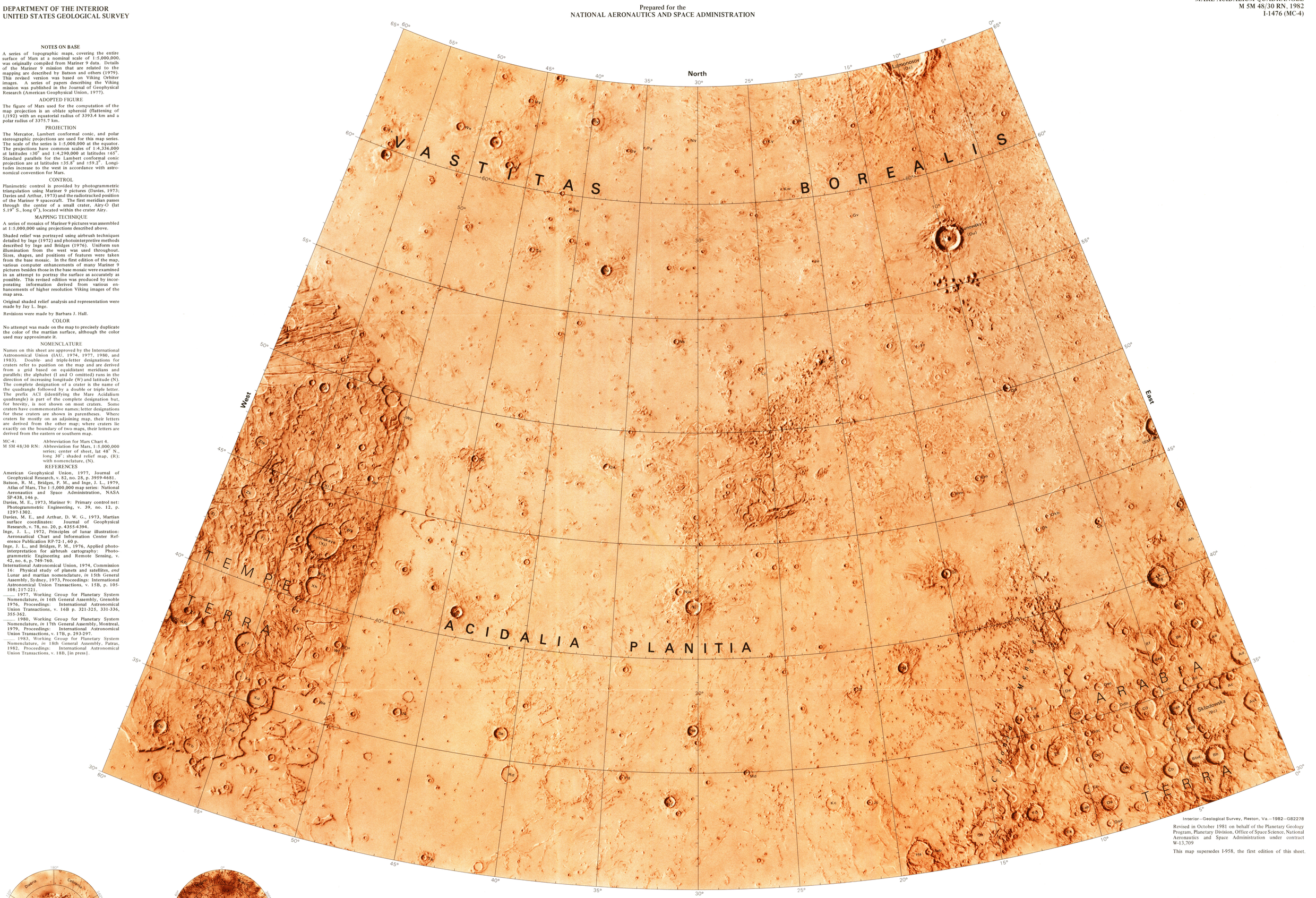
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

Prepared for the
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

ATLAS OF MARS
1:5,000,000 TOPOGRAPHIC SERIES
MARE ACIDALIUM QUADRANGLE
M 5M 48/30 RN, 1982
I-1476 (MC-4)



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

100 50 0 KILOMETERS 100 200 300 400 500 600 700 800 900 1000

65° 60° 50° 40° 30°

Interior—Geological Survey, Reston, Va.—1982—G82278

Revised in October 1981 on behalf of the Planetary Geology Program, Planetary Division, Office of Space Science, National Aeronautics and Space Administration under contract W-13,709

This map supersedes I-958, the first edition of this sheet.

