DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

Prepared in Cooperation with the
JET PROPULSION LABORATORY, CALIFORNIA INSTITUTE OF TECHNOLOGY
FOR THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

CARTOGRAPHIC ATLAS OF MARS
THARSIS QUADRANGLE
M 5M 15/112 R
I-926 (MC-9)

NOTES ON BASE

This map sheet is one of a series covering the entire surface of Mars at nominal scales of 1:25,000,000 and 1:5,000,000 (Batson, 1973). The major source of map data was the Mariner 9 television experiment (Masursky and others, 1970).

ADOPTED FIGURE

The figure of Mars used for the computation of the map projection is an oblate spheriod (flattening of 1/192) with an equatorial radius of 3393.4 km and a polar radius of 3375.7 km.

PROJECTION

The Mercator projection is used for this sheet, with a scale of 1:5,000,000 at the equator and 1:4,336,000 at lat 30°. Longitudes increase to the west in accordance with usage of the International Astronomical Union (IAU, 1970). Latitudes are areographic (de Vaucouleurs and others, 1973).

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 spacecraft. The first meridian passes through the crater Airy-O (latitude 5.19S) within the crater Airy. No simple statement is possible for the precision, but local consistency is 5-10 km.

MAPPING TECHNIQUE

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

Shaded relief was copied from the mosaics and portrayed with uniform illumination with the sun to the west. Many Mariner 9 pictures besides those in the base mosaic were examined to improve the portrayal (Levinthal and others, 1973). The shading is not generalized and may be interpreted with photographic reliability (Inge, 1972).

Shaded relief analysis and representation were made by Patricia M. Bridges.

NOMENCLATURE

All names on this sheet are approved by the International Astronomical Union, except the following names which are provisional: Tractus Catena and Ulysses Patera. Double letter designations refer to position on this map (IAU, 1970).

MC-9: Abbreviation for Mars Chart 9.
M 5M 15/112 R: Abbreviation for Mars 1:5,000,000 series: center of sheet, 15° latitude, 112° longitude; shaded relief map, R.

REFERENCES

Batson, R. M., 1973, Cartographic products from the Mariner 9 mission: Jour. Geophys. Research, v. 78, p. 4424-4435.
Davies, M. E., 1973, Mariner 9 – Primary control net: Photogramm. Eng., v. 39, no. 12, p. 1297-1302.
Davies, M. E., and Arthur, D. W. G., 1973, Martian surface coordinates: Jour. Geophys. Research, v. 78, p. 4355-4395.
Inge, J. L., 1972, Principles of lunar illustration: Aeronaut. Chart and Inf. Center Ref. Pub., RP-72-1, 60 p.
International Astronomical Union, Commission 16, 1970, Physical study of planets and satellites, *in* Proc. 14th General Assembly, 1971: Internat. Astron. Union Trans., V. XIVB, p. 128.
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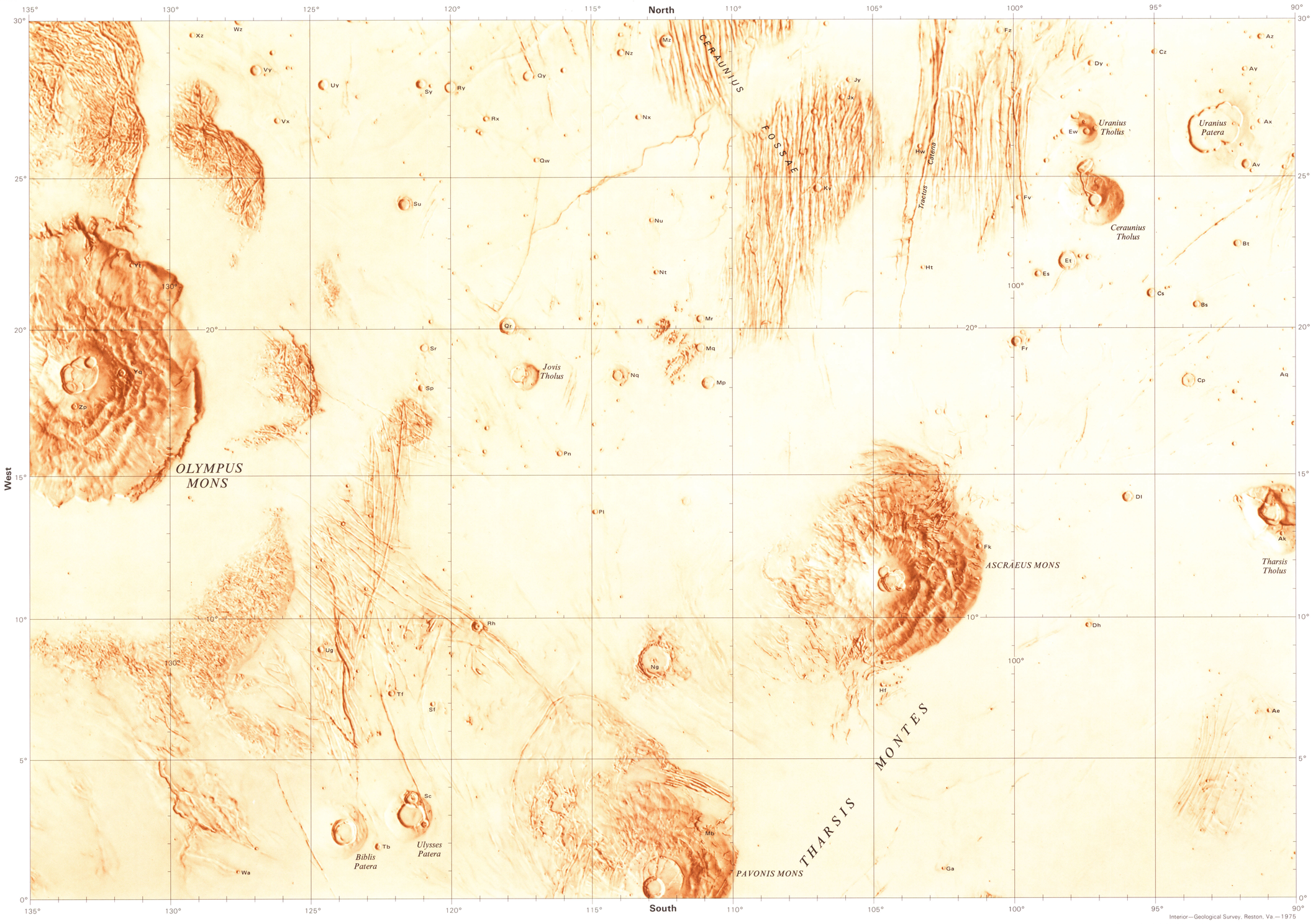
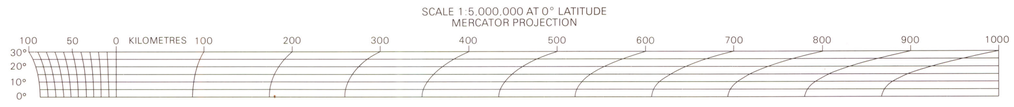
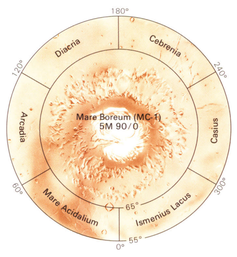
Masursky, Harold, Batson, R. M., Borgeson, W. T., Carr, M. H., McCauley, J. F., Milton, D. J., Wildey, R. L., Wilhelms, D. E., Murray, B. C., Horowitz, N., Leighton, R. B., Sharp, R. V., Thompson, W., Briggs, G. A., Chandeysson, P., Shipley, E., Sagan, Carl, Pollack, J. B., Lederberg, Joshua, Levinthal, E. C., Hartmann, W. K., McCord, T. B., Smith, B. E., Davies, M. E., de Vaucouleurs, G. D., and Leovy, C. B., 1970, Television experiment for Mariner Mars 1971: Icarus, v. 12, p. 10-45.
de Vaucouleurs, Gerard, Davies, M. E., Sturms, F. M., 1973, The Mariner 9 areographic coordinate system: Jour. Geophys. Research, v. 78, p. 4395-4404.

