DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

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

ATLAS OF MARS
1:1,000,000 TOPOGRAPHIC SERIES
TRITONIS LACUS REGION
M 1M 20/252 R, 1977
I-1055

## NOTES ON BASE

This is one map in a set of topographic map sheets covering areas of special interest on Mars at nominal scales of 1:1,000,000 and 1:250,000 (Batson, 1973; Batson 1976). 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. This is not the height datum which is defined below under the heading "contours."

### PROJECTION

The transverse Mercator projection is used for this sheet, with a scale of 1:1,000,000 at 252° longitude. 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 2 km.

### MAPPING TECHNIQUE

A mosaic of rectified Mariner 9 pictures was assembled at 1:1,000,000.

Shaded relief was copied from the mosaics 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; Green and others, 1975; Inge and Bridges, 1976). The shading is not generalized and may be interpreted with nearly photographic reliability (Inge, 1972).

Shaded relief analysis and representation were made by Jay L. Inge.

### ALBEDO MARKINGS

No albedo variation was discernable on Mariner 9 data in this area (Batson and Inge, 1976).

### CONTOURS

Data were insufficient to draw contour lines in this area. Approximate mean elevation on this sheet is 0 km.

Since Mars has no seas and hence no sea level, the datum (the 0 km contour line) for altitudes is defined by a gravity field described by spherical harmonics of fourth order and fourth degree (Jordan and Lorell, 1973) combined with a 6.1 millibar atmospheric pressure surface derived from radio-occultation data (Kliore and others, 1973; Christensen, 1975).

The contour lines on most of the Mars maps (Wu, 1975) were compiled from Earth-based radar determinations (Downs and others, 1971; Pettengill and others, 1971) and measurements made by Mariner 9 instrumentation, including the ultraviolet spectrometer (Hord and others, 1974), infrared interferometer spectrometer (Conrath and others, 1973), and stereoscopic Mariner 9 television pictures (Wu and others, 1973).

### COLOR

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

### NOMENCLATURE

Names on this sheet are approved by the International Astronomical Union (1974; 1977). Named craters bearing double letters in parentheses are designated by the same letters on the 1:5,000,000 Amenthes sheet that covers this area. These double letter designations refer to position on the 1:5,000,000 sheet 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 a double or triple letter. The prefix AME (identifying the Amenthes sheet) is part of the complete designation but, for brevity, is not shown on most craters.

M 1M 20/252 R: Abbreviation for Mars, 1:1,000,000 series; center of sheet, 20° N latitude, 252° longitude; shaded relief map, R.

