

NOTES ON BASE
This is one map in a series of topographic map sheets covering the entire surface of Mars at nominal scales of 1:5,000,000 and 1:2,500,000. First-edition sheets in this series were compiled largely from Mariner 9 data; selected parts of the series are being revised on the basis of Viking data. The mapping is described by Batson (1973, 1976, and 1978). The Mariner 9 television experiment is described by Minsky and others (1970). A series of papers on the Viking missions is contained in the *Journal of Geophysical Research*, v. 82, no. 28 (September 30, 1977).

ADOPTED FIGURE
The figure of Mars used for the computation of the map projection is an oblate spheroid (flattening of 1/122) with an equatorial radius of 3393.4 km and a polar radius of 3375.7 km.

PROJECTION
The Mercator projection is used for this sheet, with a scale of 1:5,000,000 at the equator and 1:4,336,000 at lat 30°. Longitudes increase to the west in accordance with usage of the International Astronomical Union (IAU, 1971). Latitudes are areographic (de Vasconcelos and others, 1973).

CONTROL
Planimetric control is provided by photogrammetric triangulation using Mariner 9 pictures (Davies, 1973; Davies and Arthur, 1973) and the radio-tracked position of the spacecraft. The first meridian passes through the crater Airy-0 (lat 51° 51' S) within the crater Airy. In February 1978, the Mariner 9 control net was upgraded through the use of Viking data (Davies and others, 1978). Random discrepancies as large as 11 km exist between the Mariner 9 net (on which this sheet is based) and the new Viking net.

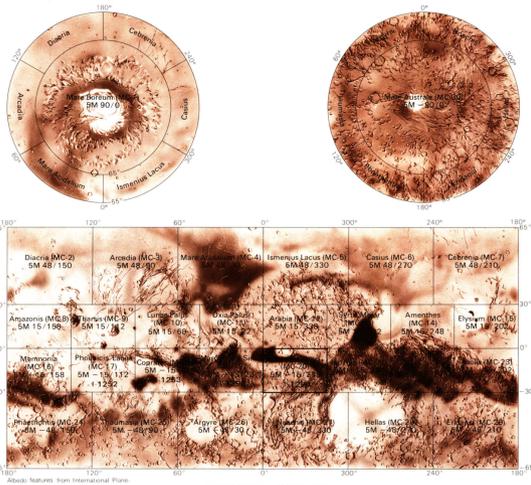
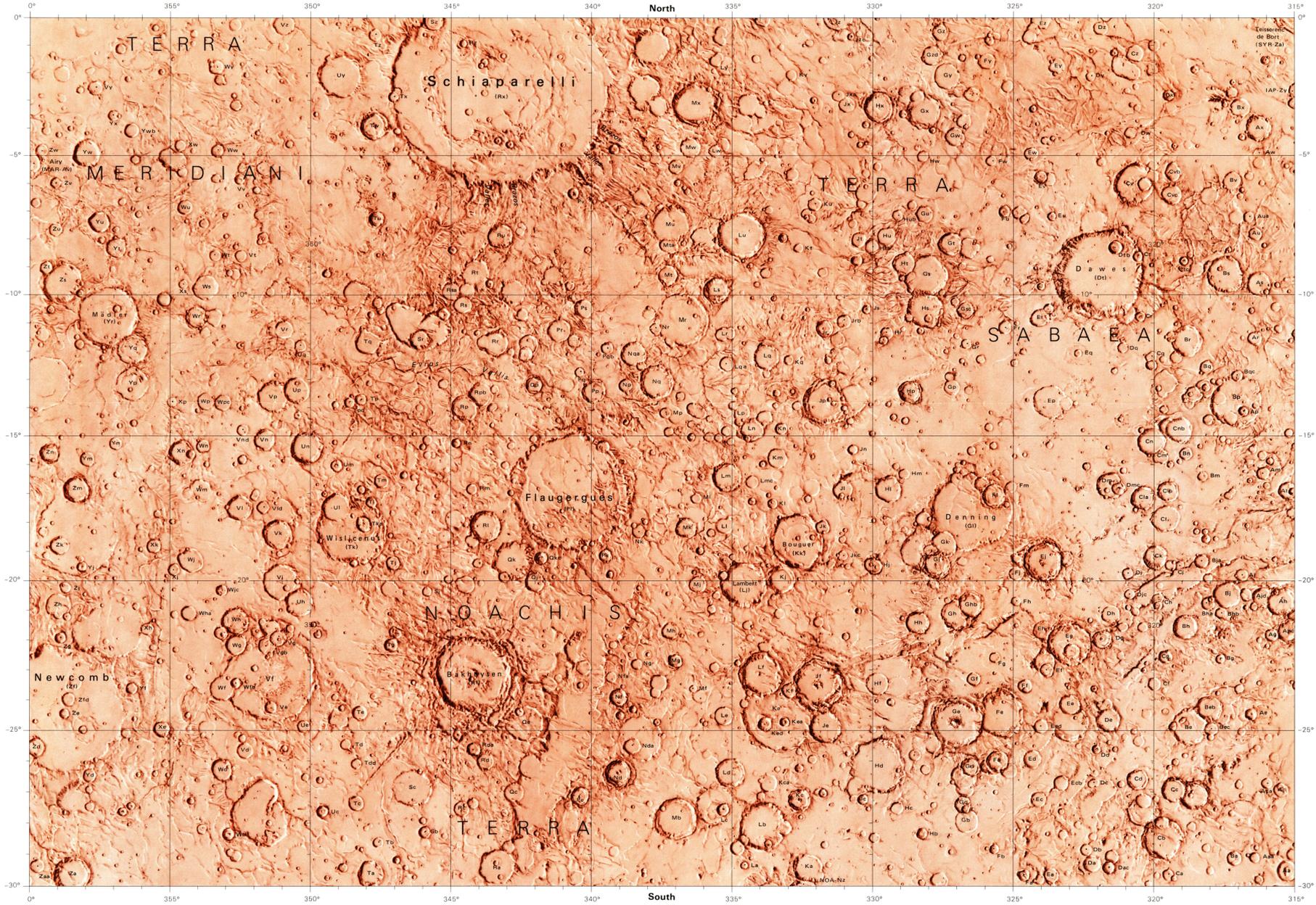
MAPPING TECHNIQUE
A series of mosaics of Mercator projections of Mariner 9 pictures was assembled at 1:5,000,000.
Shaded relief was portrayed with uniform illumination with the sun to the west, using airbrush techniques described by Inge (1972) and Inge and Bridges (1976). Sizes, shapes, and positions of features were taken from the base mosaic. In the revised edition of the map (U.S. Geological Survey, 1978), various computer enhancements of many Mariner 9 pictures besides those in the base mosaic were examined in an attempt to portray the surface as accurately as possible. (Computer enhancement of Mariner 9 pictures is described by Levinthal and others, 1973, and Green and others, 1975). This rendition was revised through examination of Viking Orbiter pictures to produce the current version. Shaded relief analysis and representation were made by Barbara J. Hall. Shaded relief revisions were made by Patricia M. Bridges.

