

NOTES ON BASE

This map is one in a series of topographic map sheets covering the entire surface of Mars at a nominal scale of 1:5,000,000. First edition sheets in this series were compiled with Mariner 9 data. Selected parts of the series are being revised on the basis of Viking data. The mapping is described by Batson and others (1979). The Mariner 9 television experiment is described by Mauk and others (1979). A series of papers on the Viking mission is contained in *Journal of Geophysical Research*, v. 82, no. 28, September 30, 1977.

ADOPTED FIGURE

The figure of Mars used for the computation of the map projection is an oblate spheroid (flattening of 1/92) with an equatorial radius of 3395.4 km and a polar radius of 3375.7 km.

PROJECTION

The Lambert conformal conic projection is used for this sheet with standard parallels at 35°S and 59°S. A scale of 1:4,336,000 at lat 30°S was chosen to match the scale at lat 30°S of the adjacent Mercator projection. 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-0 (lat 5.19°S) within the crater Airy. In February 1978, the Mariner 9 control net was upgraded through the use of Viking data (Davies and others, 1978). Random discrepancies as large as 11 km exist between the Mariner 9 net (on which this sheet is based) and the new Viking net.

MAPPING TECHNIQUE

A series of mosaics of Lambert conformal conic projections of Mariner 9 pictures was assembled at 1:5,000,000. Shaded relief was portrayed with uniform illumination with the sun to the west, using airbrush techniques detailed by Inge (1972) and photogrammetric methods described by Inge and Bridges (1976). Sizes, shapes, and positions of features were taken from the base mosaic. In the first edition of the map (U.S. Geological Survey, 1976), 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. (Computer enhancement of Mariner 9 pictures is described by Levinthal and others, 1973, and Green and others, 1975). This rendition was revised through examination of Viking Orbiter pictures to produce the current version.

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

COLOR

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

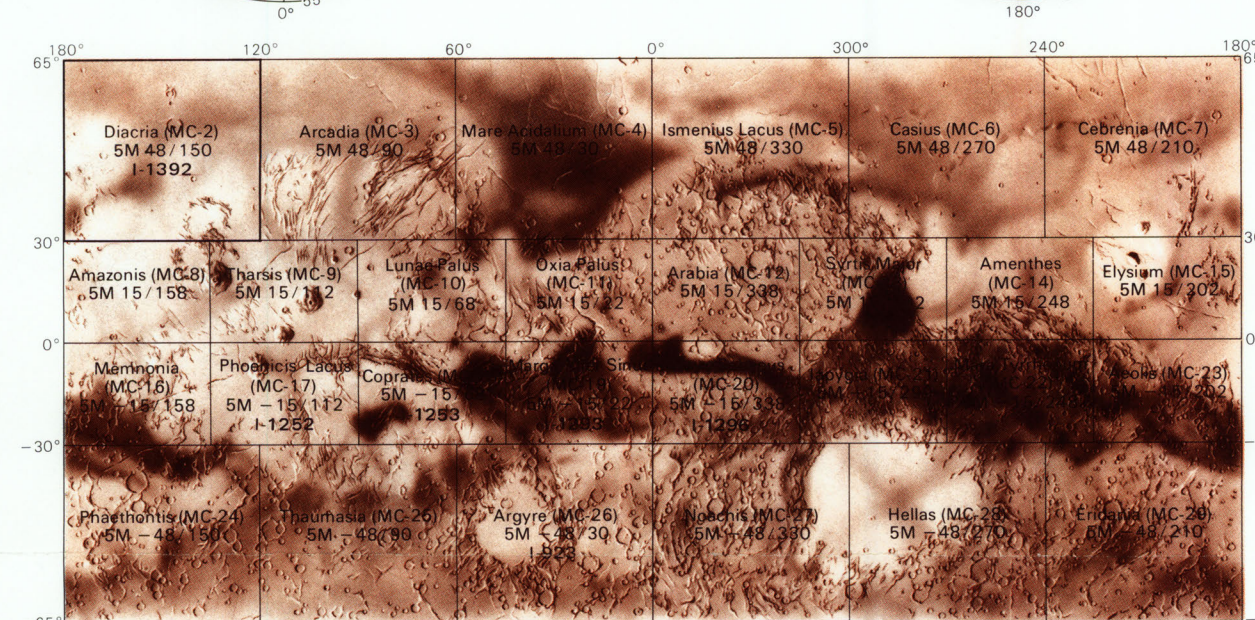
NOMENCLATURE

Names on this sheet are approved by the International Astronomical Union (IAU, 1974, 1977, and 1980) except for provisional names, which are listed below. Double- and triple-letter designations for craters refer to position on the map and are derived from a grid based on equivalent 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 DIA (identifying the Diacria 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.

Provisional names: Scandia Colles and Erebus Montes
MC-2: Abbreviation for Mars Chart 2
M SM 48/150 RN: Abbreviation for Mars 1:5,000,000 series; center of sheet, lat 48°S, long 150°W; shaded relief map; R: nomenclature; N: nomenclature; N: nomenclature.

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QUADRANGLE LOCATION
by Polar photographs, Lowell Observatory
by Flagstaff, Ariz.

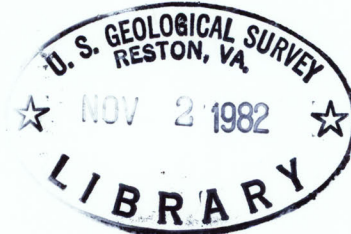
Number preceded by 1 refers to published shaded relief map

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 64, 2205 North Gemini Drive, Flagstaff, Arizona 86001. A replacement copy will be returned.

SHADED RELIEF MAP OF THE DIACRIA QUADRANGLE OF MARS

MC-2
M SM 48/150 RN
1981



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