

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 related to the mapping were described by Batson and others (1973). This revised version is 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 3392.4 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 1:4,336,000 at lat +30° and 1:4,296,000 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.

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

MAPPING TECHNIQUE

A series of mosaics of Mariner 9 pictures was assembled at 1:5,000,000 scale based on projections described above. Shaded relief was portrayed by airbrush techniques detailed by Inge (1972) and photo-interpretive 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 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.

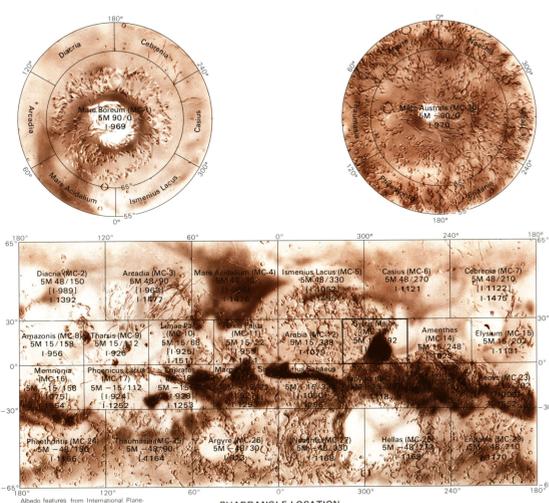
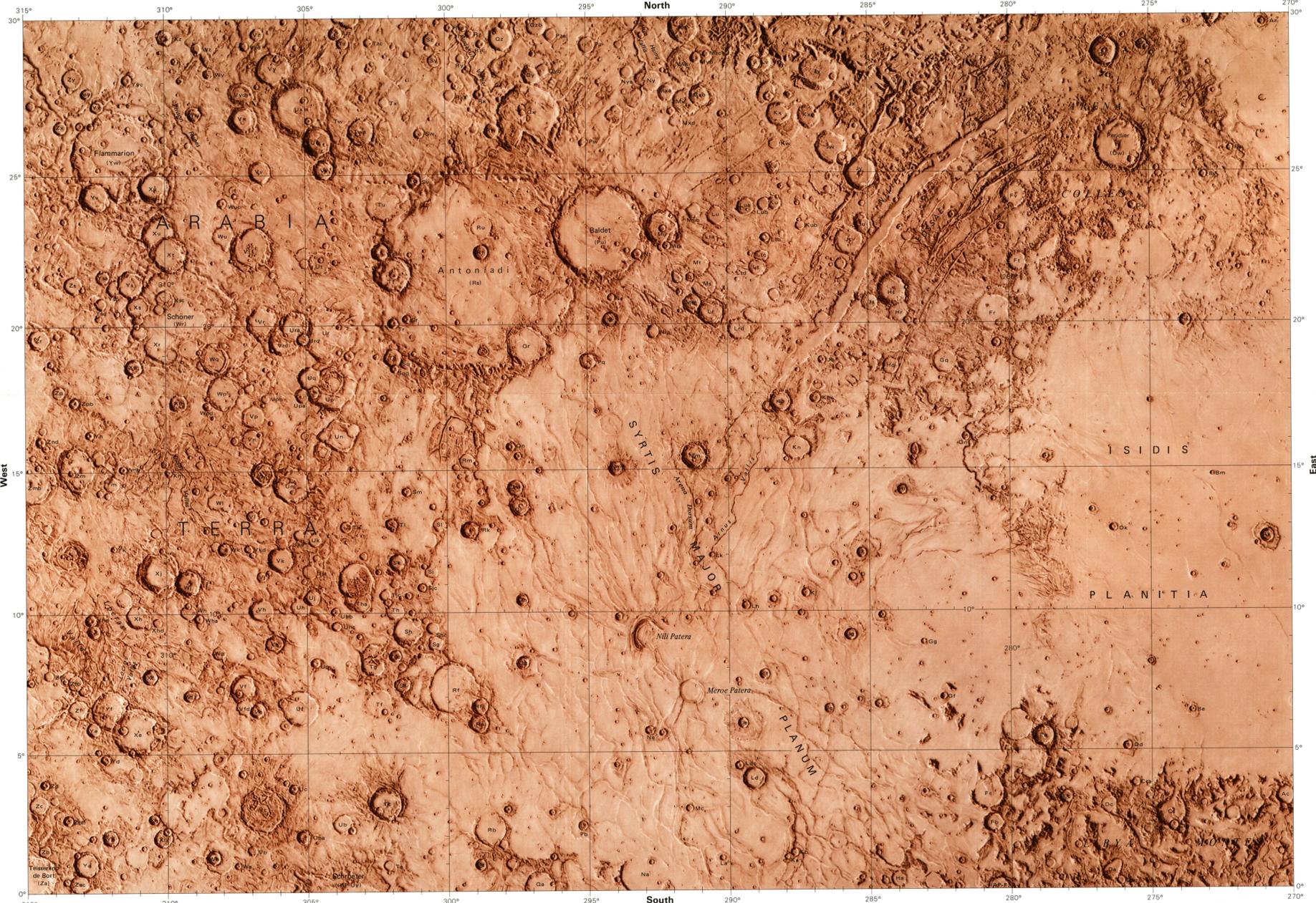
NOMENCLATURE

Names on this sheet are approved by the International Astronomical Union (IAU, 1974, 1977, 1980, and 1982) except for the provisional names indicated by an asterisk. 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 (A and O omitted) runs 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 SYR (identifying the SYRTIS MAJOR quadrangle) is part of the complete designation but, for brevity, is not shown on most craters. Some craters have commemorative names; letter designations for these 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.

