DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Prepared for the
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

ATLAS OF MARS
1:5,000,000 TOPOGRAPHIC SERIES
MARE AUSTRALE REGION
M 5M –90/0 RN, 1988
I-1928 (MC-30: SECOND EDITION) SHEET 1 OF 2

NOTES ON BASE

A series of maps covering the entire surface of Mars at a nominal scale of 1:5,000,000 was originally compiled from Mariner 9 data (Batson and others, 1979). This original series is now being revised and augmented with image data from Viking Orbiter. This sheet was compiled exclusively from Viking pictures.

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 3393.4 km and a polar radius of 3375.7 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 of Mars.

CONTROL

Image placement is based on the 1978 control net (Davies and others, 1978). The first meridian passes through the center of a small crater, Airy-0 (lat 5.19° S., long 0°), located within the crater Airy.

MAPPING TECHNIQUE

A mosaic of Viking Orbiter pictures was assembled at 1:5,000,000 scale based on the Polar Stereographic projection.

Shaded relief was portrayed by use of airbrush techniques detailed by Inge (1972) and photointerpretive methods described by Inge and Bridges (1976). Uniform sun illumination from the west was used throughout. Sizes, shapes, and positions of features were taken from the base mosaic. Various computer enhancements of many Viking Orbiter pictures, besides those in the base mosaic, were examined in an attempt to portray the surface as accurately as possible. Shaded relief analysis and representation 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, 1986 and 1988). Double- and triple-letter designations for craters refer to position on the map and are derived from a grid based on equidistant meridians and parallels; the alphabet (I and O omitted) runs in the direction of increasing longitude (W) and latitude (N). The complete designation of a crater is the name of the quadrangle followed by double or triple letters. The prefix AUS (identifying the MARE AUSTRALE quadrangle) is part of the complete designation but, for brevity, is not shown on most craters. Some craters have commemorative names; letter designations for these craters are shown in parentheses. Where craters lie mostly on an adjoining map, their letters are derived from the other map; where craters lie exactly on the boundary of two maps, their letters are derived from the eastern or southern map.

MC-30: Abbreviation for Mars Chart 30.

M 5M –90/0 RN: Abbreviation for Mars, 1:5,000,000 series; center of sheet, lat 90° S., long 0°; shaded relief map, (R), with nomenclature, (N).

REFERENCES

Batson, R.M., Bridges, P.M., and Inge, J.L., 1979, Atlas of Mars, The 1:5,000,000 map series: National Aeronautics and Space Administration, Special Publication 438, 146 p.

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.

Inge, J.L., 1972, Principles of lunar illustration: Aeronautical Chart and Information Center Reference Publication 72-1, 60 p.

Inge, J.L., and Bridges, P.M., 1976, Applied photointerpretation for airbrush cartography: Photogrammetric Engineering and Remote Sensing, v. 42, no. 6, p. 749–760.

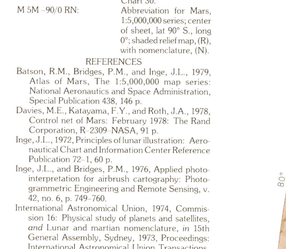
International Astronomical Union, 1974, Commission 16: Physical study of planets and satellites, *and* Lunar and martian nomenclature, *in* 15th General Assembly, Sydney, 1973, Proceedings: International Astronomical Union Transactions, v. 15B, p. 105–108, 217–221.

———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.

———1986, Working Group for Planetary System Nomenclature, *in* 19th General Assembly, New Delhi, 1985, Proceedings: International Astronomical Union Transactions, v. 19B, p. 347–350.

———1988, Working Group for Planetary System Nomenclature, *in* Reports on astronomy: International Astronomical Union transactions, v. 20A, p 704.

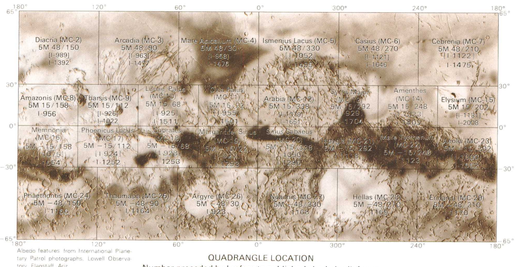


INDEX OF MARINER 9 PICTURES

The mosaic used to control the positioning of features on this map was made with the Mariner 9 A-camera pictures outlined above. The DAS numbers may differ slightly (usually by 5) among various versions of the same picture.

