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Mars Global Digital Dune Database: MC2 – MC29

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Database Organization

Mars Global Digital Dune Database includes the following Directories and Subdirectories:

ArcMapProjects: Contains ArcMap projects and "Layers" folder. The "Layers" folder contains layer files of all layers in the database as well as the vector "background" shapefiles. Layer files preserve the symbology used in our ArcMap projects. If a user prefers to set up new projects, the layer files provide a convenient way to continue to use our symbology. In the list below, * denotes files that are part of the Mars digital dune database. Other files are not part of the database, but are included for background and context. The ArcMap 9 projects can be opened in ArcMap 9. All database and background layers and images will be fully functional.

"Layers" folder:

- Average_Slipface_layer.lyr *
- CcDcAZimuth_Line_layer.lyr *
- CdDcAzimuth_Point_layer.lyr *
- Crater_layer.lyr *
- Crater_Centroid_layer.lyr *
- Dune_Field_layer.lyr *
- Dune_Field_Centroid_layer.lyr *
- GCM_layer.lyr *
- Geol_Units_layer.lyr
- Lat_Lon_layer.lyr
- Mars_Charts_layer.lyr
- MOC_NA_footprints_layer.lyr
- Raw_Slipface_layer.lyr *
- THEMIS_IR_footp_jan06_day_layer.lyr
- THEMIS_IR_footp_jan06_night_layer.lyr
- THEMIS_VIS_footpjan06_layer.lyr
- World30_layer.lyr

Projects:

- Database_Layout.mxd - contains all the vector and background layers, but no images. The project is set up with a layout template to enable easy printing of maps. The default map is also included in PDF and JPEG formats in the Documentation folder (DVD\Documentation\Database_Layout.jpg and DVD\Documentation\Database_Layout.pdf)

The following projects have been virtually clipped to specific areas for simplicity and faster rendering. If the user prefers a planetary context, he/she can go to Data Frame Properties, click on Data Frame tab and uncheck the enable box. Be aware that this will slow down performance.

MC2to15.mxd – groups together all THEMIS and MOC NA images associated with Mars Charts 2 through 15 and includes all other layers.

MC16to23.mxd - groups together all THEMIS and MOC NA images associated with Mars Charts 16 through 23 and includes all other layers.

MC24.mxd - groups together all THEMIS and MOC NA images associated with Mars Chart 24 and includes all other layers.

MC25.mxd - groups together all THEMIS and MOC NA images associated with Mars Chart 25 and includes all other layers.

MC26.mxd - groups together all THEMIS and MOC NA images associated with Mars Chart 26 and includes all other layers.

MC27.mxd - groups together all THEMIS and MOC NA images associated with Mars Chart 27 and includes all other layers.

MC28.mxd - groups together all THEMIS and MOC NA images associated with Mars Chart 28 and includes all other layers.

MC29.mxd - groups together all THEMIS and MOC NA images associated with Mars Chart 29 and includes all other layers.

ArcReaderProjects: Contains all projects described above in .pmf format. The free software, ArcReader will open these files. The user should note that some layers can take very long to render in this format. We have turned off the MOLA64 layer for this reason and recommend that the user only turn it on when zoomed into a small area of interest. We have also restricted some layers to draw only when zoomed to a certain scale. Those layers will have a gray box in the table of contents and not draw until the preset scale is reached. See ReadMe_GIS.doc for more details.

ArcReaderQuickStartTutorial folder – contains ArcReader quick-start tutorial.pdf and a link to the ArcReader website.

Projects:

Database_Layout.pmf - contains all the vector and background layers, but no images. The project is set up with a layout template to enable easy printing of maps. The default map is also included in PDF and JPEG formats in the Documentation folder (DVD\Documentation\Database_Map.jpg and DVD\Documentation\Database_Map.pdf).

MC2to15.pmf – groups together all THEMIS and MOC NA images associated with Mars Charts 2 through 15 and includes all other layers.

