

NOTES ON BASE

A series of topographic maps covering the entire surface of Mars at a nominal scale of 1:5,000,000 was originally compiled from Mariner 9 data. Details of the Mariner 9 mission that are related to the mapping are described by Batson and others (1973). This revised version was based on Viking Orbiter images. A series of papers describing the Viking mission was published in the Journal of Geophysical Research (American Geophysical Union, 1977).

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 3393.4 km and a polar radius of 3375.7 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 1:3,336,000 at lat 93° and 1:4,290,000 at lat 165°. Standard parallels for the Lambert conformal conic projection are at lat 33.8° and 39.2°. Longitudes increase to the west in accordance with astronomical convention for Mars.

CONTROL

Planimetric control is provided by photogrammetric triangulation using Mariner 9 pictures (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, Aryo (lat 5.19° S, long 0°), located within the crater Aryo.

MAPPING TECHNIQUE

A series of mosaics of Mariner 9 pictures was assembled at 1:5,000,000 using projections described above.

Shaded relief was portrayed using airbrush techniques detailed by Inge (1972) and photo-interpretable methods described by Inge and Bridges (1976). Uniform sun illumination from the west was used throughout. Sizes, shapes, and positions of features were taken from the base mosaic. In the first edition of the map, various computer enhancements of many Mariner 9 pictures, besides those in the base mosaic, were examined in an attempt to portray the surface as accurately as possible. This revised edition was produced by incorporating information derived from various enhancements of higher resolution Viking images of the map area.

Original shaded relief analysis and representation were made by Jay L. Inge. Revisions were made by Patricia G. Hagerty.