A-CAMERA PICTURES

Index No.	DAS No.	Index No.	DAS No.
1	05094358	25	07324768
2	05094428	26	07468688
3	05094498	27	07534598
4	05094568	28	07756248
5	05094708	29	07792228
6	05130198	30	07828138
7	05430768	31	07864118
8	05451448	32	08208038
9	05749258	33	08513888
10	05931868	34	08278948
11	06136378	35	08290814
12	06173618	36	08436874
13	06174718	37	08471854
14	06245718	38	08691944
15	06246708	39	08763834
16	06262718	40	08838664
17	06354001	41	08901684
18	06425268	42	09051674
19	06475338	43	09211724
20	06640938	44	09463414
21	06748698	45	09684139
22	06897588	46	10120891
23	06897778	47	10648558
24	06994758	48	10902428

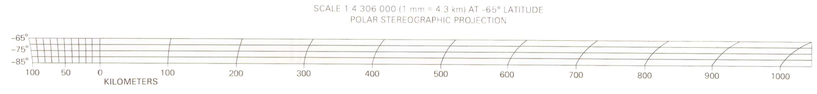


Albedo features from International Planetary Patrol photographs, Lowell Observatory, Flagstaff, Ariz.

QUADRANGLE LOCATION

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

SCALE 1:4 306 000 (1 mm = 4.3 km) AT –65° LATITUDE
POLAR STEREOGRAPHIC PROJECTION



SHADED RELIEF MAP OF THE MARE AUSTRALE REGION OF MARS

MC-30: SECOND EDITION

M 5M –90/0 RN

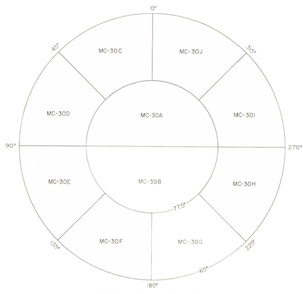
1988

INTERIOR—GEOLOGICAL SURVEY, RESTON, VA—1988

Revised in December 1986 on behalf of the Planetary Geology and Geophysics Program, Planetary Division, Office of Space Science and Applications, National Aeronautics and Space Administration, under contract W-15,814. This map supersedes I-970 (the first edition of this sheet).

VIKING 2

Index No.	Picture No.	Index No.	Picture No.	Index No.	Picture No.
1	426562	49	352865	97	411818
2	56823	49	352871	96	411835
3	56831	50	352872	97	411841
4	56832	51	352873	98	411852
5	62802	52	352874	99	411853
6	74809	53	352875	100	411854
7	75810	54	352876	101	411856
8	75827	55	358803	102	411858
9	75907	56	358804	103	411862
10	75908	57	358811	104	411862
11	75910	58	358812	106	419841
12	75913	59	358813	106	419844
13	75914	60	358854	107	419845
14	75927	61	358863	108	419846
15	187843	62	358864	109	419847
16	191833	63	370830	110	419848
17	225826	64	402839	111	419849
18	225828	65	402860	112	419850
19	225830	66	407847	113	419851
20	225832	67	407848	114	419852
21	225834	68	407861	115	419853
22	225865	69	407862	116	419861
23	225866	70	407865	117	419863
24	225867	71	407866	118	419864
25	225868	72	421801	119	419865
26	225869	73	421802	120	419866
27	225870	74	421803	121	419867
28	225871	75	421804	122	419868
29	225872	76	421805	123	419869
30	225873	77	421806	124	419870
31	225874	78	421807	125	419871
32	225893	79	421808	126	419872
33	225895	80	421811	127	419873
34	225897	81	421812	128	419883
35	241824	82	421813	129	419884
36	241825	83	421814	130	419885
37	241826	84	421815	131	419886
38	241827	85	421816	132	419887
39	241828	86	421817	133	419888
40	241829	87	421818	134	419889
41	241830	88	421831	135	419890
42	258813	89	431822	136	519823
43	258822	90	431833	137	519878
44	258834	91	431834	138	519879
45	258835	92	431835	139	519930
46	341828	93	431836	140	519931
47	341832	94	431837	141	519932



INDEX OF VIKING SOURCES

The shaded relief map has been revised by using 1:2,000,000-scale controlled photomosaics and the 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.

1:2,000,000-SCALE CONTROLLED PHOTOMOSAICS

No.	Quadrangle No.
I-1631	MC-30 A & B
I-1633	MC-30 C
I-1634	MC-30 D
I-1635	MC-30 E
I-1636	MC-30 F
I-1628	MC-30 G
I-1625	MC-30 H
I-1637	MC-30 I
I-1638	MC-30 J

For sale by U.S. Geological Survey, Map Distribution, Box 25286, Federal Center, Denver, CO 80225

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.