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

Prepared for the
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

ATLAS OF MARS
1:5,000,000 TOPOGRAPHIC SERIES
AMENTHES QUADRANGLE
M 5M 15/248 RN, 1998
I–2485 (MC–14) SHEET 1 OF 2

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, Airy-O (lat 5.19° S., long 0°), within the crater Airy.

Primary controls used in the network include the Viking Orbiter Secondary Experiment Data Record, radio-occultation measurements from both Mariner 9 and Viking Missions (Lorell and others, 1972; Kliore 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).

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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. Casebier

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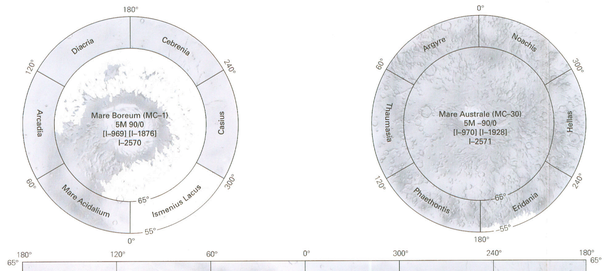
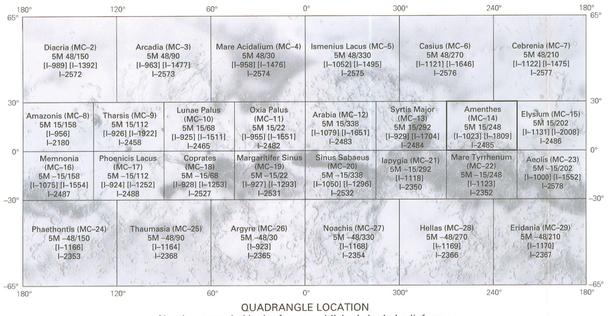
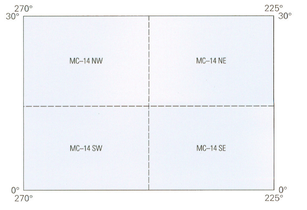
SCALE 1:5 000 000 (1 mm = 5 km) AT 0° LATITUDE
MERCATOR PROJECTION





QUADRANGLE LOCATION
Number preceded by I refers to published shaded relief map.
(Number in brackets refers to earlier map superseded by revised version.)



1:2,000,000-SCALE CONTROLLED PHOTOMOSAICS

I–Series	Quadrangle
I–1427	MC–14 NW
I–1426	MC–14 NE
I–1429	MC–14 SW
I–1428	MC–14 SE

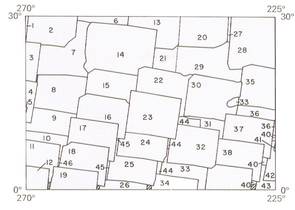
VIKING 1

Index No.	Picture No.	Index No.	Picture No.
1	101A09	22	741A65
2	101A53	23	741A66
3	466A26	24	741A68
4	466A28	25	765A07
5	700A81	26	765A08
6	700A83	27	800A01
7	700A85	28	800A02
8	700A86	29	800A03
9	700A87	30	800A04
10	700A88	31	800A06
11	702A63	32	802A01
12	702A83	33	802A04
13	702A84	34	802A06
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		

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.

A-camera pictures



Index No.	DAS No.	Index No.	DAS No.
1	8550889	24	7435223
2	8627849	25	7435153
3	7219573	26	7435083
4	7219413	27	8910284
5	7219348	28	7507748
6	8694879	29	7507603
7	7291793	30	7507753
8	7291443	31	7507538
9	7291373	32	7507113
10	7291303	33	7507043
11	7291233	34	7506973
12	7291163	35	7579213
13	8766829	36	7579148
14	7363753	37	7579073
15	7363403	38	7579003
16	7363333	39	7578933
17	7363263	40	7579428
18	7363193	41	7650968
19	7363123	42	7650893
20	8838799	43	7650823
21	7435713	44	7435573
22	7435363	45	7363613
23	7435293	46	7291653

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

1998

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