DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

Prepared in Cooperation with the
JET PROPULSION LABORATORY, CALIFORNIA INSTITUTE OF TECHNOLOGY
FOR THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

ATLAS OF MARS
1:5,000,000 TOPOGRAPHIC SERIES
MARE AUSTRALE AREA
M 5M–90/0 R, 1976
I-970 (MC-30)

NOTES ON BASE

This is one map in a series of topographic map sheets covering the entire surface of Mars at nominal scales of 1:25,000,000 and 1:5,000,000 (Batson, 1973). The major source of map data was the Mariner 9 television experiment (Masursky and others, 1970).

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 polar stereographic projection is used for this sheet, with a scale of 1:4,290,000 at lat 65°. Longitudes increase to the west in accordance with usage of the International Astronomical Union (IAU, 1971). Latitudes are areographic (de Vaucouleurs 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-O (lat 5.19° S) within the crater Airy. No simple statement is possible for the precision, but local consistency is 5-15 km.

MAPPING TECHNIQUE

Selected Mariner 9 pictures, transformed to the polar stereographic projection, were assembled in a mosaic at 1:5,000,000.

Shaded relief was copied from the mosaic and portrayed with uniform illumination with the sun to the west. Many Mariner 9 pictures besides those in the base mosaic were examined to improve the portrayal (Levinthal and others, 1973). The shading is not generalized and may be interpreted with photographic reliability (Inge, 1972).

Shaded relief analysis and representation were made by Patricia M. Bridges.

COLOR

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

NOMENCLATURE

All names on this sheet are approved by the International Astronomical Union (IAU, 1974; Millman, written communication, 1975). Double and triple letter designations for craters refer to position on the map. 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 R: Abbreviation for Mars 1:5,000,000 series; center of sheet, 90° S latitude, 0° longitude; shaded relief map, R.

