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
NOACHIS QUADRANGLE
M 5M –48/330 RN, 1996
I–2354 (MC–27) 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 Jay L. Inge; revisions were made by Patricia M. Bridges.

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, 1986).

MC–27: Abbreviation for Mars Chart 27.

M 5M –48/330 RN: Abbreviation for Mars; 1:5,000,000 series; center of sheet, lat 48° S., long 330°; shaded relief map (R) with nomenclature (N).

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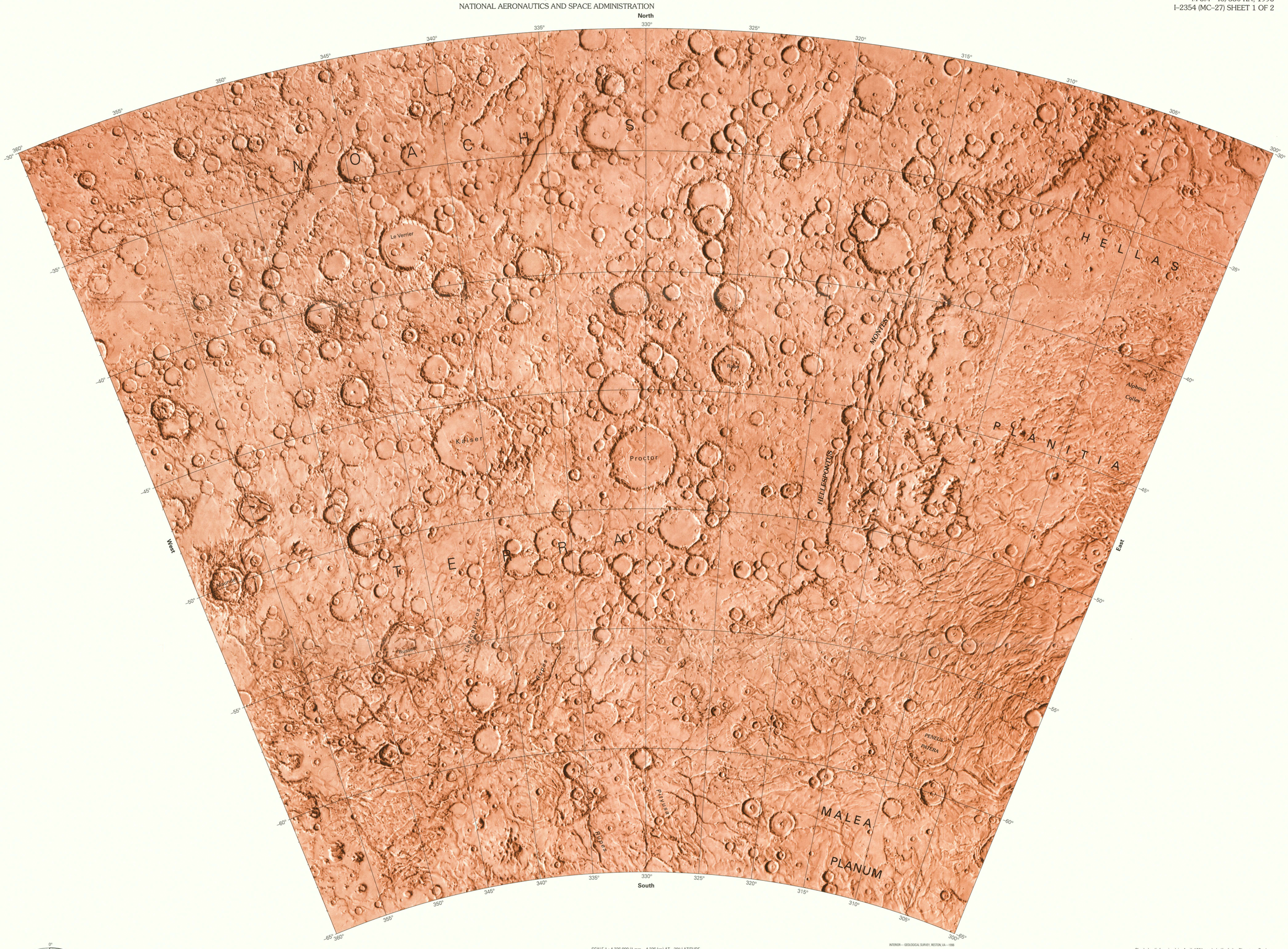
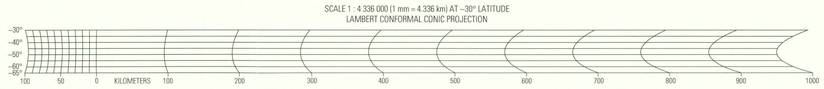