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

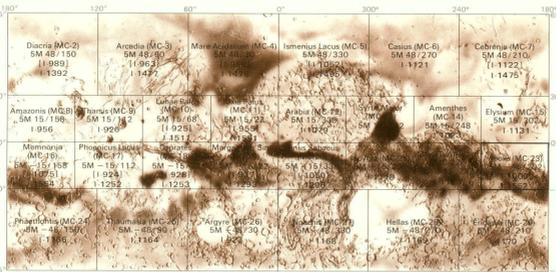
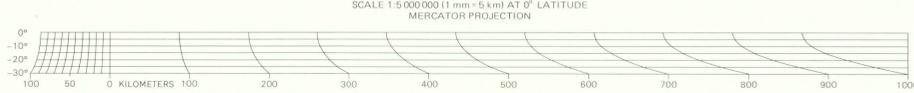
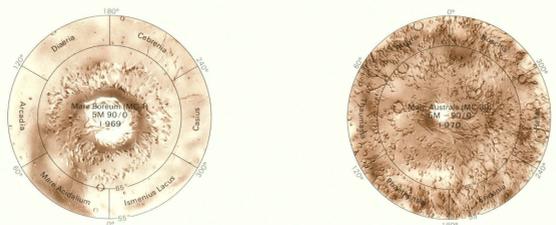
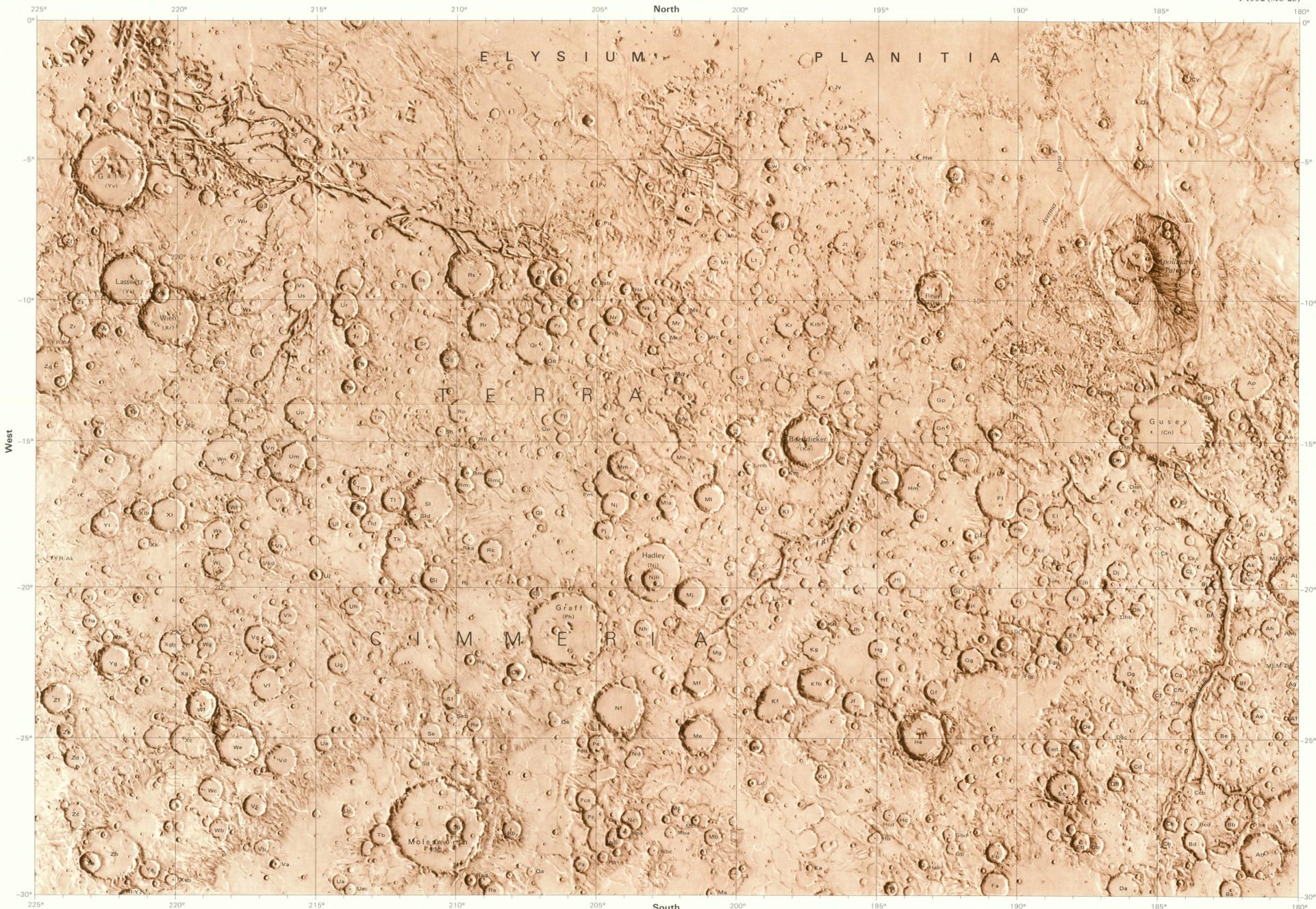
Names on this sheet are approved by the International Astronomical Union (IAU, 1974, 1977, and 1980) except for a provisional name, which is listed below. Double and triple letter designations for craters refer to position on the map and are derived from a grid based on equidistant meridians and parallels, the alphabet (I and Q omitted) run in the direction of increasing longitude (W) and latitude (N). The complete designation of a crater is the name of the quadrangle followed by a double or triple letter. The prefix AIO (identifying the Aeolis quadrangle) is part of the complete designation but, for brevity, is not shown on most craters. Some craters have commemorative names, letter designations for craters are shown in parentheses. Where craters lie mostly on an adjoining map, their letters are derived from the other map; where craters lie exactly on the boundary of two maps, their letters are derived from the eastern or southern map.

Provisional name: Avenus Dorsa

MC-23: Abbreviation for Mars Chart 23
M 5M-15/202 RN: Abbreviation for Mars, 1:5,000,000 series, center of sheet, lat 15° S, long 202°; shaded relief map (R), with nomenclature (N).