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 (1979). 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 1:4,336,000 at latitudes ±30° and 1:4,290,000 at latitudes ±65°. Standard parallels for the Lambert conformal conic projection are at latitudes ±35.8° and ±59.2°. 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 radiotracked position of the Mariner 9 spacecraft. The first meridian passes through the center of a small crater, Airy-0 (lat 5.19° S., long 0°), located within the crater Airy.

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 photointerpretive 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 Barbara J. Hall.

COLOR

No attempt was made on the map to precisely duplicate 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 1983). 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 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 ACI (identifying the Mare Acidalium 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-4: Abbreviation for Mars Chart 4.
M 5M 48/30 RN: Abbreviation for Mars, 1:5,000,000 series; center of sheet, lat 48° N., long 30°; 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-438, 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. 4355-4394.

Inge, J. L., 1972, Principles of lunar illustration: Aeronautical Chart and Information Center Reference Publication RP-72-1, 60 p.

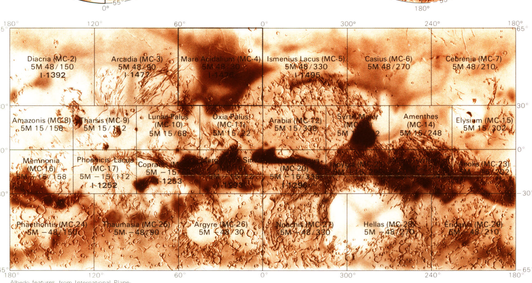
Inge, J. L., and Bridges, P. M., 1976, Applied photointerpretation for airbrush cartography: Photogrammetric Engineering and Remote Sensing, v. 42, no. 6, p. 749-760.

International Astronomical Union, 1974, Commission 16: Physical study of planets and satellites, *and* Lunar and 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. 321-325, 331-336, 355-362.

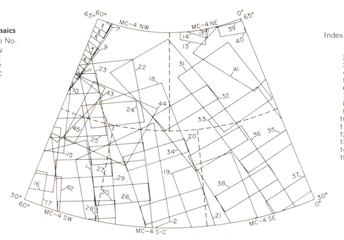
——— 1980, Working Group for Planetary System Nomenclature, *in* 17th General Assembly, Montreal, 1979, Proceedings: International Astronomical Union Transactions, v. 17B, p. 293-297.

——— 1983, Working Group for Planetary System Nomenclature, *in* 18th General Assembly, Patras, 1982, Proceedings: International Astronomical Union Transactions, v. 18B, [in press].



1:2,000,000 Controlled photomosaics

I-No.	Quadrangle No.
I-1347	MC-4 NW
I-1348	MC-4 NE
I-1349	MC-4 SW
I-1350	MC-4 S-C
I-1351	MC-4 SE

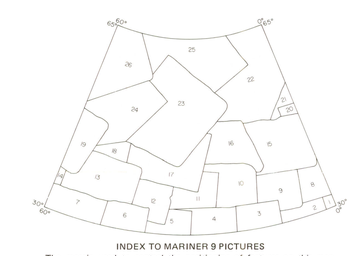


INDEX TO VIKING SOURCES

This shaded relief map has been revised utilizing the 1:2,000,000 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 Science Data Center, Greenbelt, MD 20771.

VIKING 1

Index No.	Picture No.	Index No.	Picture No.	Index No.	Picture No.
1	655A96	16	747A03	31	753A01
2	655A98	17	747A05	32	753A02
3	710A79	18	750A06	33	753A03
4	710A81	19	750A07	34	753A04
5	710A82	20	750A08	35	753A05
6	710A83	21	750A10	36	753A06
7	710A84	22	750A11	37	753A07
8	710A85	23	750A12	38	753A08
9	710A86	24	750A13	39	753A19
10	710A87	25	750A14	40	753A22
11	710A88	26	750A15	41	756A12
12	714A17	27	750A16	42	762A81
13	714A19	28	750A17	43	854A11
14	714A22	29	750A18	44	856A05
15	747A01	30	750A20	45	856A06



A-camera pictures

Index No.	DAS No.	Index No.	DAS No.
1	9306124	14	8802964
2	9234234	15	9162624
3	9162344	16	9090734
4	9090454	17	8946954
5	9018564	18	8875064
6	8946674	19	8731144
7	8874784	20	9234514
8	9234374	21	12363896
9	9162484	22	12188797
10	9090594	23	12012709
11	9018704	24	12012569
12	8946814	25	12012989
13	8874924	26	11835991

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

SHADED RELIEF MAP OF THE MARE ACIDALIUM QUADRANGLE OF MARS

MC-4

M 5M 48/30 RN

1982

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.

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