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

ATLAS OF MARS
1:5,000,000 TOPOGRAPHIC SERIES
LUNAE PALUS QUADRANGLE
M 5M 15/68 R, 1975
I–925 (MC–10)

NOTES ON BASE

This is one map in a series of topographic map sheets 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 spheroid (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, 1971). 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 5.199° S) 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 Susan L. Davis.

COLOR

No attempt was made on the map to precisely duplicate the color of the Martian surface, although the color used does approximate it.

NOMENCLATURE

All names on this sheet are approved by the International Astronomical Union (IAU, 1974), except the following names which are provisional: Echus Chasma, Nanedi Valles and Sacra Fossa. Double and triple letter designations for craters refer to position on the map. 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-10: Abbreviation for Mars Chart 10.
M 5M 15/68 R: Abbreviation for Mars 1:5,000,000 series; center of sheet, 15° latitude, 68° longitude; shaded relief map, R.

REFERENCES

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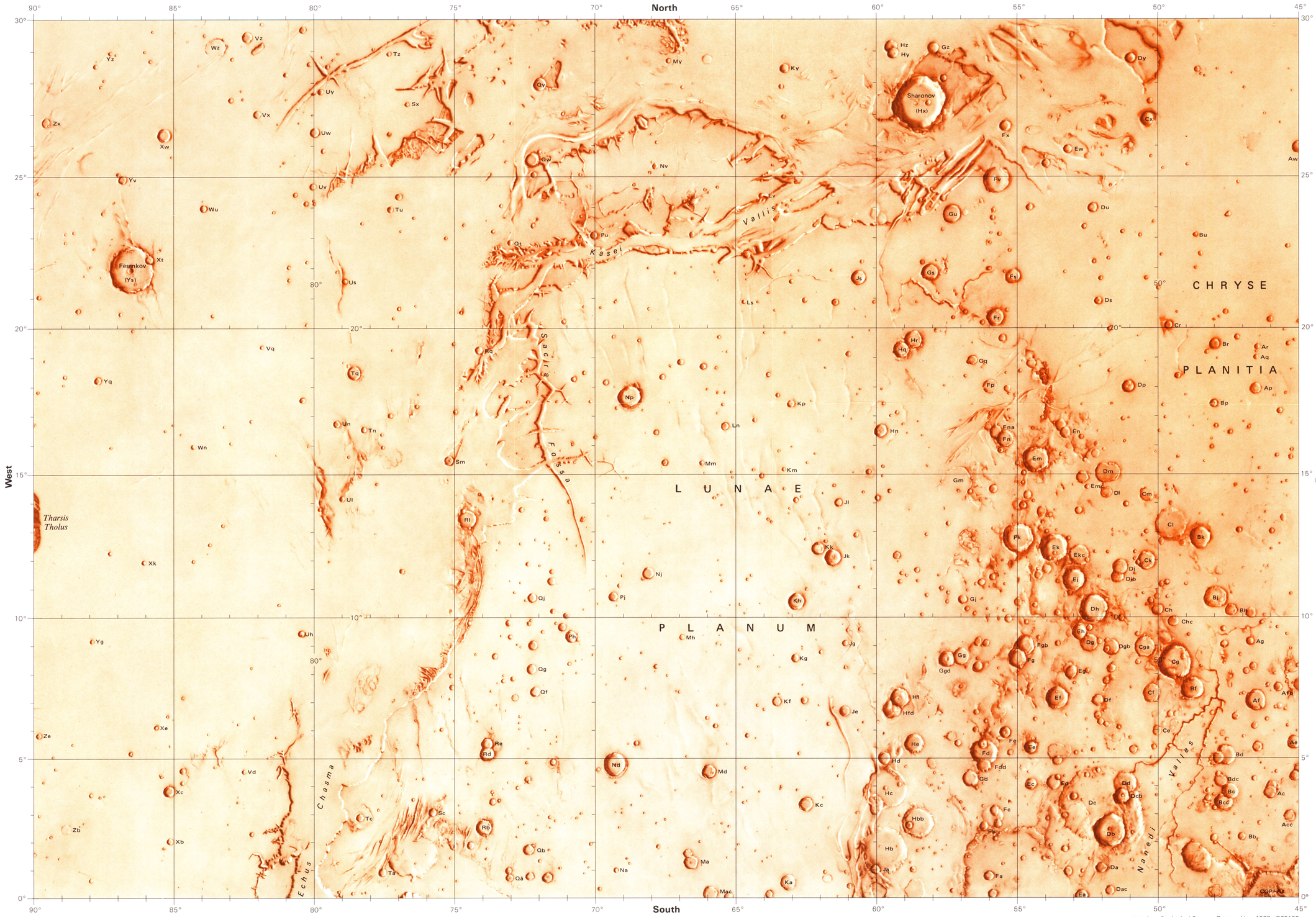
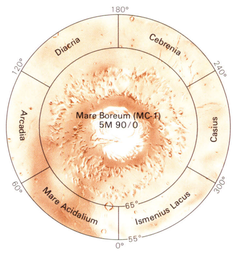
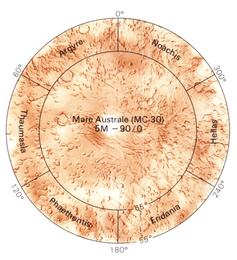
Masursky, Harold, Batson, R. M., Borgeson, W. T., Carr, M. H., McCauley, J. F., Milton, D. J., Wildey, R. L., Wilhelms, D. E., Murray, B. C., Horowitz, N. H., Leighton, R. B., Sharp, R. V., Thompson, T. W., Briggs, G. A., Chandeysson, P., Shipley, E. N., Sagan, Carl, Pollack, J. B., Lederberg, Joshua, Levinthal, E. C., Hartmann, W. K., McCord, T. B., Smith, B. A., Davies, M. E., de Vaucouleurs, G. D., and Leovy, C. B., 1970, Television experiment for Mariner Mars 1971: Icarus, v. 12, no. 1, p. 10-45.
de Vaucouleurs, G. D., Davies, M. E., Sturms, F., M., Jr., 1973, The Mariner 9 areographic coordinate system: Jour. Geophys. Research, v. 78, no. 20, p. 4395-4404.