REFERENCES

American Geophysical Union, 1977, Journal of Geophysical Research, v. 82, no. 28, p. 3959-4681.
Batson, R. M., Bridges, P. M., and Inge, J. L., 1973, Atlas of Mars, The 1:5,000,000 map series: National Aeronautics and Space Administration, NASA SP-338, 146 p.
Davies, M. E., 1973, Mariner 9: Primary control net: Photogrammetric Engineering, v. 39, no. 12, p. 1297-1302.
Davies, M. E., and Arthur, D. W. G., 1973, Martian surface coordinates: Journal of Geophysical Research, v. 78, no. 20, p. 435-439.
Inge, J. L., 1972, Principles of lunar illustration: Aeronautical Chart and Information Center Reference Publication RP-72-1, 60 p.
Inge, J. L., and Bridges, P. M., 1976, Applied photointerpretation for airbrush cartography: Photogrammetric Engineering and Remote Sensing, v. 42, no. 6, p. 749-760.
International Astronomical Union, 1974, Commission 16: Physical study of planets and satellites, and lunar and marian nomenclature, in 15th General Assembly, Sydney, 1973, Proceedings: International Astronomical Union Transactions, v. 15B, p. 105-109, 217-221.
1977, Working Group for Planetary System Nomenclature, in 16th General Assembly, Grenoble, 1976, Proceedings: International Astronomical Union Transactions, v. 16B, p. 231-235, 331-336, 355-362.
1980, Working Group for Planetary System Nomenclature, in 17th General Assembly, Montreal, 1979, Proceedings: International Astronomical Union Transactions, v. 17B, p. 203-207.



1:2,000,000
Controlled photomosaics

I No.	Quadrangle No.
11213	MC 23 NW
11214	MC 23 SW
11215	MC 23 SE
11497	MC 23 NE

Viking 1

Index No.	Picture No.	Index No.	Picture No.
1	0320A02	26	031A47
2	0320A21	26	031A49
3	0320A21	27	031A50
4	030A39	28	031A51
5	030A45	28	031A52
6	030A63	30	031A53
7	030A64	31	031A54
8	030A73	32	031A56
9	030A74	32	031A57
10	030A75	34	031A58
11	030A76	35	031A59
12	030A77	36	031A60
13	030A82	37	031A61
14	030A81	38	031A62
15	030A82	39	031A63
16	030A83	39	031A64
17	030A84	40	031A65
18	031A10	42	031A68
19	031A10	43	031A69
20	031A37	44	031A90
21	031A38	46	031A91
22	031A39	46	031A92
23	031A38	47	031A93
24	031A38	47	031A94

A camera pictures

Index No.	DAS No.	Index No.	DAS No.	Index No.	DAS No.
1	70508273	27	9268949	53	7937963
2	70504473	28	9268879	54	7937963
3	70504473	29	9268879	55	7937963
4	7050335	30	9268739	56	7937963
5	9120169	31	9268923	57	9268923
6	9120099	32	9268923	58	9268923
7	9120099	33	9268923	59	9268923
8	9120099	34	9268923	60	9268923
9	7222713	35	9268923	61	9268923
10	7222363	36	7868493	62	8000713
11	7222293	37	7868493	63	8000713
12	7222273	38	7868493	64	8000713
13	7222273	39	7868493	65	8000713
14	0319003	40	7868493	66	8000713
15	0319003	41	7868493	67	8000713
16	0319003	42	6462713	68	8000713
17	0319003	43	6462713	69	8000713
18	0319003	44	1234001	70	8000713
19	0319003	45	0340001	71	8000713
20	0319003	46	0340001	72	0340001
21	0319003	47	0340001	73	0340001
22	0319003	48	0340001	74	0340001
23	7394253	49	9340001	75	9340001
24	7394113	50	9340001	76	9340001
25	7394113	51	7938003	77	7938003
26	7394013	52	7938003	78	7938003

INDEX TO VIKING SOURCES
This shaded relief map has been revised utilizing 1:2,000,000 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 TO 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 cross-hatched areas. The DAS number may differ slightly (usually by 5) among various versions of the same picture.

Interior - Geological Survey, Reston, Va. - 1984 - G83303
Revised in December 1981 on behalf of the Planetary Geology Program, Planetary Division, Office of Space Science, National Aeronautics and Space Administration under contract W-13709.
This map supersedes I-1000, the first edition of this sheet.

SHADED RELIEF MAP OF THE AEOLIS QUADRANGLE OF MARS

MC-23
M 5M-15/202 RN
1984

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.

For sale by Branch of Distribution, U.S. Geological Survey, 1200 South East Street, Arlington, VA 22202, and Branch of Distribution, U.S. Geological Survey, Box 24286, Federal Center, Denver, CO 80225.