

NOTES ON BASE

This map is one of two showing shaded relief and albedo on Mars between lat. 57° N and 57° S. Images used in the portrayal are Viking Orbiter 1 pictures taken during a season of minimum variation in surface albedo patterns, when the solar planetocentric longitude (L_s) with respect to Mars was 65° to 75° (with the exception of small areas near long. 9° with the exception of small areas near long. 9° with the exception of small areas near long. 9° with the exception of small areas near long. 9°). All pictures were taken through clear or red filters when the solar zenith angle was small, during Viking spacecraft orbital revolutions 583 through 687 (March and April of 1976) and 1223 through 1379 (February and March of 1980).

ADOPTED FIGURE

The figure of Mars used for computing the map projection is an oblate spheroid (flattening of 1/1972) with an equatorial radius of 3,389.4 km and a polar radius of 3,375.7 km.

PROJECTION

The Mercator projection is used for the two maps in this set. Longitudes increase to the west in accordance with astronomical convention for Mars. Latitudes are areographic.

CONTROL

Planimetric control for the 1:15,000,000 scale maps used to compile the bases for the two maps was derived from photogrammetric triangulation using Mariner 9 pictures (Davies, 1973). This control net was upgraded through the use of Viking data (Davies and others, 1978). At least 85 percent of the image control points lie within 0.5 km of the positions established in 1978.

MAPPING TECHNIQUE

The mapping bases used for this series were assembled from 1:15,000,000 scale shaded relief maps (Davies and others, 1979), reduced and digitally transformed to the Mercator projection where necessary. During shaded relief portrayal, features on these bases were used to position details taken from Viking Orbiter pictures. Shaded relief is shown as if illuminated from the west; methods and interpretation techniques used were described by Inge (1972) and Inge and Bridges (1976). Details of the albedo markings were taken from medium-resolution Viking Orbiter images and drawn on a photographic copy of the original shaded relief map. The overall albedo balance was maintained by reference to a low-resolution solar albedo map made with Viking Infrared Thermal Mapper (IRTM) data (Kieffer and others, 1981; Plek and Miner, 1981).

Shaded relief analysis and representation were made by Barbara J. Hall. Analysis and portrayal of albedo markings were made by Susan L. Davis.

Color
No attempt was made to duplicate the color of the Martian surface although the color used may approximate it.

NOMENCLATURE

All names shown on this sheet are approved by the International Astronomical Union (IAU), 1974, 1975, 1976, and 1983) except for provisional names, which are indicated by an asterisk. M 15M 0/90 AN Abbreviation for Mars 1:15,000,000 series, center of map lat 0°, long 90° shaded relief and markings (A), nomenclature (N).

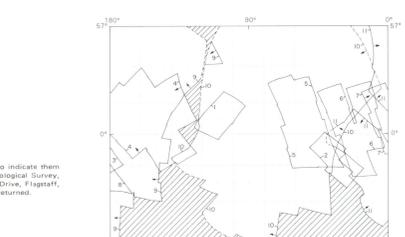
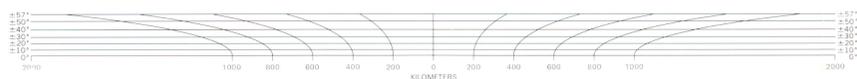
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Davies, M. L., Katayama, F. Y., and Roth, J. A., 1978, Control net of Mars, February 1978, The Rand Corporation, R-2309-NASA, 91 p.
Inge, J. L., 1972, Principles of lunar illustration: Aeronautical Chart and Information Center Reference Publication RP-723, 60 p.
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Kieffer, H. H., Davis, P. A., and Soderblom, L. A., 1981, Mars albedo properties: Maps and applications: Lunar and Planetary Science Conference, 12th, Houston, March 16-20, 1981, Proceedings, p. 1395-1417.
Plek, J. K., and Miner, E. D., 1981, Time variability of martian bolometric albedo: Icarus, v. 45, no. 1, p. 179-191.

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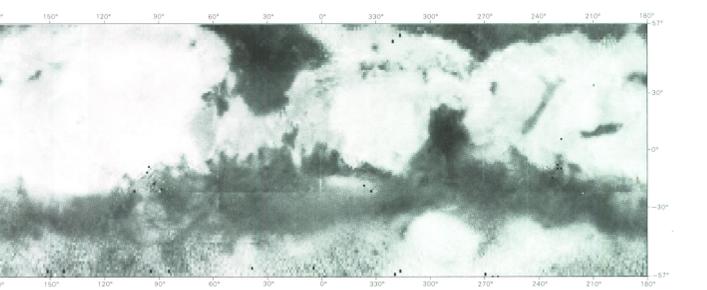
Users noting errors or omissions are urged to indicate them on the map and to forward it to U.S. Geological Survey, Building 6, Room 424, 2205 North Camel Drive, Flagstaff, Arizona 86001. A replacement copy will be returned.



INDEX OF MAPPING SOURCES

The rendition of surface markings on this map was controlled by reference to the pictures outlined above. Picture numbers consist of an orbital revolution number, a spacecraft designation number, and a frame number. For example, 005A05 was the 80th picture taken by Voyager 1 (A1) during revolution number 605. Pictures taken by Voyager 1 after revolution 999 are sometimes designated without the leading digit of the revolution number and with an "S" for the spacecraft number. Thus, 1378A08 is the same picture as 378S08. Dashed lines indicate position of limb. Useful coverage is not available in cross-hatched areas. Copies of various enhancements of these pictures are available from National Space Science Data Center, Code 601, Goddard Space Flight Center, Greenbelt, MD 20771.

Index No.	Picture No.						
1	RV 005A	6	RV 006A	11	RV 007A	16	RV 008A
2	RV 006A	7	RV 007A	12	RV 008A	17	RV 009A
3	RV 007A	8	RV 008A	13	RV 009A	18	RV 010A
4	RV 008A	9	RV 009A	14	RV 010A	19	RV 011A
5	RV 009A	10	RV 010A	15	RV 011A	20	RV 012A
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SOLAR ALBEDO, EASTERN AND WESTERN REGIONS OF MARS
This map was made with data from the Viking Infrared Thermal Mapper (IRTM). Broadband brightness (0.3 to 3.0 microns) measured by the IRTM was reduced to Lambert albedo for four Martian seasons that were relatively free of atmospheric dust and local brightening. These data were averaged into resolution elements of 1° latitude by 1° longitude. Absolute albedos range from 0.10 to 0.33 (Plek and Miner, 1981).



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