INTERIOR—GEOLOGICAL SURVEY, RESTON, VA—1996

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

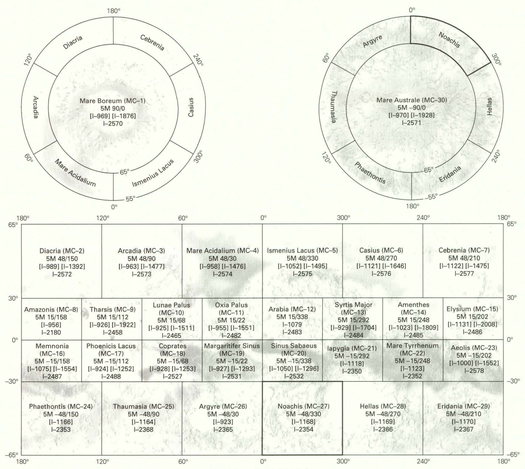


Shaded relief revised in April 1991 on behalf of the Planetary Geology Program, Solar System Exploration Division, Office of Space Science, National Aeronautics and Space Administration.

This map supersedes I–1168

Edited by Derrick D. Hirsch; cartography by Roger D. Carroll, Sandra K. Castro, and Hugh F. Thomas

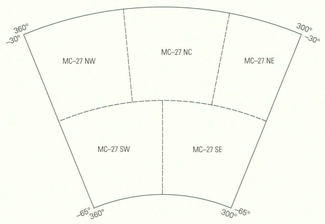
Manuscript approved for publication January 13, 1992

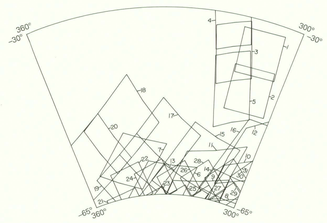


QUADRANGLE LOCATION
Number preceded by I refers to published shaded relief map.
(Number in brackets refers to earlier map superseded by revised version.)

1:2,000,000-SCALE CONTROLLED PHOTOMOSAICS

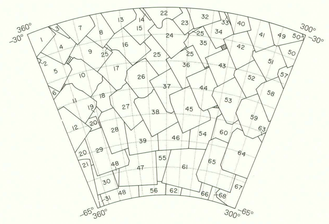
I–Series	Quadrangle
I–1395	MC–27 NW
I–1394	MC–27 NC
I–1585	MC–27 NE
I–1584	MC–27 SW
I–1586	MC–27 SE





VIKING 1

Index No.	Picture No.	Index No.	Picture No.
1	346A3	24	431834
2	346A4	25	431835
3	456A38	26	431836
4	456A39	27	431837
5	456A40	28	431838
6	56B23	29	431839
7	56B24	30	431840
8	56B31	31	431842
9	56B32		
10	56B33		
11	56B34		
12	56B35		
13	79B14		
14	79B15		
15	79B16		
16	79B17		
17	79B25		
18	79B26		
19	79B27		
20	79B28		
21	431B31		
22	431B32		
23	431B33		



A-camera pictures

Index No.	DAS No.	Index No.	DAS No.
1	8117303	24	5627163
2	5239323	25	6244383
3	5311353	26	5527023
4	5311283	27	5526953
5	5311213	28	5526743
6	5311143	29	5526673
7	8185269	30	5526603
8	5383243	31	5526533
9	5383173	32	8405219
10	5383103	33	5593263
11	5383033	34	5593193
12	5382963	35	5593123
13	8091229	36	5593053
14	5455273	37	5593983
15	5455203	38	5593913
16	5455133	39	5593703
17	5455063	40	8477249
18	5454993	41	5671223
19	5454923	42	5671153
20	5454173	43	5671083
21	7432073	44	5671013
22	8333255	45	5670943
23	5527233	46	5670733
24	5627163	47	5670693
25	6244383	48	5670523
26	5527023	49	8549279
27	5526953	50	5743223
28	5526743	51	5743253
29	5526673	52	5743183
30	5526603	53	5743113
31	5526533	54	5742763
32	8405219	55	5742623
33	5593263	56	5742553
34	5593193	57	5815213
35	5593123	58	5815143
36	5593053	59	6815073
37	5593983	60	5814723
38	5593913	61	5814583
39	5593703	62	5814513
40	8477249	63	5886753
41	5671223	64	5886683
42	5671153	65	5886613
43	5671083	66	5886543
44	5671013	67	6030463
45	5670943	68	5958503
46	5670733		

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 NOACHIS QUADRANGLE (MC–27) OF MARS

1996

For sale by U.S. Geological Survey, Information Services, Box 25286, Federal Center, Denver, CO 80225