

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Prepared for the
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NOTES ON BASE

This map is one in a series covering the entire surface of Mars at a nominal scale of 1:5,000,000. The series was originally compiled from Mariner 9 data (Batson and others, 1979). The original shaded relief base was revised and augmented with image data from Viking Orbiter, but feature positions were not shifted to fit controls derived from Viking.

ADOPTED FIGURE

The figure of Mars used for the computation of the map projection is an oblate spheroid (flattening of 1/192) with an equatorial radius of 3,393.4 km and a polar radius of 3,375.7 km.

PROJECTION

The Mercator, Lambert Conformal Conic, and Polar Stereographic projections are used for this map series. The scale of the series is 1:5,000,000 at the equator. The projections have common scales of 1:4,336,000 at lat ±30° and 1:4,306,000 at lat ±65°. Standard parallels for the Lambert Conformal Conic projection are at lat ±35.8° and ±59.2°. Longitude increases to the west in accordance with astronomical convention for Mars. Latitude is planetographic.

CONTROL

Planimetric control of the shaded relief is provided by photogrammetric triangulation using Mariner 9 images (Davies, 1973; Davies and Arthur, 1973) and the radio-tracked position of the Mariner 9 spacecraft. The first meridian passes through the center of a small crater, Atiy-O (lat 5.19° S., long 0°), within the crater Atiy.

Primary controls used in the network include the Viking Orbiter Secondary Experiment Data Record, radio-oculation measurements from both Mariner 9 and Viking Missions (Lorell and others, 1972; Klone and others, 1973; Lindal and others, 1979), Earth-based radar observations (Pettengill and others, 1971; Downs and others, 1975), and the Mars primary control network of the Rand Corporation (Davies and others, 1978).

MAPPING TECHNIQUE

Shaded relief was portrayed by photointerpretive methods described by Inge and Bridges (1976). Uniform sun illumination from the west was used throughout. The original rendition of feature positions, sizes, and shapes was taken from a controlled base mosaic of Mariner 9 images. Various computer enhancements of many Mariner 9 and Viking Orbiter images besides those in the base mosaic were examined in an attempt to portray the surface as accurately as possible.

Initial shaded relief analysis and representation were made by Anthony G. Sanchez; revisions were made by Barbara J. Hall.

COLOR

No attempt was made on the map to duplicate precisely the color of the martian surface, although the color used may approximate it.

NOMENCLATURE

Names on this sheet are approved by the International Astronomical Union (IAU, 1974, 1977, 1980, 1983, 1986).

MC-14: Abbreviation for Mars Chart 14.

M 5M 15/248 RN: Abbreviation for Mars, 1:5,000,000 series, center of sheet, lat 15° N., long 248°; shaded relief map (R) with nomenclature (N).

REFERENCES

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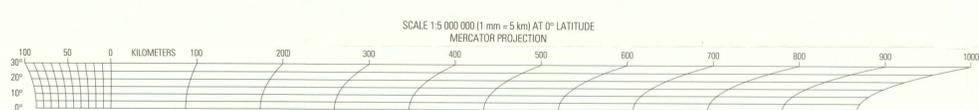
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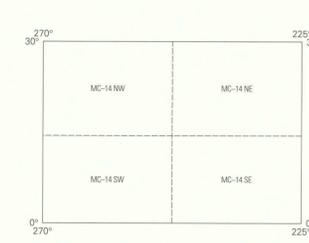
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Shaded relief revised in January 1987 on behalf of the Planetary Geology Program, Solar System Exploration Division, Office of Space Science, National Aeronautics and Space Administration.
This map supersedes map I-1809.
Edited by Doris Weir and Derrick D. Hirsch; cartography by Darlene A. Casebeer.
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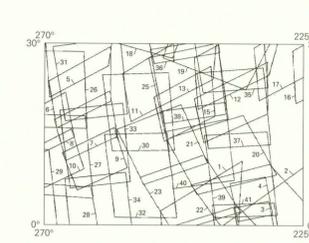