REFERENCES

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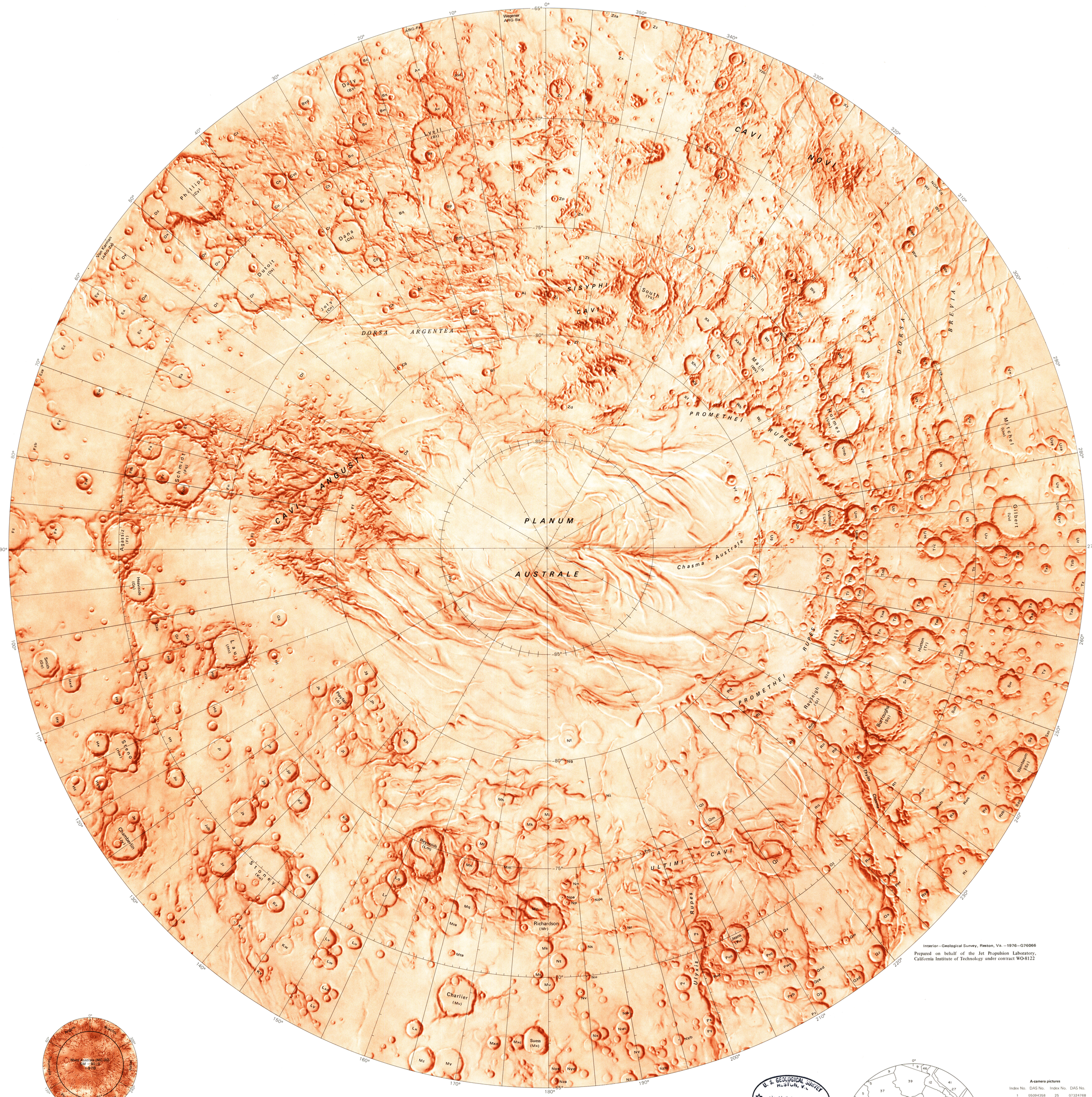
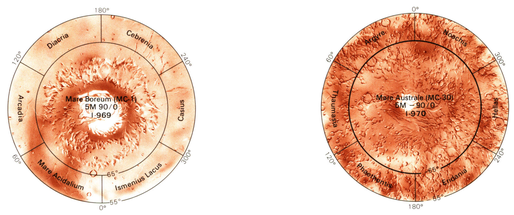
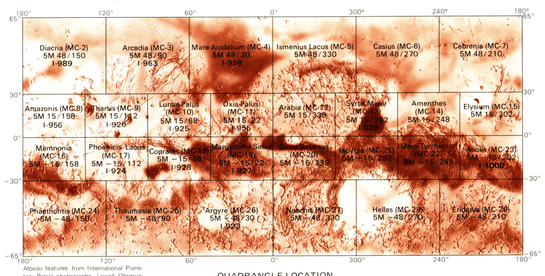




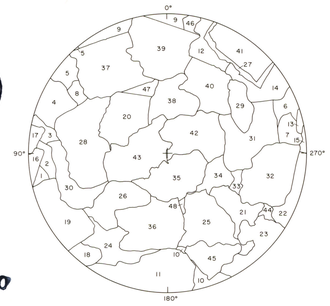


Albedo features from International Planetary Patrol photographs, Lowell Observatory, Flagstaff, Ariz.

QUADRANGLE LOCATION
Number preceded by I refers to published shaded relief map

SCALE 1:4 290 000 AT –65° LATITUDE
POLAR STEREOGRAPHIC PROJECTION

–65°
–75°
–85°
100 50 0 100 200 300 400 500 600 700 800 900 1000
KILOMETRES



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.

A-camera pictures

Index No.	DAS No.	Index No.	DAS No.
1	05094358	25	07324768
2	05094428	26	07468688
3	05094498	27	07504598
4	05094568	28	07756248
5	05094708	29	07792228
6	05130198	30	07828138
7	05130268	31	07864118
8	05453948	32	08090038
9	05740528	33	08151888
10	05921968	34	08223854
11	06136378	35	08295814
12	06173618	36	08439874
13	06174318	37	08479854
14	06245718	38	08691944
15	06246208	39	08763834
16	06282118	40	08835864
17	06354008	41	08907684
18	06425268	42	09051674
19	06425338	43	09231224
20	06640938	44	09483434
21	06748808	45	10684539
22	06820768	46	10720939
23	06892728	47	10848559
24	06964758	48	05992458

SHADED RELIEF MAP OF THE MARE AUSTRALE AREA OF MARS

MC-30

M 5M –90/0 R

1976

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