



**NOTES ON BASE**

This sheet is one in a series of shaded relief and topographic maps covering the entire surface of Mars at nominal scales of 1:2,000,000, 1:5,000,000, and 1:25,000,000. Earlier parts of the series have been described by Batson (1973, 1976) and are similar to current mapping. The source for the 1:2,000,000 series was Viking Orbiter images. A collection of papers on the Viking missions appeared in the *Journal of Geophysical Research*, v. 82, no. 28 (September 30, 1977). The 1:2,000,000 sheet is a quadrant of the 1:5,000,000 shaded relief map of the Coprates quadrangle (U.S. Geological Survey, 1980).

**ADOPTED FIGURE**

The figure of Mars used for the computation of the map projection is an oblate spheroid with an equatorial radius of 3393.4 km and a polar radius of 3375.7 km.

**PROJECTION**

The Mercator projection used for this sheet was calculated with a true scale of 1:2,000,000 at lat. 27.476° and lat. -27.476°. Longitudes increase to the west in accordance with usage of the International Astronomical Union (IAU, 1971). Latitudes are aerographic (de Vaucouleurs and others, 1973).

**CONTROL**

Planimetric control was provided by photogrammetric triangulation using Viking and Mariner 9 pictures (Davies and others, 1978). The first meridian passes through the crater Ary-O (lat. 5.142° S) within the crater Ary. At least 66 percent of the image control points on the base mosaic lie within 0.5 mm (1 km) of their published locations.

**MAPPING TECHNIQUES**

For this series, photomosaics are assembled at a scale of 1:2,000,000. The photomosaics utilize a special set of Viking Orbiter images acquired specifically for systematic global mapping. Sizes, shapes, and positions of features were taken from the base photomosaic during shaded relief portrayal. Features were drawn with uniform illumination from the west, using airbrush techniques described by Inge (1972), and photointerpretive methods described by Inge and Bridges (1976). Many Viking Orbiter pictures besides those used in the base mosaic were examined to improve the portrayal. The shading is not generalized and accurately represents the character of the surface features. Shaded relief analysis and representation were made by Susan L. Davis.