Quadrangle	Scale	Series	Series	Series	Series
Diacia (MC-2)	SM 48150 [I-898] [I-1392] I-2572	Acadia (MC-3)	SM 48390 [I-963] [I-1471] I-2574	Mare Acidulum (MC-4)	SM 48330 [I-958] [I-1476] I-2574
Amazonia (MC-8)	SM 15150 [I-2160] [I-2160] I-2160	Tharsis (MC-9)	SM 15110 [I-928] [I-1922] I-2486	Lunae Palus (MC-10)	SM 15130 [I-928] [I-1922] I-2486
Memnonia (MC-16)	SM 15150 [I-1078] [I-1054] I-2487	Phoenicia Lacus (MC-17)	SM 15112 [I-924] [I-1922] I-2488	Copertes (MC-18)	SM 15098 [I-924] [I-1922] I-2527
Phaenothoe (MC-24)	SM 48150 [I-1188] [I-1283] I-2383	Thaumasia (MC-25)	SM 48390 [I-1268] [I-2368] I-2385	Argyre (MC-26)	SM 48390 [I-1268] [I-2368] I-2385
				Naoschia (MC-27)	SM 49330 [I-1188] [I-1283] I-2383
				Hellas (MC-28)	SM 48270 [I-1188] [I-1283] I-2383
				Eridania (MC-29)	SM 48270 [I-1188] [I-1283] I-2383



1:2,000,000-SCALE CONTROLLED PHOTOMOSAICS

I-Series	Quadrangle
I-1427	MC-14 NW
I-1428	MC-14 NE
I-1429	MC-14 SW
I-1428	MC-14 SE



VIKING 1

Index No.	Picture No.	Index No.	Picture No.
1	101A09	22	741A65
2	101A53	23	741A66
3	486A26	24	741A68
4	486A28	25	765A07
5	700A91	26	765A08
6	700A93	27	800A01
7	700A95	28	800A02
8	700A96	29	800A03
9	700A97	30	800A04
10	700A98	31	800A06
11	700A93	32	802A01
12	700A93	33	800A04
13	702A84	34	800A06
14	702A85	35	802A01
15	702A86	36	802A02
16	704A63	37	802A03
17	704A64	38	802A04
18	723A77	39	802A05
19	723A79	40	802A06
20	741A63	41	802A07
21	741A64		

A-camera pictures

Index No.	DAS No.	Index No.	DAS No.
1	8520889	24	7432223
2	8520891	25	7432225
3	7219413	26	7432083
4	7219413	27	8910894
5	7219488	28	7507148
6	8894879	29	7507803
7	7291793	30	7507253
8	7291443	31	7507598
9	7291373	32	7507113
10	7291303	33	7507043
11	7291233	34	7506973
12	7291163	35	7507913
13	8768859	36	7579148
14	7367551	37	7579073
15	7363403	38	7579003
16	7363333	39	7578933
17	7363263	40	7578863
18	7363193	41	7659888
19	7363123	42	7659818
20	8858789	43	7659748
21	7435713	44	7435573
22	7435383	45	7383813
23	7435293	46	7291953

INDEX OF VIKING SOURCES
This shaded relief map has been revised by utilizing 1:2,000,000-scale controlled photomosaics and supplementary Viking pictures outlined above. Copies of various enhancements of these pictures are available from National Space Science Data Center, Code 601, Goddard Space Flight Center, Greenbelt, MD 20771.

INDEX OF MARINER 9 PICTURES
The mosaic used to control the positioning of features on this map was made with the Mariner 9 A-camera pictures outlined above. Useful coverage is not available in the crosshatched areas. The DAS number may vary slightly (usually by 5) among different versions of the same picture.

NOTE TO USERS
Users noting errors or omissions are urged to indicate them on the map and to forward it to U.S. Geological Survey, Building 4, Room 450, 2255 North Gemini Drive, Flagstaff, Arizona 86001. A replacement copy will be returned.

REVISED SHADED RELIEF MAP OF THE AMENTHES QUADRANGLE (MC-14) OF MARS