Open-File Report 2012-1259

SP_Raw_Slipface.doc
Mars Global Digital Dune Database: MC-30

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Summary
See Pamphlet.doc, Mars Global Digital Dune Database Purpose.

Description
See Pamphlet.doc, Mars Global Digital Dune Database Abstract.

Credits
There are no credits for this item.

Access and use limitations
There are no restrictions.

ArcGIS Metadata

Resource Identification

Citation Title: SP_Raw_Slipface_Geog
Alternate Titles: South Pole Raw Slipface
Presentation Format: digital map
Collection Title: Mars Global Digital Dune Database
Responsible Party:
Individual's Name: Rosalyn K. Hayward
Organization's Name: USGS Astrogeology
Contact's Position: Geologist
Contact's Role: Originator
Contact Information:
Phone:
Voice: (928) 566-7022
Fax: (928) 566-7014
Address:
Delivery Point: 2255 N. Gemini Dr.
City: Flagstaff
Administrative Area: Az
Postal Code: 86001
Country: United States
E-Mail Address: rhayward@usgs.gov

Publication_Information:
Publication_Place: Reston, Virginia

Publisher: U.S. Geological Survey
Online_Linkage: http://pubs.usgs.gov/of/2012/1259

Themes Or Categories Of The Resource:
geoscientificInformation
Tags For Searching: Dune, Aeolian, Mars, Database, GCM
Discipline Keywords: Planetary Science
Place Keywords: Mars
Theme Keywords: Dune
Theme Keywords: Aeolian
Theme Keywords: Database
Theme Keywords: GCM
Dataset Languages: English (United States)
Dataset Character Set Utf8 - 8 Bit Ucs Transfer Format
Status: Completed
Resource Maintenance:
Update Frequency: Not Planned
Scope Of The Updates: Dataset
Resource Constraints:
Constraints:
Limitations Of Use:
There are no restrictions.
Spatial Representation Type: Vector
* Processing Environment: Microsoft Windows Server 2008 R2 Version 6.1 (Build 7601) Service
Pack 1; Esri Arcgis 10.0.2.3200

Other Extent Information:
Geographic Extent:
Bounding Rectangle:
* Extent Type Extent Used For Searching
* West Longitude -179.815231
* East Longitude 178.902637
* North Latitude -64.939799
* South Latitude -80.869343
* Extent Contains The Resource: Yes

Point Of Contact:
Individual's Name: Rosalyn K. Hayward
Organization's Name: USGS, Astrogeology
Contact's Position: Geologist
Contact's Role: Originator
Contact Information:
Phone:
Voice: (928) 566-7022
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Address:
Delivery Point: 2255 N. Gemini Dr.
City: Flagstaff
Administrative Area: Az
Postal Code: 86001
Country: United States
E-Mail Address: rhayward@usgs.gov

Reference System

Reference System Identifier
Value 104905
* Codespace Esri
* Version 10.0.0

Data Quality

Scope Of Quality Information
Resource Level: dataset
Lineage:
Process Step:
See Pamphlet.doc, Mars Global Digital Dune Database Process.
Data Quality Report - Completeness Omission:
See Pamphlet.doc, Mars Global Digital Dune Database – Completeness of Database.
Data Quality Report - Conceptual Consistency
Measure Description:
All attributes were verified by displaying the lines in both the database and the spatial coverage and they are believed to be logically consistent.
Data Quality Report - Topological Consistency
Measure Description:
These data are believed to be logically consistent. Line geometry is topologically clean.
Data Quality Report - Absolute External Positional Accuracy:
Measure Description:
The horizontal accuracy is derived from the accuracy of the Mars Orbiter Laser Altimeter (MOLA) dataset [Smith and others, 2001]. The globally adjusted MOLA dataset has an absolute horizontal accuracy on the order of 100 m, but individual features in images can probably only be tied to MOLA-derived shaded-relief digital image models with a precision on the order of 200 m. Other bases used included Thermal Emission Imaging System (THEMIS) digital images [Archinal and others, 2003, Christensen and others, 2004]. The digital features were drawn at 20K to 100K scale with a node spacing of approximately 0.3 km to 2 km.

ESRI Metadata and Item Properties

Metadata Properties:
Arcgis: Arcgis1.0

Metadata Style: FGDC CSDGM Metadata
Metadata Standard Or Profile: FGDC
Created In Arcgis: 2012-05-14t13:03:12
Last Modified In Arcgis: 2012-06-03t15:08:05
Automatic Updates:
Last Update: 2012-06-03t15:06:39
Have Been Performed: Yes

Item Properties
Name: Sp_Raw_Slipface_Geog
Content Type: Downloadable Data

ESRI Spatial Information

Extent In The Item's Coordinate Reference
Bounding Rectangle:
* West Longitude -179.815231
* East Longitude 178.902637
* North Latitude -64.939799
* South Latitude -80.869343
* Extent Contains The Resource: Yes

Coordinate Reference
Type: Geographic
Geographic Coordinate Reference: GCS_Mars_2000
Coordinate Reference Details
Geographic Coordinate System
Well-Known Identifier: 104905
X Origin: -399.99999999999989
Y Origin: -399.99999999999989
XY Scale: 1000000000.0000001
Z Origin: -100000
Z Scale: 10000
M Origin: -100000
M Scale: 10000
XY Tolerance: 1.6870604858115214e-008
Z Tolerance: 0.001
M Tolerance: 0.001
High Precision: True
Left Longitude: -180
Well-Known Text
GEOGCS["GCS_Mars_2000",DATUM["D_Mars_2000",SPHEROID["Mars_2000_IAU_IAG",3396190.0,169.8944472236118]],PRIMEM["Reference_Meridian",0.0],UNIT["Degree",0.0174532925199433],AUTHORITY ["ESRI",104905]]

