

METACATALOG

of PLANETARY SURFACE FEATURES for MULTICRITERIA EVALUATION OF SURFACE EVOLUTION: THE INTEGRATED PLANETARY FEATURE DATABASE

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RECENTLY ADDED

Polygonal ridges (boxwork or reticulate ridges)
September 23, 2016

Dissected mantle (LDM)
July 5, 2016

Arecibo radar images of Mars
June 10, 2016

Volcanoes on Mars (composite catalog)
April 30, 2016

Recessional Glacier Like Forms
April 26, 2016

<https://planetarydatabase.wordpress.com/>

We have created a metacatalog, or *catalog or catalogs*, of surface features of Mars that also *includes the actual data* in the catalogs listed.

The goal was to make mesoscale surface feature databases available in one place, in a GIS-ready format.

The databases can be directly imported to ArcGIS or other GIS platforms, like Google Mars.

Some of the catalogs in our database are also ingested into the JMARS platform.

All catalogs have been previously published in a peer-reviewed journal, but our database may contain unpublished updates of the published catalogs. Many of the catalogs are “integrated”, i.e. they merge databases or information from various papers and maps, including references to each individual features listed.

Where available, we have included shapefiles with polygon or linear features, however, most of the catalogs only contain centerpoint data and morphological data.

One of the unexpected results of the planetary feature metacatalog is that some features have been described by several papers, using different, i.e., conflicting designations. This shows the need for the development of an identification system suitable for mesoscale (100s m to km sized) features that tracks papers and thus prevents multiple naming of the same feature.

The feature database can be used for multicriteria analysis of a terrain, thus enables easy distribution pattern analysis and the correlation of the distribution of different landforms and features on Mars.

Such catalog makes a scientific evaluation of potential rover and human landing sites easier and more effective during the selection process and also supports automated evaluation for landing site selection.

<https://planetarydatabase.wordpress.com>

NASA Ames Center / ICA
Commission on Planetary
Cartography

CATALOGS

Select Category
DB Download
Mars
Alluvial fans
Caldera
Channels
Closed basin lakes
Crater
Craters with sandbars
Deltas
Dissected mantle
Drop moraine
Dune
Exploration Zones
Fresh craters
Fresh icy craters
Glacial Features
Glacier Like Forms
Glacier Like Forms (crevassed)
Glacier Like Forms (recessional)

HIGHLIGHTS

- **Referenced.** Each individual feature is linked to a published discovery paper. This data can be derived from the shapefile’ table.
- **Peer-reviewed.** Includes already published catalogs of planetary relief or albedo features in the mesoscale range, allowing scientific analysis and multicriteria evaluation in GIS.
- **Updated.** Also includes updates of catalogs as compared to the published versions
- **GIS-ready.** Includes GIS catalogs of features that have been published in non-GIS format (figure, table).
Filetypes: Excel, Shapefile
- **Embedded in JMARS.** Several of these datasets has been transferred to JMARS 2035, and some are included in the Encyclopedia of Planetary Landforms.

FUTURE PLANS

- **Regularly updated data**
- **New feature types** added (currently planned: sinuous ridges, serpents, fresh shallow valleys, cataracts, spiders)
- **Extension to other planetary bodies** (Mercury, Venus, Moon, Io etc.)

HOW TO CONTRIBUTE

If you would like to have your catalog included, or have comments, updates, corrections, please contact henrik.i.hargitai@nasa.gov



ID	Name_ID	Lat	Lon E 180	Diameter km	Area km2	Max elev	Range	References	Group name	Type/Interp
490	13	-68.597504	4.96341	62.140598	2097.699951	3601	2475	Ghatan and Head 2002	Dorsa Argentea	Subglacial vol
9	Merze Patera	6.99502	69.730202	61.069696	2924.530029	1373	1262	Robbins et al. 2011		Caldera
484	21	-64.708396	9.93648	60.448799	1780.77002	3413	1957	Ghatan and Head 2002	Dorsa Argentea	Subglacial vol
17	A1=cepa=E01(Fag)	0.09734	160.623001	56.997101	2551.468971	-2737	246	Vaucher et al. 2009a, 200	Cerberus Tholi	Fisure shield
0	Jovis Tholus	18.211901	-117.398003	56.750198	2523.610107	3063	1137	Robbins et al. 2011		Shield
492	12	-66.441704	-2.81743	52.116501	1475.300049	2787	1517	Ghatan and Head 2002	Dorsa Argentea	Subglacial vol
166	Tmp1	35.977901	-94.769402	51.673801	2054.76001	957	267	Baratoux et al. 2009		small shield
566	M2	-57.551498	1.76676	50.819	1701.849976	1788	656	Fagan et al. 2010 (reinstea	Dorsa Argentea	Subglacial vol
336		17.960701	-113.069	50.042999	1963.219971	2410	228	Hauber et al. 2009		low shield
479	4	-59.902901	1.66547	48.001202	1426.910034	2793	1518	Ghatan and Head 2002	Dorsa Argentea	Subglacial vol
491	11	-66.1371	3.81651	45.770401	1281.209961	3006	1878	Ghatan and Head 2002	Dorsa Argentea	Subglacial vol
478	(3)	-57.2351	4.73831	45.298	1536.170044	1910	855	Ghatan and Head 2002, Fa	Dorsa Argentea	Subglacial vol
589		75.047798	-69.071503	44.696602	1134.390015	-4432	651	Fagan et al 2010 fig18	north polar edifices	shielding
481	6	-62.215801	3.74036	43.937302	1344.300049	2867	1625	Ghatan and Head 2002	Dorsa Argentea	Subglacial vol

Figure (left): Part of a table linked to the geo-spatial dataset. (Volcanoes on Mars)