

**NOTES ON BASE**  
The map is one in a series covering the entire surface of Mars at a nominal scale of 1:5,000,000. The series was originally compiled from Mariner 9 data (Baner and others, 1976). The original shaded relief base was revised and augmented with image data from Viking Orbiter, but feature positions were not shifted to fit contours derived from Viking.

**ADOPTED FIGURE**  
The figure of Mars used for the construction of the map projection is an oblate spheroid (Baner et al., 1976) with an equatorial radius of 3,393.4 km and a polar radius of 3,375.7 km.

**PROJECTION**  
The Mercator, Lambert Conformal Conic, and Polar Stereographic projections are used for this map series. The scale of the series is 1:5,000,000 at the equator. The projections have constant scales of 1:4,336,000 at 30° and 1:4,306,000 at 60°. Standard parallels for the Lambert Conformal Conic projection are at 33° N and 33° S. Longitude increases to the west in accordance with astronomical convention for Mars. Latitude is planetographic.

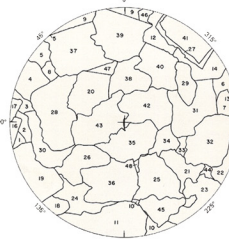
**CONTROL**  
Planimetric control of the shaded relief is provided by photogrammetric triangulation using Mariner 9 images (Davies, 1973; Davies and others, 1973) and the radio-tracked position of the Mariner 9 spacecraft. The first meridian passes through the center of a small circle, approximately 19° S, long 0°, within the center of the primary control used in the network, inside the Viking Orbiter Secondary Experiment Data Record; radio-occultation measurements from both Mariner 9 and Viking Mission Lander and others, 1972; Khare and others, 1973; Laska and others, 1979. Earth-based radar observations (Pinnell and others, 1971; Davies and others, 1975; and the Mars primary control network of the Rand Corporation (Davies and others, 1978).

**MAPPING TECHNIQUE**  
Shaded relief was portrayed by photointerpretive methods described by Ige and Bridges (1976). Uniform sun illumination from the west was used throughout. The original rendition of feature positions, sizes, and shapes was taken from a controlled base mosaic of Mariner 9 images. Various computer enhancements of many Mariner 9 and Viking Orbiter images besides those in the base mosaic were examined in an attempt to portray the surface as accurately as possible.

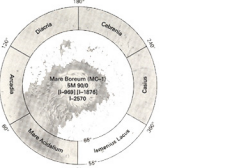
**COLOR**  
No attempt was made on the map to duplicate precisely the color of the martian surface, although the color used may approximate it.

**NOMENCLATURE**  
Names on this sheet are approved by the International Astronomical Union (IAU, 1974, 1977, 1986, 1990, 1992, 1996), except for provisional names, which are marked by an asterisk.

**REFERENCES**  
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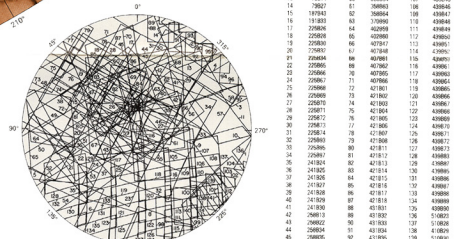
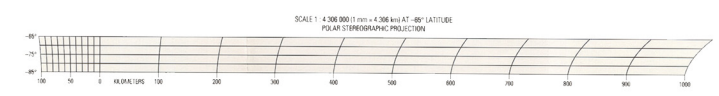
**INDEX OF MARINER 9 PICTURES**  
The mosaic used to control the positioning of features on this map was made with the Mariner 9 camera pictures outlined above. The DAS number may vary slightly locally by 1 among different versions of the same picture.



Picture No.	Picture No.	Picture No.	Picture No.	Picture No.	Picture No.
1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
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31	32	33	34	35	36
37	38	39	40	41	42
43	44	45	46	47	48

**QUADRANGLE LOCATION**  
Number preceded by 1 refers to published shaded relief map. (Number in brackets refers to earlier map superseded by revised version.)

**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, 2200 Sixth Avenue, Flagstaff, Arizona 86001. A replacement copy will be returned.



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**INDEX OF VIKING SOURCES**

This shaded relief map has been revised by utilizing 12,000,000 scale controlled photomosaic and supplementary Viking 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.

**REVISED SHADED RELIEF MAP OF THE MARE AUSTRALE REGION (MC-30) OF MARS**

