

NOTES ON BASE

This 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 (Baton and others, 1979). The original shaded relief base was revised and augmented with image data from Viking Orbiter, but feature positions were not shifted to fit controls derived from Viking.

ADOPTED FIGURE

The figure of Mars used for the computation of the map projection is an oblate spheroid (flattening of 1/192) 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 common scales of 1:4,336,000 at lat ±30° and 1:4,306,000 at lat ±65°. Standard parallels for the Lambert Conformal Conic projection are at lat ±35.8° and ±59.2°. 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 Arthur, 1973) and the radio-tracked position of the Mariner 9 spacecraft. The first meridian passes through the center of a small crater, Any-O (lat 5.19° S., long 0°), within the crater Any.

Primary controls used in the network include the Viking Orbiter Secondary Experiment Data Record, radio-occultation measurements from both Mariner 9 and Viking Missions (Lund and others, 1972; Klare and others, 1973; Lindal and others, 1979), Earth-based radar observations (Pettersill and others, 1971; Downs 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 Inge and Bridges (1976). Uniform 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. Initial shaded relief analysis and representation were made by Barbara J. Hall; revisions were made by Patricia M. Bridges.

COLOR

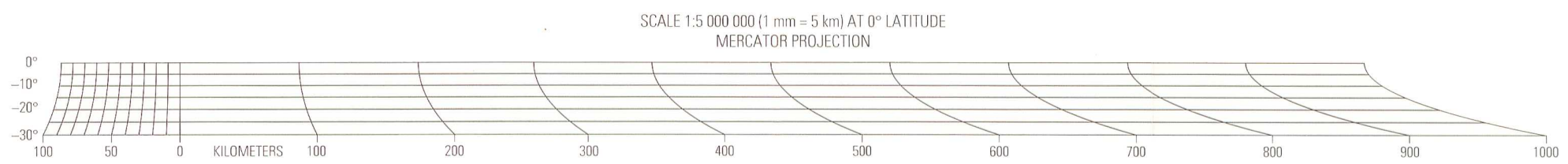
No attempt was made on the map to duplicate precisely the color of the martian surface, although the color used may approximate it.

NOMENCLATURE

Names on this sheet are approved by the International Astronomical Union (IAU, 1974, 1977, 1980, 1983, 1998).
MC-19. Abbreviation for Mars Chart 19.
M 5M -15/22 RN. Abbreviation for Mars, 1:5,000,000 series; center of sheet, lat 15° S., long 22°; shaded relief map (R) with nomenclature (N).

