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Release of new MEX-MARSIS Subsurface and AIS data in the ESA's Planetary Science Archive

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The European Space Agency's (ESA) Mars Express (MEX) mission to Mars has been returning valuable scientific data for ∼15 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. Previously the Mars Advanced Radar for Subsurface and Ionospheric Sounding (MARSIS) [1] instrument's subsurface data had a gap of several years, but in 2018 this issue was fixed and now 12+ years of subsurface radar sounding data, both in raw and calibrated form, are available for further scientific analysis by the public.
The Active Ionospheric Sounding (AIS) mode of MARSIS has been steadily delivering data to the archive throughout the mission's lifetime. Now, the AIS data will be updated with improved browse images.
All this data and more can be accessed at the PSA at:
https://archives.esac.esa.int/psa/

MEX was inserted into Mars orbit in December 2003. Thus, this long-lived Mars mission covers 15+ years of data with its 7 instruments. Note that MARSIS uses 3 antenna booms, which were not extended, in stages, until mid-2005 [2, 3]. The MEX instruments can have various sub-channels and/or operating modes. In the case of MARSIS, the two primary types of data collection modes are AIS and subsurface sounding. For the subsurface data, initial data has been available, but then some problems with the data pipeline caused a gap of several years in archive data delivery. Thanks to the effort of the MARSIS Principal Investigator (PI) Roberto Orosini and his team, with assistance from the PSA, an updated pipeline was created. Thus, the entirety of the MARSIS subsurface data, covering 12+ years of observations (∼300 GB of data, 34,000+ observations) are now available in the PSA, in both raw and calibrated format.

The ESA's PSA uses the Planetary Data System (PDS) format developed by NASA to store the data from its various planetary missions. 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. When first searching for new data, users would benefit from using the Table View search interface [4]. Here the user can search using various parameters, such as mission name, target, instrument name, processing level, observation times, etc. The Table View is also linked to the Image View, where users can view the browse images provided by the PI teams. The Table View interface also has a section for "Free Search", allowing one to use Contextual Query Language (CQL) to search over additional parameters. These various search methods rely on the metadata provided by the instrument teams in the labels associated with each of the data products.