MC-13: Abbreviation for Mars Chart 13  
M 5M 15/292 RN: Abbreviation for Mars, 1:5,000,000 series, center of sheet, lat 15° N, long 292°; shaded relief map (R), with nomenclature, (N).

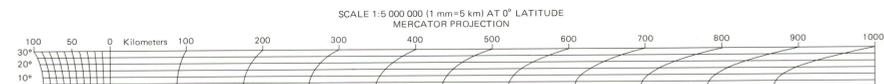
REFERENCES

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., 1979. Atlas of Mars, The 1:5,000,000 map series. National Aeronautics and Space Administration, NASA SP-43, 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. C., 1973. Martian surface coordinates. Journal of Geophysical Research, v. 78, no. 20, p. 4354-4394.  
Inge, J. L., 1972. Principles of lunar illustration: Aeronautical Chart and Information Center Reference Publication R-72-1, 69 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 martian nomenclature, in 15th General Assembly, Sydney, 1973. Proceedings: International Astronomical Union Transactions, v. 15B, p. 105-108, 217-221.  
—, 1977. Working Group for Planetary System Nomenclature, in 16th General Assembly, Grenoble, 1976. Proceedings: International Astronomical Union Transactions, v. 16B, p. 212-225, 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. 293-297.  
—, 1982. Working Group for Planetary System Nomenclature, in 18th General Assembly, Putras, 1982. Proceedings: International Astronomical Union Transactions, v. 18B, p. 334-336.

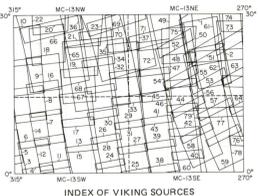


QUADRANGLE LOCATION  
Number preceded by 1 refers to published shaded relief map (Number in brackets refers to earlier map superseded by revised version.)

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, 2295 North Gemini Drive, Flagstaff, Arizona 86001. A replacement copy will be returned.



1:2,000,000  
controlled photomosaics



Index No.	Picture No.	Index No.	Picture No.	Index No.	Picture No.
1	461A10	28	466A47	34	700A54
2	461A12	29	466A48	35	700A55
3	461A13	30	466A49	36	700A56
4	461A14	31	466A50	37	700A57
5	461A15	32	466A51	38	700A58
6	461A16	33	466A52	39	700A59
7	461A17	34	466A53	40	700A60
8	461A18	35	466A54	41	700A61
9	461A19	36	466A55	42	700A62
10	461A20	37	466A56	43	700A63
11	461A21	38	466A57	44	700A64
12	461A22	39	466A58	45	700A65
13	461A23	40	466A59	46	700A66
14	461A24	41	466A60	47	700A67
15	461A25	42	466A61	48	700A68
16	461A26	43	466A62	49	700A69
17	461A27	44	466A63	50	700A70
18	461A28	45	466A64	51	700A71
19	461A29	46	466A65	52	700A72
20	461A30	47	466A66	53	700A73
21	461A31	48	466A67	54	700A74
22	461A32	49	466A68	55	700A75
23	461A33	50	466A69	56	700A76
24	461A34	51	466A70	57	700A77
25	461A35	52	466A71	58	700A78
26	461A36	53	466A72	59	700A79
27	461A37	54	466A73	60	700A80

INDEX OF VIKING SOURCES  
This shaded relief map has been revised by using 1:2,000,000-scale controlled photomosaics and the 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 No.	Picture No.	Index No.	Picture No.	Index No.	Picture No.
1	700A81	21	721A93	41	742A05
2	700A82	22	721A94	42	742A06
3	700A83	23	721A95	43	742A07
4	700A84	24	721A96	44	742A08
5	700A85	25	721A97	45	742A09
6	700A86	26	721A98	46	742A10
7	700A87	27	721A99	47	742A11
8	700A88	28	721A00	48	742A12
9	700A89	29	721A01	49	742A13
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11	700A91	31	721A03	51	742A15
12	700A92	32	721A04	52	742A16
13	700A93	33	721A05	53	742A17
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15	700A95	35	721A07	55	742A19
16	700A96	36	721A08	56	742A20
17	700A97	37	721A09	57	742A21
18	700A98	38	721A10	58	742A22
19	700A99	39	721A11	59	742A23
20	700A00	40	721A12	60	742A24

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 cross-hatched areas. The DAS number may differ slightly (usually by 5) among various versions of the same picture.



SHADED RELIEF MAP OF THE SYRTIS MAJOR QUADRANGLE OF MARS

MC-13: REVISED  
M 5M 15/292 RN  
1985

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 22280, Federal Center, Denver, CO 80225



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