MC16to23.pmf - groups together all THEMIS and MOC NA images associated with Mars Charts 16 through 23 and includes all other layers.

MC24.pmf - groups together all THEMIS and MOC NA images associated with Mars Chart 24 and includes all other layers.

MC25.pmf - groups together all THEMIS and MOC NA images associated with Mars Chart 25 and includes all other layers.

MC26.pmf - groups together all THEMIS and MOC NA images associated with Mars Chart 26 and includes all other layers.
MC27.pmf - groups together all THEMIS and MOC NA images associated with Mars Chart 27 and includes all other layers.
MC28.pmf - groups together all THEMIS and MOC NA images associated with Mars Chart 28 and includes all other layers.
MC29.pmf - groups together all THEMIS and MOC NA images associated with Mars Chart 29 and includes all other layers.

Documentation: Contains the following documentation:

Database_Map.jpg and Database_Map.pdf – a 1:95,000,000 scale printable map of the dune fields and craters in the database, provided in two formats.

ReadMe_Abstract_Purpose_Process.doc – includes an abstract, as well as describing the purpose of the database, the processes involved in creating the database, and completeness of the database.

ReadMe_Abstract_Purpose_Process.txt – includes an abstract, as well as describing the purpose of the database, the processes involved in creating the database, and completeness of the database.

ReadMe_GIS.doc – lists and describes the layers in the database and their attributes. Also describes the layers that are not part of the database.

ReadMe_GIS.txt – lists and describes the layers in the database and their attributes. Also describes the layers that are not part of the database.

ReadMe_Softcopy.doc – describes the Excel spreadsheet organization, the ASCII text files, and all fields included in the tabulated version of the database.

ReadMe_Softcopy.txt – describes the Excel spreadsheet organization, the ASCII text files, and all fields included in the tabulated version of the database.

References.doc – includes references used in the documentation of the database and a list of selected references that may be useful to those interested in aeolian processes on Mars.

References.txt – includes references used in the documentation of the database and a list of selected references that may be useful to those interested in aeolian processes on Mars.

Geodatabase: Contains 2 folders, each containing one geodatabase (mdb)

Geocentric: Contains a geocentric version of the geodatabase, Dune_Crater_ Geocentric_Geodatabase.mdb.

Sinu: Contains a sinusoidal projected version of the geodatabase, Dune_Crater_Sinu_ Geodatabase.mdb.

GML: Contains a geocentric Geography Markup Language (GML) version of the 9 layers in the database. Three files are required for each layer (*.gml, *.xml and *.xsd). GML is only provided in geocentric.

Images: Contains all the images projected and available in the above described ArcMap and ArcReader projects.

EquatorialSimpVISMOC folder: Contains all the THEMIS VIS and MOC NA images that are used by the ArcMap projects. All images were processed using ISIS and are in Simple Cylindrical projection with a center longitude of 180º. The images, grouped by project, are either JPEG or TIFF format, depending on the quality required. Each image requires three files to work (*.jpg, *.aux and *.jgw if JPEG or *.tif, *.aux, and *.tfw if TIFF). The images are grouped into folders (e.g. moc, moc2, vis, vis2, Kaiser, Rabe) for organizational convenience. The groupings are not otherwise significant.

MC2to15_images- images are grouped in the following folders:
- moc
- moc2
- vis
- vis2

MC16to23_images- images are grouped in the following folders:
- moc
- moc2
- vis
- vis2

MC24_images- images are grouped in the following folders:
- moc
- moc2
- Poor Images- processed image quality poor, but images were included
- vis
- vis2

MC25_images- images are grouped in the following folders:
- moc
- moc2
- vis
- vis2

MC26_images- images are grouped in the following folders:
- moc
- moc2
- moc3
- vis
- vis2