ESRI Feature Class

Feature Class Name: SP_Raw_Slipface_Geog

* Feature Type: Simple
* Geometry Type: Polyline
* Has Topology: False
* Feature Count: 387
* Spatial Index: True
* Linear Referencing: False

ESRI Fields and Subtypes

SP_Raw_Slipface_Geog Feature Class

* ROW COUNT 387

DEFINITION

(polylines) Slipfaces were digitized based on gross morphology of dunes to represent wind direction responsible for that morphology (~400 raw slipface records). It was beyond the scope of this report to look at the detail needed to discern subtle dune modification. It was also beyond the scope of this report to measure all slipfaces. We attempted to include enough slipface measurements to represent the general circulation (as implied by gross dune morphology) and to give a sense of the complex nature of aeolian activity on Mars. The absence of slipface measurements in a given direction should not be taken as evidence that winds in that direction did not occur.

FIELD OBJECTID

* ALIAS OBJECTID
* DATA TYPE OID
* WIDTH 4
* FIELD DESCRIPTION
  Internal feature number.
  * DESCRIPTION SOURCE
  ESRI
* DESCRIPTION OF VALUES Sequential unique whole numbers that are automatically generated.

FIELD Shape

* ALIAS Shape
* DATA TYPE Geometry
* FIELD DESCRIPTION
  Feature geometry.
* DESCRIPTION SOURCE
  ESRI
* DESCRIPTION OF VALUES Coordinates defining the features.

FIELD DuneBID

ALIAS Dune_Lon_Lat_ID

* DATA TYPE String

* WIDTH 20
FIELD DESCRIPTION
Each dune field has a unique ID number constructed after the method used by Barlow (2003) to assign ID numbers to craters. Longitude is listed first and both values are extended to one decimal place. The + or – sign of the latitude is given, indicating the break between the two values. Thus 122.5 east longitude, -
34.5 south latitude, becomes 1225-345. The longitude is always four digits and the latitude is always three digits, filling in with leading zeroes where necessary.

FIELD SF_ID
ALIAS Slipface ID
* DATA TYPE String
* WIDTH 20
FIELD DESCRIPTION
The Dune_lat_lon_ID with a, b, c or d appended when multiple averages are calculated for a single dune field. This occurs when winds are multidirectional.

FIELD RSF_GeogAz
ALIAS Raw_Slipface_Azimuth_Geog
* DATA TYPE Double
* WIDTH 8
FIELD DESCRIPTION
Polylines were drawn on slipfaces, based on gross morphology of dunes, to represent wind direction responsible for that morphology. Azimuth is given in decimal degrees, calculated in the Simple Cylindrical projection (for compatibility with the Equatorial and North Polar parts of MGD[3]).

FIELD Avg_GeogAz
ALIAS Average_Slipface_Azimuth_Geog
* DATA TYPE Double
* WIDTH 8
FIELD DESCRIPTION
The average slipface azimuth, in decimal degrees, for a given group of raw slipface measurements, calculated in the Simple Cylindrical projection (for compatibility with the Equatorial and North Polar parts of MGD[3]).

FIELD Count_Raw
ALIAS Raw_Slipface_Count
* DATA TYPE Integer
* WIDTH 4
FIELD DESCRIPTION
The number of raw slipfaces used to calculate the average slipface azimuth.

FIELD RSF_SterAz
ALIAS Raw_Slipface_Azimuth_Ster

* DATA TYPE Double
* WIDTH 8
FIELD DESCRIPTION
Azimuth in decimal degrees, calculated in the South Polar Stereographic projection.

FIELD Avg_SterAz
ALIAS Average_Slipface_Azimuth_Ster
* DATA TYPE Double
* WIDTH 8
FIELD DESCRIPTION
The average slipface azimuth, in decimal degrees, for a group of raw slipface measurements, calculated in the South Polar Stereographic projection.

FIELD RSF_MercAz
ALIAS Raw_Slipface_Azimuth_Merc
* DATA TYPE Double
* WIDTH 8
FIELD DESCRIPTION
Azimuth in decimal degrees, calculated in the Mercator projection. We recommend using this field for comparison to other azimuths.

FIELD Avg_MercAz
ALIAS Average_Slipface_Azimuth_Merc
* DATA TYPE Double
* WIDTH 8
FIELD DESCRIPTION
The average slipface azimuth, in decimal degrees, for a group of raw slipface measurements, calculated in Mercator projection. We recommend using this field for comparison to other azimuths.

FIELD Shape_Length
* ALIAS Shape_Length
* DATA TYPE Double
* WIDTH 8
* FIELD DESCRIPTION
Length of feature in internal units.
* DESCRIPTION SOURCE
ESRI
* DESCRIPTION OF VALUES Positive real numbers that are automatically generated.

Metadata Details
Metadata Language: English
Metadata Character Set: Utf8 - 8 Bit Ucs Transfer Format
Scope Of The Data Described By The Metadata: Dataset
* Scope Name: Dataset

Metadata Contact:
Individual's Name: Rosalyn K. Hayward
Organization's Name: USGS,Astrogeology
Contact's Position: Geologist
Contact's Role: Originator
Contact Information:
Phone:
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Address:
Delivery Point: 2255 N. Gemini Dr.
City: Flagstaff
Administrative Area: Az
Postal Code: 86001
Country: United States
E-Mail Address: rhayward@usgs.gov
* Last Update: 2012-06-03
Maintenance:
Update Frequency: Not Planned
Scope Of The Updates: Dataset