**COLOR**

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

**NOMENCLATURE**

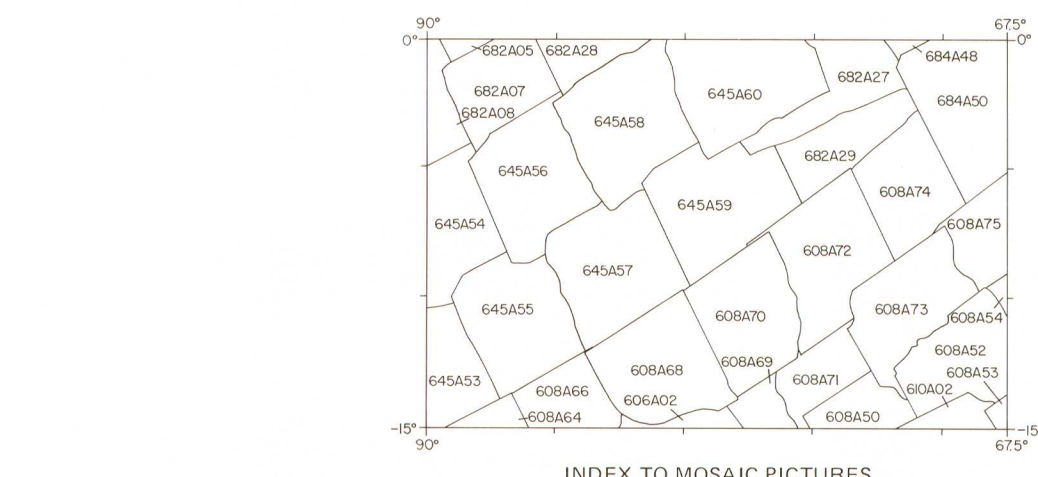
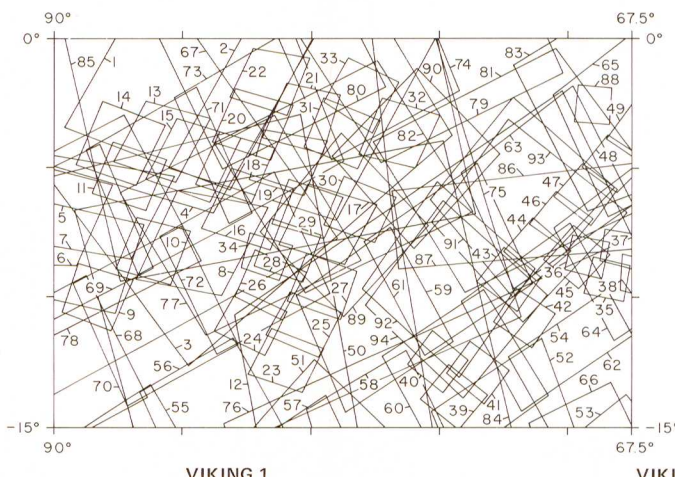
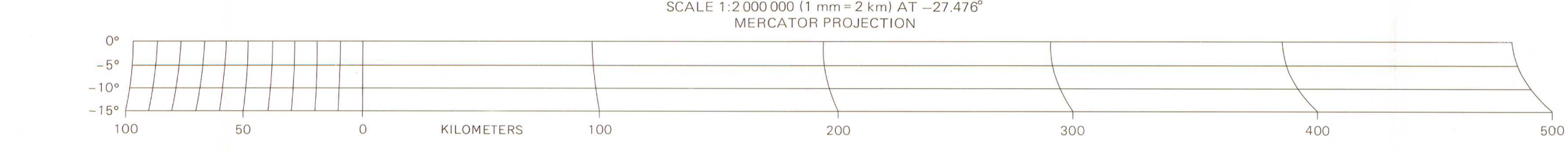
All names in the small map showing location of features are approved by the International Astronomical Union (IAU, 1974, 1977, and 1980), except for the provisional names which are listed below.

Provisional names: Geryon Montes, Louros Valles, Candor Mensa, Hebex Mensa, Tithonus Fossae, Nix Fossae and Callisto Fossae.

MC-18 NW: Abbreviation for Mars Chart 18, northwest quadrant.  
M 2M -7/79 R: Abbreviation for Mars, 1:2,000,000 series; center of sheet -7° lat., 79° long.; shaded relief map, R.

