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
CASIUS QUADRANGLE
M 5M 48/270 RN, 1999
I–2576 (MC–6) 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 based on Viking Orbiter data were made by Patricia M. Bridges; 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, 1980, 1983, 1986, 1989, 1998).

MC–6: Abbreviation for Mars Chart 6.

M 5M 48/270 RN: Abbreviation for Mars; 1:5,000,000 series; center of sheet, lat 48° N., long 270°; shaded relief map (R) with nomenclature (N).

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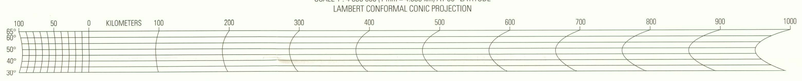
SCALE 1 : 4 336 000 (1 mm = 4.336 km) AT 30° LATITUDE
LAMBERT CONFORMAL CONIC PROJECTION



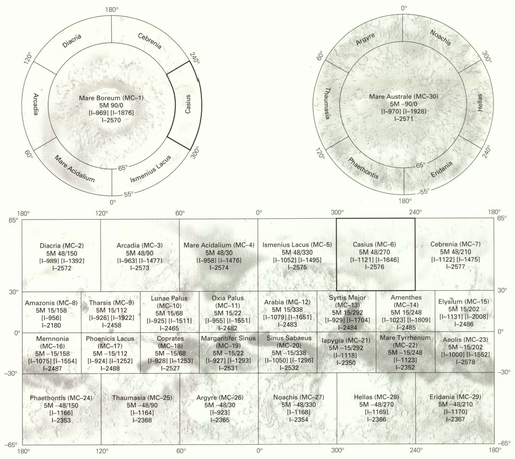
INTERIOR—GEOLOGICAL SURVEY, RESTON, VA—1999

Shaded relief revised in May 1991 on behalf of the Planetary Geology Program, Solar System Exploration Division, Office of Space Science, National Aeronautics and Space Administration.

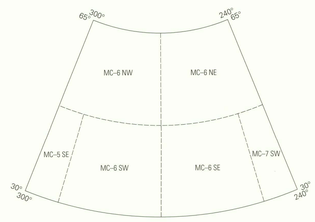
This map supersedes I–1646

Edited by Derrick D. Hirsch; cartography by Darlene A. Casebier

Manuscript approved for publication April 11, 1996

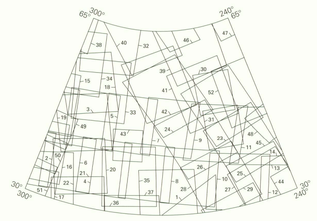


QUADRANGLE LOCATION
Number preceded by I refers to published shaded relief map.
(Number in brackets refers to earlier map superseded by revised version.)



1:2,000,000-SCALE CONTROLLED PHOTOMOSAICS

I–Series	Quadrangle
I–1619	MC–6 NW
I–1563	MC–6 NE
I–1629	MC–5 SE
I–1525	MC–6 SW
I–1432	MC–6 SE
I–1564	MC–7 SW

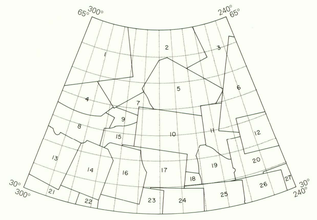


VIKING 1

Index No.	Picture No.	Index No.	Picture No.
1	700A81	27	765A05
2	723A67	28	765A06
3	723A68	29	765A08
4	723A69	30	765A34
5	723A70	31	765A36
6	723A71	32	797A05
7	723A72	33	797A07
8	723A73	34	797A08
9	723A74	35	798A01
10	723A75	36	798A02
11	723A76	37	798A04
12	723A77	38	798A45
13	723A78	39	801A05
14	723A79	40	801A06
15	759A05	41	801A07
16	759A25	42	801A08
17	759A07	43	801A51
18	762A21	44	802A01
19	762A23	45	802A02
20	762A25	46	804A05
21	762A27	47	804A25
22	762A28	48	807A14
23	765A01	49	835A16
24	765A02	50	835A18
25	765A03	51	835A20
26	765A04	52	838A06

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	11446129	15	8479144
2	11622905	16	8479004
3	11800006	17	8551034
4	11622420	18	8622989
5	11798991	19	8695024
6	11976589	20	8766984
7	11622560	21	8406829
8	8335149	22	8953829
9	8407114	23	8500894
10	8551174	24	8622989
11	8695164	25	8694884
12	8767124	26	8766844
13	8335014	27	8839804
14	8406974		

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 454, 2255 North Gemini Drive, Flagstaff, Arizona 86001. A replacement copy will be returned.

REVISED SHADED RELIEF MAP OF THE CASIUS QUADRANGLE (MC–6) OF MARS

1999

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ISBN 0-607-92052-3