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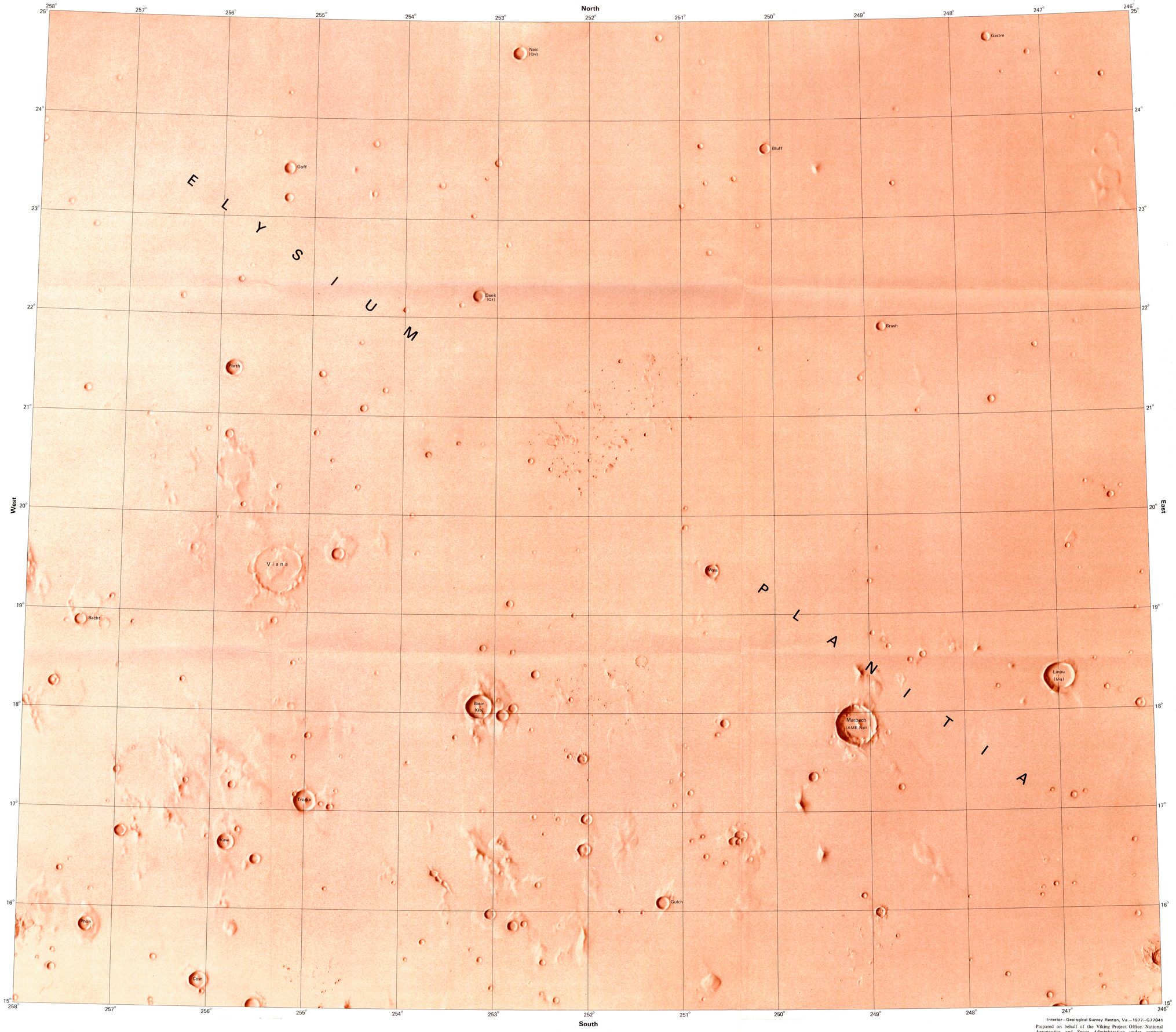
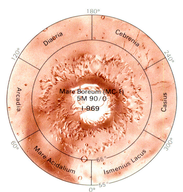
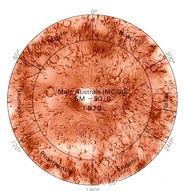
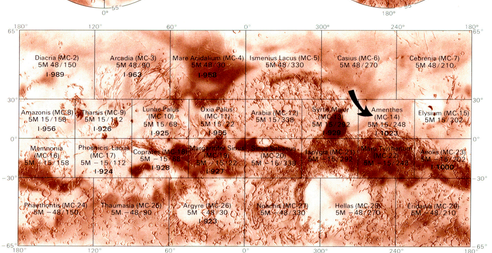



Interior—Geological Survey Reston, Va.—1977—G77041
Prepared on behalf of the Viking Project Office, National Aeronautics and Space Administration under contract L-55232

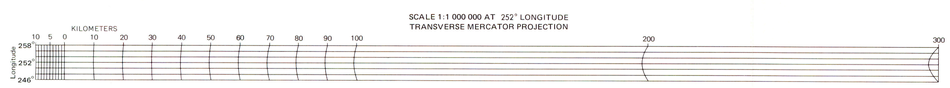



Albedo features from International Planetary Patrol photographs, Lowell Observatory, Flagstaff, Ariz.

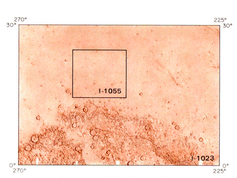
QUADRANGLE LOCATION
Arrow indicates map area
Number preceded by I refers to published shaded relief map



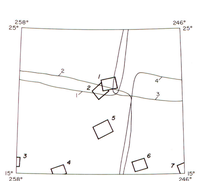

SCALE 1:1 000 000 AT 252° LONGITUDE
TRANSVERSE MERCATOR PROJECTION

NOTE TO USERS

Users noting errors or omissions are urged to indicate them on the map and to forward the map to Astrogeologic Studies, Geologic Division, 2255 North Gemini Drive Flagstaff, Arizona 86001. A replacement copy will be returned.




MAP OF THE AMENTHES QUADRANGLE
SHOWING LOCATION OF THE TRITONIS LACUS REGION



| A-camera pictures | | High-resolution B-camera pictures | |
|---|---|---|---|
| Index No. | DAS No. | Index No. | DAS No. |
| 1 | 7363758 | *1* | *11975294* |
| 2 | 7363408 | *2* | *11975084* |
| 3 | 7435718 | *3* | *5960293* |
| 4 | 7435368 | *4* | *7363373* |
| | | *5* | *7363723* |
| | | *6* | *6032253* |
| | | *7* | *7435333* |

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, identified by vertical numbers. Also shown are the high-resolution B-camera pictures, identified by italic numbers.

# SHADED RELIEF MAP OF THE TRITONIS LACUS REGION OF MARS
## (VIKING A2 LANDING SITE)
## M 1M 20/252 R
## 1977

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