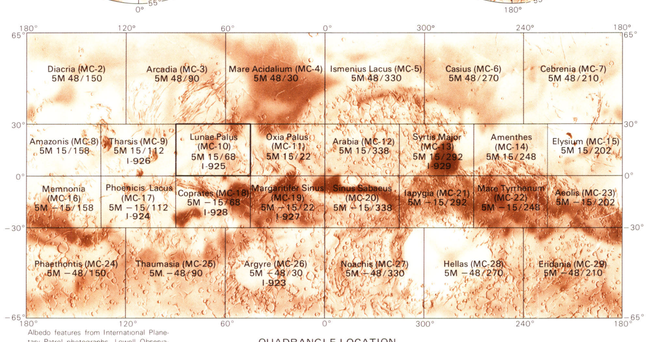


Interior—Geological Survey, Reston, Va.—1975—G75133
Prepared on behalf of the Jet Propulsion Laboratory, California Institute of Technology under WO-8122



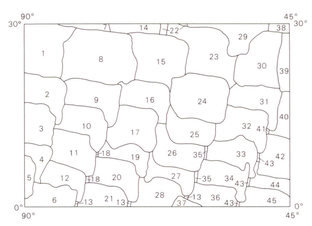


SCALE 1:5,000,000 AT 0° LATITUDE
MERCATOR PROJECTION



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

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1	07255813	24	07471343
2	07255463	25	07471273
3	07255393	26	07471203
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5	07255253	28	07471063
6	07327143	29	08874779
7	07255953	30	07543583
8	07327773	31	07543233
9	07327423	32	07543163
10	07327353	33	07543093
11	07327283	34	07543023
12	07327213	35	07471558
13	05380798	36	07542953
14	08730859	37	06139738
15	07399733	38	08946669
16	07399383	39	07616473
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20	07399173	43	07543448
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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 LUNAE PALUS QUADRANGLE OF MARS

MC-10

M 5M 15/68 R
1975

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