MC27_images- images are grouped in the following folders:
- moc
- moc2
- vis2

MC27_images2- images are grouped in the following folders:
- Kaiser
- Proctor
- Rabe
- Russell

MC28_images- images are grouped in the following folders:
- moc

moc2
vis

MC29_images- images are grouped in the following folders:
moc
moc2
vis
vis2

MOLA: Contains the MOLA64 (gridded topography) and MOLA hillshade files.
Mola64_90Nto90S_Simp_clon180 folder – contains all files needed for MOLA gridded topography background.
mola_128deg_090e_hillshade (*.aux, *.j2w, Lizardtech JPEG 2000 image, and *.prj)
mola_128deg_270e_hillshade (*.aux, *.j2w, Lizardtech JPEG 2000 image, and *.prj)

THEMIS_IR: Contains the THEMIS IR projected images that are used by the ArcMap and ArcReader projects. The images, grouped by project, are jpeg format. Each image requires three files to work (*.jpg, *.aux and *.jgw).

Metadata: Contains Metadata files for the database layers in text and HTML formats. These files describe the layers and their associated fields.

Shapefiles: Contains background shapefiles that are not part of the dune database and shapefile versions of the dune database. Each shapefile layer requires 7 files (*.dbf, *.prj, *.sbn, *.sbx, *.shp, *.xml, and *.shx). For more details about the contents of each layer, refer to ReadMe_GIS.doc.

Backgrounds: Contains shapefile versions of vector background layers.
Geol_Units: A geological map based on *USGS I-1802*, (Scott and others, 1986-87) 1:15M scale, as digitized and reinterpreted by Skinner and others, (2006).
Lat_Lon
Mars_Charts
Mars_Charts_2to15
Mars_Charts_16to23
Mars_Charts_dense
MOC_NA_footprints_06_trim
THEMIS_IR_footprint_06_day_trim
THEMIS_IR_footprint_jan06_night_trim
THEMIS_VIS_footprint_06_trim
World30

Geocentric: Contains shapefile versions of the geocentric database layers.
Average_Slipface
CcDcAZimuth_Line
CdDcAzimuth_Point

Crater
Crater_Centroid
Dune_Field
Dune_Field_Centroid
GCM
Raw_Slipface

Sinu: Contains shapefile versions of the sinusoidal database layers.
Average_Slipface
CcDcAZimuth_Line
CdDcAzimuth_Point
Crater
Crater_Centroid
Dune_Field
Dune_Field_Centroid
GCM.
Raw_Slipface

Tables: Contains Excel and tab delimited text formats of the dune database attribute table.
Combined_Hard_Soft_Images.xls – Excel spreadsheet with 6 worksheets containing (1) "hardcopy" – the published version of the dune field attribute table, (2) "softcopy" – an extended version of the dune field attribute table (3) "All Images" – THRMIS IR, THEMIS VIS and MOC NA images referenced by dune field ID, (4) "THEMIS IR" – list of THEMIS IR images referenced by dune field ID, (5) "THEMIS VIS" – list of THEMIS VIS images referenced by dune field ID, (6) "MOC NA" – list of MOC NA images referenced by dune field ID.
Six text files produced from the 6 Excel worksheets described above.

Attribute Accuracy: All attributes were verified by displaying the lines and are believed to be logically consistent.

Logical Consistency Report: All attributes were verified by displaying the lines and are believed to be logically consistent. Line geometry is topologically clean.

Positional Accuracy:
Horizontal Positional Accuracy:
For the digital product presented herein, we used the Mars Orbiter Laser Altimeter (MOLA) dataset (Smith and others, 2001) and THEMIS IR and THEMIS VIS images processed using ISIS as basemaps. The digital lines were drawn at approximately 1:75,000 scale with a node spacing of approximately 0.3 km.

Data Created: 11/2003 to 1/2007

Status of the data
Complete

Time period for which the data is relevant
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Description: publication date

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Access constraints: none
Use constraints: none

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