DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

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

ATLAS OF MARS
1:5,000,000 TOPOGRAPHIC SERIES
AMENTHES QUADRANGLE
M 5M 15/248 R, 1977
I-1023 (MC-14)

NOTES ON BASE

This map is one 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, Batson, 1976). 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 (lat 5.19° 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, Inge and Bridges, 1976). The shading is not generalized and may be interpreted with nearly photographic reliability (Inge, 1972).

Shaded relief analysis and representation were made by Anthony G. Sanchez.

COLOR

No attempt was made on the map precisely to 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; 1977). Double and triple letter designations 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 AME (identifying the Amenthes sheet) 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-14: Abbreviation for Mars Chart 14.
M 5M 15/248 R: Abbreviation for Mars 1,5,000,000 series; center of sheet, 15° N lat, 248° long; shaded relief map, R.

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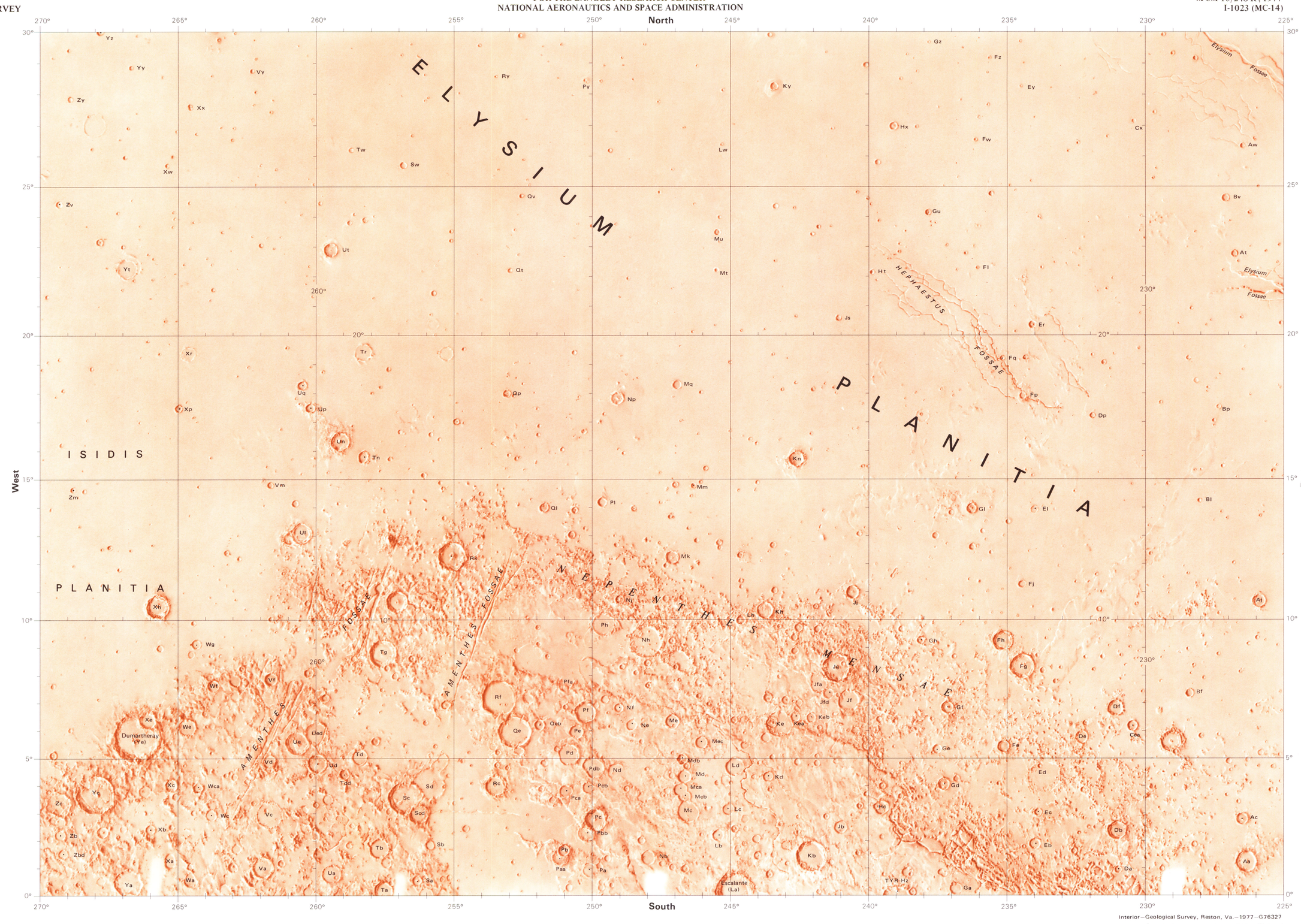
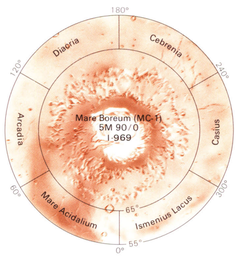
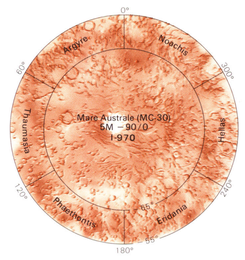
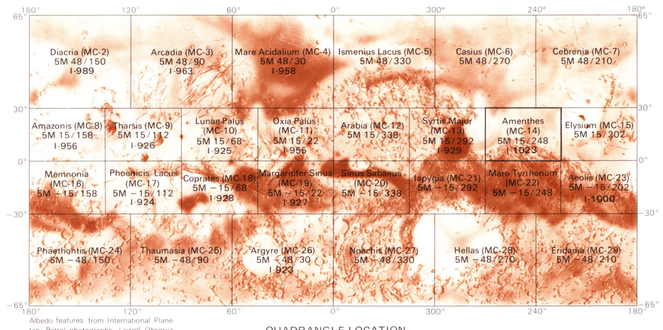
de Vaucouleurs, G. D., Davies, M. E., and Sturms, F. M., Jr., 1973, The Mariner 9 areographic coordinate system: Jour. Geophys. Research, v. 78, no. 20, p. 4395-4404.









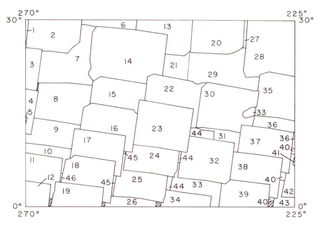
Albedo features from International Planetary Patrol photographs, Lowell Observatory, Flagstaff, Ariz.

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

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

Interior—Geological Survey, Reston, Va.—1977—G76327

Prepared on behalf of the Viking Project Office, National Aeronautics and Space Administration under contract L-55,232



A-camera pictures

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

SHADED RELIEF MAP OF THE AMENTHES QUADRANGLE OF MARS

MC-14

M 5M 15/248 R

1977

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~~Phaeo (Amenthes quad.) Relief, 1:5,000,000, 1977~~
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