DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Prepared for the
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

ATLAS OF MARS
1:500,000 TOPOGRAPHIC SERIES
MTM 20047: MAJA VALLES REGION
M 500K 20/47 CM, 1985
I-1719

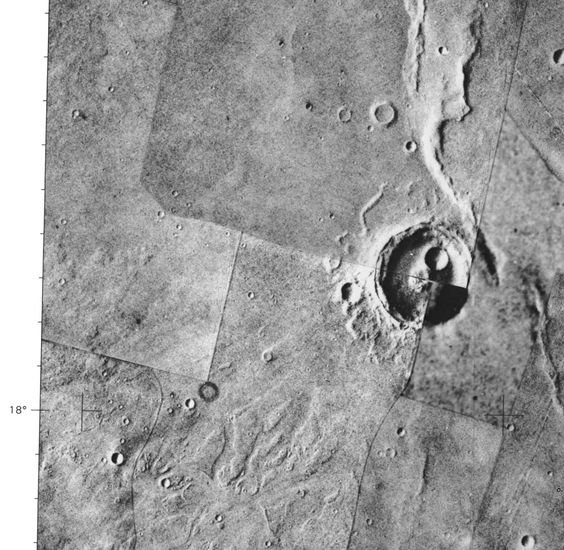
North
South
West
East

SCALE 1:502 000 (1 mm=502 m) AT 50° LONGITUDE
TRANSVERSE MERCATOR PROJECTION

10 0 10 20 30 40 50 60 70 80 90 100
KILOMETERS

Interior—Geological Survey, Reston, Va.—1985—G85191

Prepared on behalf of the Planetary Geology Program, Planetary Division, Office of Space Science, National Aeronautics and Space Administration, under contract W-13,709.



QUADRANGLE LOCATION

Photomosaic location is shown in the western hemisphere of Mars. An outline of 1:5,000,000-scale quadrangles is provided for reference.

NOTES ON BASE

This photomosaic is part of a series of quadrangles selected to show areas of special interest on Mars. Viking Orbiter high-resolution pictures (less than 100 m per picture element) were used to make the mosaic. The images have been digitally enhanced to accentuate high-frequency detail. Image placement is based on the 1978 control net (Davies and others, 1978), the 1982 control net (Davies and Katayama, 1983), and the Mars control network (Wu and Schafer, 1984). These nets contain published standard errors of approximately 5 km, and agreement of points common to the nets may differ by as much as 1 cm at map scale. Image points from 1:2,000,000-scale controlled photomosaics were transferred to the Transverse Mercator projection where control points are sparse or not available.

The density, distribution, precision, and accuracy of available control points used for this map series are extremely variable. A block of mosaics compiled in areas of optimum control-point distribution is not likely to match adjacent blocks previously compiled in areas of sparse or imprecise control. Where discrepancies exist between adjacent mosaics, the more recent compilation is probably more accurate. No attempt was made to resolve large edge discrepancies with previous compilations.

The projection is based on a Mars Transverse Mercator (MTM) system with 20° zones. The scale factor at the central meridian of the zone containing this quadrangle is 0.9960. The projection scale is based on an oblate spheroid (flattening of 1/192) with an equatorial radius of 3393.4 km and a polar radius of 3375.7 km.

NOMENCLATURE

All names shown in the reduced base mosaic are approved by the International Astronomical Union (IAU, 1974, 1977, 1980).

MTM 20047 — Abbreviation for Mars; Transverse Mercator projection; sheet 20047.

M 500K 20/47 CM — Abbreviation for Mars; 1:5,000,000 series; center of sheet lat 20° N., long 47°; controlled photomosaic (CM).

REFERENCES

Davies, M. E., and Katayama, F. Y., 1983, The 1982 control network of Mars: Journal of Geophysical Research, v. 88, no. B9, p. 7503-7504.

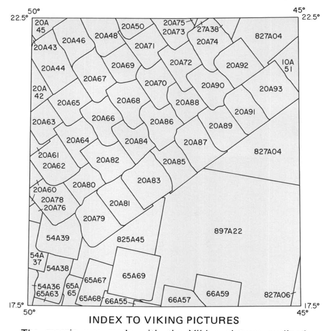
Davies, M. E., Katayama, F. Y., and Roth, J. A., 1978, Control net of Mars: February 1978: The Rand Corporation, R-2309-NASA, 91 p.

International Astronomical Union, 1974, Commission 16: Physical study of planets and satellites, *and* Lunar and martian nomenclature, *in* 15th General Assembly, Sydney, 1973, Proceedings: International Astronomical Union Transactions, v. 15B, p. 105-108, 217-221.

_____1977, Working Group for Planetary System Nomenclature, *in* 16th General Assembly, Grenoble, 1976, Proceedings: International Astronomical Union Transactions, v. 16B, p. 321-325, 331-336, 355-362.

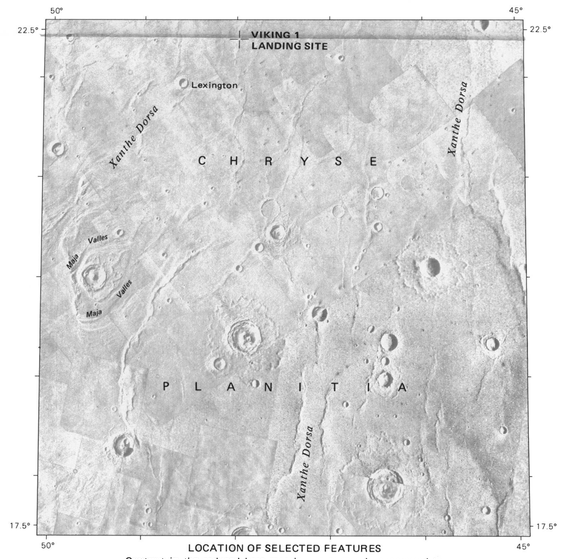
_____1980, Working Group for Planetary System Nomenclature, *in* 17th General Assembly, Montreal, 1979, Proceedings: International Astronomical Union Transactions, v. 17B, p. 293-297.

Wu, S. S. C., and Schafer, F. J., 1984, Mars control network: American Society of Photogrammetry, *in* Technical papers of the 50th annual meeting of the American Society of Photogrammetry, v. 2, Washington, D.C., March 11-16, 1984, p. 456-463.



INDEX TO VIKING PICTURES

The mosaic was made with the 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.



LOCATION OF SELECTED FEATURES

Contrast in the reduced base mosaic was purposely suppressed to emphasize the names.

MTM 20047
CONTROLLED PHOTOMOSAIC OF PART OF THE MAJA VALLES REGION OF MARS
M 500K 20/47 CM
1985

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 454, 2255 North Gemini Drive, Flagstaff, Arizona 86001. A replacement copy will be returned.

For sale by Branch of Distribution, U.S. Geological Survey, 1200 South Eads Street, Arlington, VA 22202, and Branch of Distribution, U.S. Geological Survey, Box 25286, Federal Center, Denver, CO 80225