**REFERENCES**

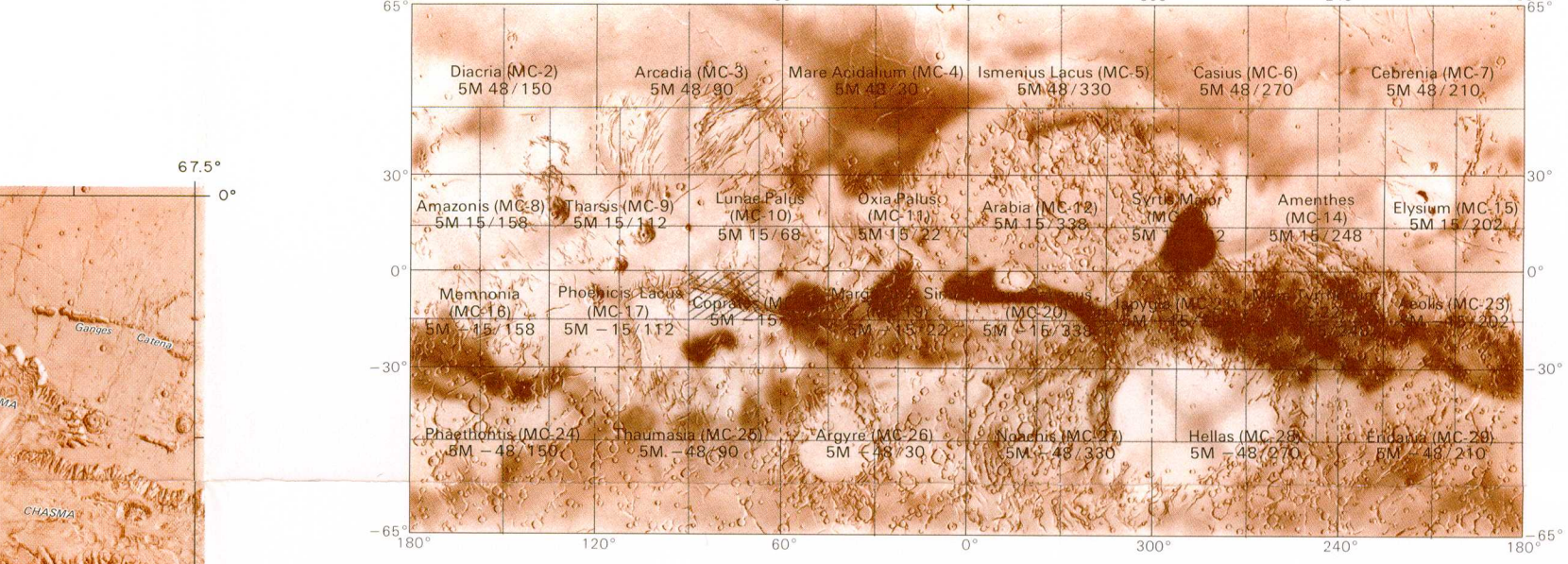
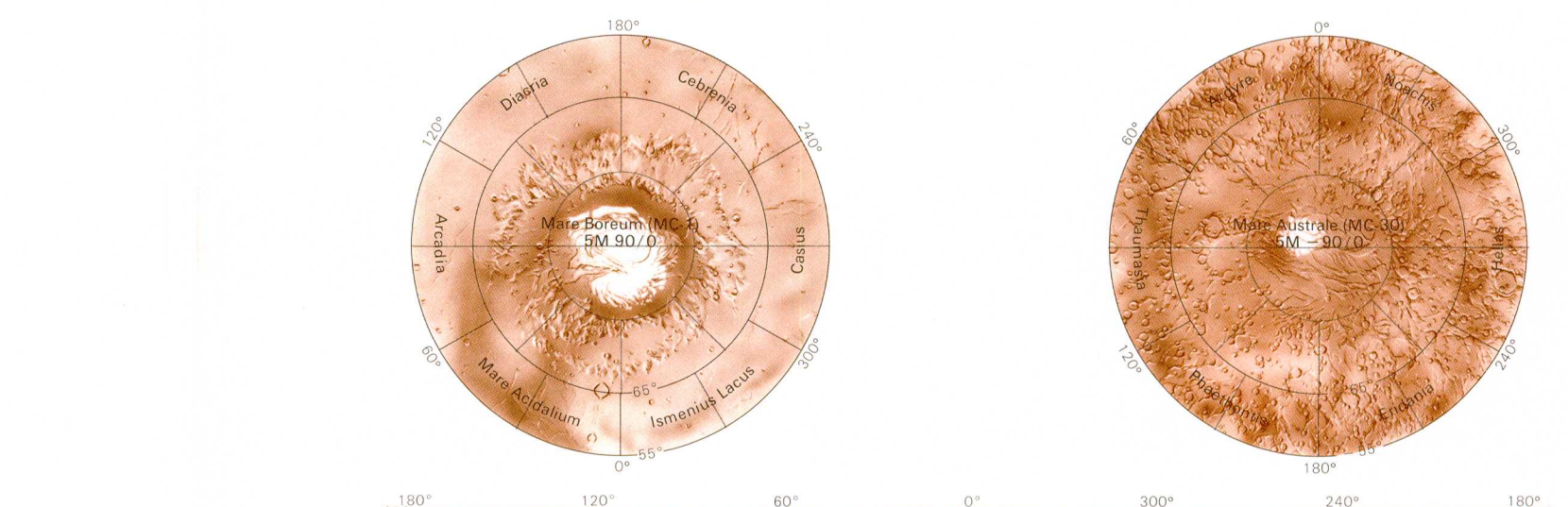
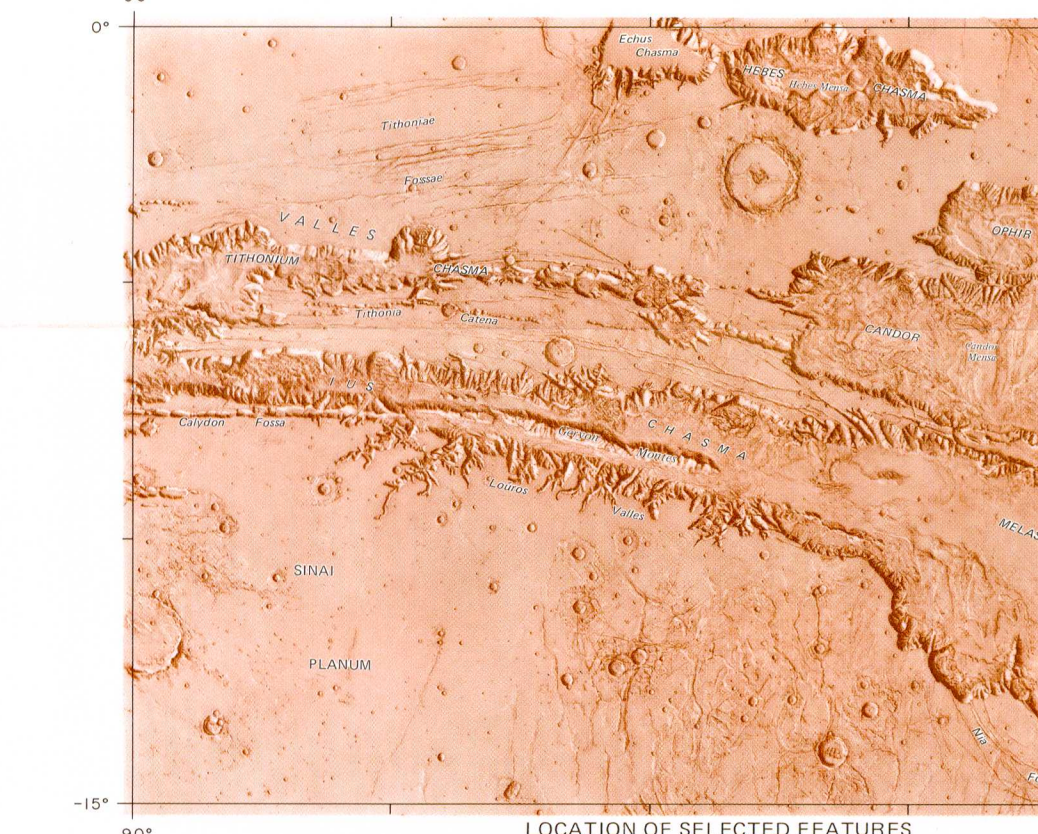
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The mosaic used to control the positioning of features portrayed on this map was made with the Viking Orbiter pictures outlined above. Copies of various enhancements of these pictures are available from National Space Science Data Center, Code 601, Goddard Space Flight Center, Greenbelt, MD 20771.



**SHADED RELIEF MAP OF THE COPRATES NORTHWEST QUADRANGLE OF MARS**  
M 2M-7/79 R  
MC-18 NW  
1981

**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, 2255 North Gemini Drive, Flagstaff, Arizona 86001. A replacement copy will be returned.

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