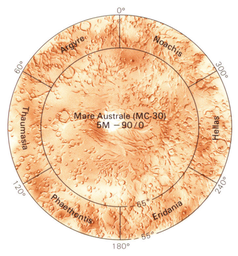


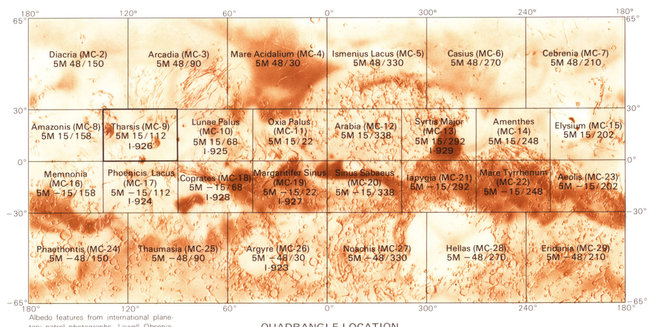
Interior—Geological Survey, Reston, Va.—1975
Prepared on behalf of the Jet Propulsion Laboratory, California Institute of Technology under WO-8122

SCALE 1:5,000,000 AT 0° LATITUDE
MERCATOR PROJECTION









Albedo features from international planetary patrol photographs, Lowell Observatory, Flagstaff, Ariz.

QUADRANGLE LOCATION
Number preceded by I refers to published shaded relief map

A-camera pictures

Index No.	DAS No.	Index No.	DAS No.
1	6895178	23	7183158
2	6895668	24	7183228
3	6895738	25	7183298
4	6967138	26	7183368
5	6967208	27	7183438
6	6967278	28	7183648
7	6967348	29	7183788
8	6967418	30	7183928
9	6967768	31	7255188
10	7039168	32	7255258
11	7039238	33	7255328
12	7039308	34	7255398
13	7039378	35	7255468
14	7039688	36	7255818
15	7039728	37	8226864
16	7111128	38	8298824
17	7111198	39	8370854
18	7111268	40	8442884
19	7111338	41	8513864
20	7111408	42	8514844
21	7111618	43	6895248
22	7111758		

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.

SHADED RELIEF MAP OF THE THARSIS QUADRANGLE OF MARS

MC-9
M 5M 15/112 R
1975

For sale by U.S. Geological Survey, Denver, Colo. 80225, and Reston, Va. 22092, price $1.00

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~~Mars (Tharsis quad.)~~. Relief. 1:5,000,000. 1975.
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