enable the gathering and dissemination of this scientific knowledge, and preserving it for future generations of scientists to work on.

References:

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