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This map supersedes map I-1293.
Edited by Doris Weir and Derrick D. Hirschi; cartography by Darlene A. Caserio.
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Quadrangle	Scale	Center (Lat, Long)	Revised
Diacria (MC-2)	SM 40150 (I-898) (I-1392) I-2572	18°S, 120°W	1972
Arcadia (MC-3)	SM 40150 (I-903) (I-1477) I-2573	18°S, 125°W	1973
Mare Acidalium (MC-4)	SM 40150 (I-950) (I-1476) I-2574	15°S, 125°W	1974
Immerius Lacus (MC-5)	SM 40150 (I-1052) (I-1495) I-2575	15°S, 130°W	1975
Castus (MC-6)	SM 40210 (I-1121) (I-1646) I-2576	15°S, 135°W	1976
Cerberus (MC-7)	SM 40210 (I-1122) (I-1475) I-2577	15°S, 140°W	1977
Amazonis (MC-8)	SM 19150 (I-950) (I-1522) I-2190	15°S, 145°W	1978
Tharsis (MC-9)	SM 19150 (I-903) (I-1522) I-2458	15°S, 150°W	1979
Lunae Palus (MC-10)	SM 15250 (I-950) (I-1511) I-2459	15°S, 155°W	1980
Dixi Palus (MC-11)	SM 15250 (I-1079) (I-1515) I-2460	15°S, 160°W	1981
Arabia (MC-12)	SM 15250 (I-950) (I-1704) I-2461	15°S, 165°W	1982
Syrinx Major (MC-13)	SM 15250 (I-1023) (I-1691) I-2462	15°S, 170°W	1983
Amurath (MC-14)	SM 15250 (I-1131) (I-2006) I-2463	15°S, 175°W	1984
Elysiun (MC-15)	SM 15250 (I-1131) (I-2006) I-2464	15°S, 180°W	1985
Mentemora (MC-16)	SM 19150 (I-903) (I-1564) I-2465	15°S, 185°W	1986
Phoenicis Lacus (MC-17)	SM 15250 (I-950) (I-1522) I-2527	15°S, 190°W	1987
Coperea (MC-18)	SM 15250 (I-871) (I-1523) I-2528	15°S, 195°W	1988
Margaritifer Sinus (MC-19)	SM 15250 (I-1181) (I-1523) I-2529	15°S, 200°W	1989
Sinu Sabaeus (MC-20)	SM 15250 (I-1181) (I-1523) I-2530	15°S, 205°W	1990
Laguna (MC-21)	SM 15250 (I-1181) (I-1523) I-2531	15°S, 210°W	1991
Mare Tyrrhenum (MC-22)	SM 15250 (I-1181) (I-1523) I-2532	15°S, 215°W	1992
Aolis (MC-23)	SM 15250 (I-1181) (I-1523) I-2533	15°S, 220°W	1993
Phaenocia (MC-24)	SM 40150 (I-1181) (I-2534) I-2534	15°S, 225°W	1994
Thaumasia (MC-25)	SM 40210 (I-1181) (I-2535) I-2535	15°S, 230°W	1995
Argyre (MC-26)	SM 40210 (I-923) (I-2536) I-2536	15°S, 235°W	1996
Noachis (MC-27)	SM 40210 (I-1181) (I-2537) I-2537	15°S, 240°W	1997
Helius (MC-28)	SM 40210 (I-1181) (I-2538) I-2538	15°S, 245°W	1998
Eritanius (MC-29)	SM 40210 (I-1181) (I-2539) I-2539	15°S, 250°W	1999

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

INDEX OF VIKING SOURCES

This shaded relief map has been revised by utilizing 1:2,000,000-scale controlled photomosaics 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.

VIKING 1

Index No.	Picture No.	Index No.	Picture No.
1	41A12	15	620A17
2	8A10	16	6A9A51
3	8A412	17	650A05
4	8A14	18	650A06
5	579A44	19	651A55
6	811A35	20	651A56
7	81A34	21	651A61
8	81A35	22	651A62
9	81A36	23	651A63
10	81A54	24	658A58
11	81A63	25	689A01
12	61A67	26	689A03
13	630A64	27	729A38
14	670A65		

A-camera pictures

Index No.	DAS No.	Index No.	DAS No.	Index No.	DAS No.
1	8112003	22	6426803	43	9168989
2	8200003	23	7620003	44	8046629
3	8845413	24	9220009	45	6678963
4	5161603	25	9220759	46	7973863
5	2973553	26	6250913	47	7901913
6	6498023	27	7757983	48	7839023
7	5140803	28	9160989	49	7728123
8	6498023	29	6183023	50	9168989
9	6304609	30	5080703	51	7686243
10	6660773	31	8045023	52	6270023
11	9220019	32	6270783	53	8045883
12	6234843	33	5817363	54	7973723
13	9160729	34	7972903	55	7972903
14	5239663	35	6642383	56	9304189
15	8045883	36	7801843	57	9308629
16	6270723	37	6304649	58	7838003
17	5167803	38	5308119	59	9220999
18	7972523	39	7829593	60	77588203
19	6498003	40	9220229	61	9161099
20	7901713	41	5566763	62	7868113
21	9304579	42	7758063	63	9088189

INDEX OF MARINER 9 PICTURES

The mosaic used to control the positioning of features on this map was made with the Mariner 9 A-camera pictures outlined above. Useful coverage is not available in the cross-hatched areas. The DAS number may vary slightly (usually by 5) among different versions of the same picture.

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 450, 2255 North Gemini Drive, Flagstaff, Arizona 86001. A replacement copy will be returned.

REVISED SHADED RELIEF MAP OF THE MARGARITIFER SINUS QUADRANGLE (MC-19) OF MARS