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

NOMENCLATURE
Names on this sheet are approved by the International Astronomical Union (IAU, 1974, 1977, and 1980) except for provisional names, which are listed below. 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 triple designation of a crater is the name of the quadrangle followed by a double or triple letter. The prefix SAB (identifying the Sinus Sabaeus 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.
Provisional names: Bravos Valles, Evros Vallis.

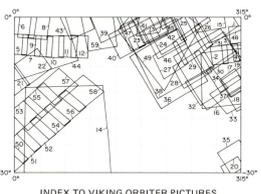
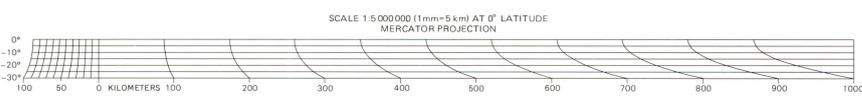
MC-20
Abbreviation for Mars Chart 20.
M 5M-15/338 RN: Abbreviation for Mars 1:5,000,000 series; center of sheet, 15° S lat, 338° long; shaded relief map, R, nomenclature N.

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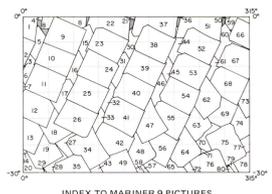
QUADRANGLE LOCATION
Number preceded by 1 refers to published shaded relief map.

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



INDEX TO VIKING ORBITER PICTURES
This shaded relief map has been revised utilizing 1:2,000,000 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 A, Goddard Space Science Data Center, Greenbelt, MD 20771.

Index No.	DAS No.	Index No.	DAS No.	Index No.	DAS No.
1	280A16	21	618A03	41	606A02
2	280A31	22	618A06	42	606A03
3	280A33	23	618A12	43	606A09
4	280A26	24	618A13	44	606A27
5	321A24	25	618A14	45	606A67
6	321A26	26	618A15	46	606A69
7	321A26	27	618A32	47	606A70
8	321A27	28	618A33	48	606A68
9	321A26	29	618A34	49	606A16
10	321A30	30	618A35	50	606A17
11	321A29	31	618A36	51	606A21
12	321A34	32	618A34	52	606A21
13	321A24	33	618A35	53	606A21
14	441A29	34	618A36	54	606A23
15	460A22	35	623A04	55	606A24
16	490A14	36	623A06	56	606A25
17	510A02	37	623A10	57	606A26
18	510A03	38	620A02	58	606A27
19	510A10	39	620A01	59	610A18
20	547A33	40	620A01	60	620A01



INDEX TO 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 crosshatched areas. The DAS number may differ slightly (usually by 5) among various versions of the same picture.

Index No.	DAS No.	Index No.	DAS No.	Index No.	DAS No.		
1	6511203	21	6715273	41	6786603	61	8333939
2	6511203	22	6715203	42	6786603	62	8333969
3	6511203	23	6714853	43	6786603	63	8333999
4	6511203	24	6714852	44	6786603	64	8333999
5	8045743	25	6714713	45	6261609	65	8333559
6	8045743	26	6714662	46	6261609	66	8333559
7	8045743	27	6714662	47	6261609	67	8333559
8	6643313	28	5311353	48	6261289	68	6930663
9	6643313	29	5311203	49	6261229	69	6930663
10	6642893	30	8189919	50	6891163	70	6930523
11	6642893	31	8189919	51	6891163	71	6930523
12	6642753	32	8189479	52	6891773	72	5021223
13	6642753	33	8189479	53	6891773	73	8465429
14	5239463	34	8189479	54	6891633	74	8465259
15	8117653	35	8189259	55	6891633	75	8465259
16	8117583	36	6787233	56	6854893	76	8465219
17	8117513	37	6787163	57	6854893	77	7002463
18	8117443	38	6786613	58	6854893	78	8472249
19	8117373	39	6786543	59	6854893	79	5992963
20	8117303	40	6786673	60	8333609	80	5992963

SHADED RELIEF MAP OF THE SINUS SABAEUS QUADRANGLE OF MARS

MC-20
M 5M-15/338 RN
1980

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