Prepared in cooperation with the
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
FOR THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION,
AMES RESEARCH CENTER

ATLAS OF VENUS
1:50,000,000 TOPOGRAPHIC SERIES
V50M 6/60 RKT, 1981
I-1324

North

NOTES ON BASE

This sheet is one in a series of special maps covering 94% of the surface of Venus at nominal scales of 1:50,000,000 and 1:170,000,000. Maps in this series are based on radar altimetric data from the Pioneer-Venus orbiting spacecraft and on data provided by Earth-based stations at the Arecibo Observatory, Puerto Rico, and the Goldstone Observatory, California. The Pioneer Venus mission is described by Colin (1979) and Masursky and others (1977). The radar experiment is detailed by Pettengill (1977) and Pettengill and others (1979).

ADOPTED FIGURE

The figure of Venus used for the computation of the map projection is a sphere with a mean radius of 6051.4 km (Pettengill and others, 1980). Phillips and others (1979) describe a preliminary gravity figure with a radius of 6051 km.

PROJECTION

Mercator projections are used on this sheet, with scales of 1:50,000,000 and 1:150,000,000 at 0° latitude. Due to the retrograde rotation of Venus, longitudes increase from west to east, in accordance with usage of the International Astronomical Union (IAU, 1971).

CONTROL

Planimetric control is derived from the tracked position of the spacecraft. The first meridian passes through the center of a cratelike feature adjacent to the "Alpha" region of Venus according to current International Astronomical Union convention. No simple statement for accuracy can be given, but discrepancies as great as 100 km (1.5°) are likely to exist (Masursky and others, 1980).

MAPPING TECHNIQUES

Data for spacecraft maps of the contours, surface relief, and radar reflectivity were derived from computer processing of radar altimetric and reflectance information received from NASA's Ames Research Center. Processed data were geometrically corrected and fitted to a Mercator projection.

Various tone values were generated between contour lines in order to provide final color steps that would clearly separate contour boundaries. Computer methods described by Batson and others (1975) were used to make the shaded relief. Tones were varied as a function of the relation of surface slope to an assumed light source. Digital radar data were specially processed to generate the spacecraft radar-reflectivity map. Bright areas on radar reflectivity map have typically indicated areas with greatest surface roughness.
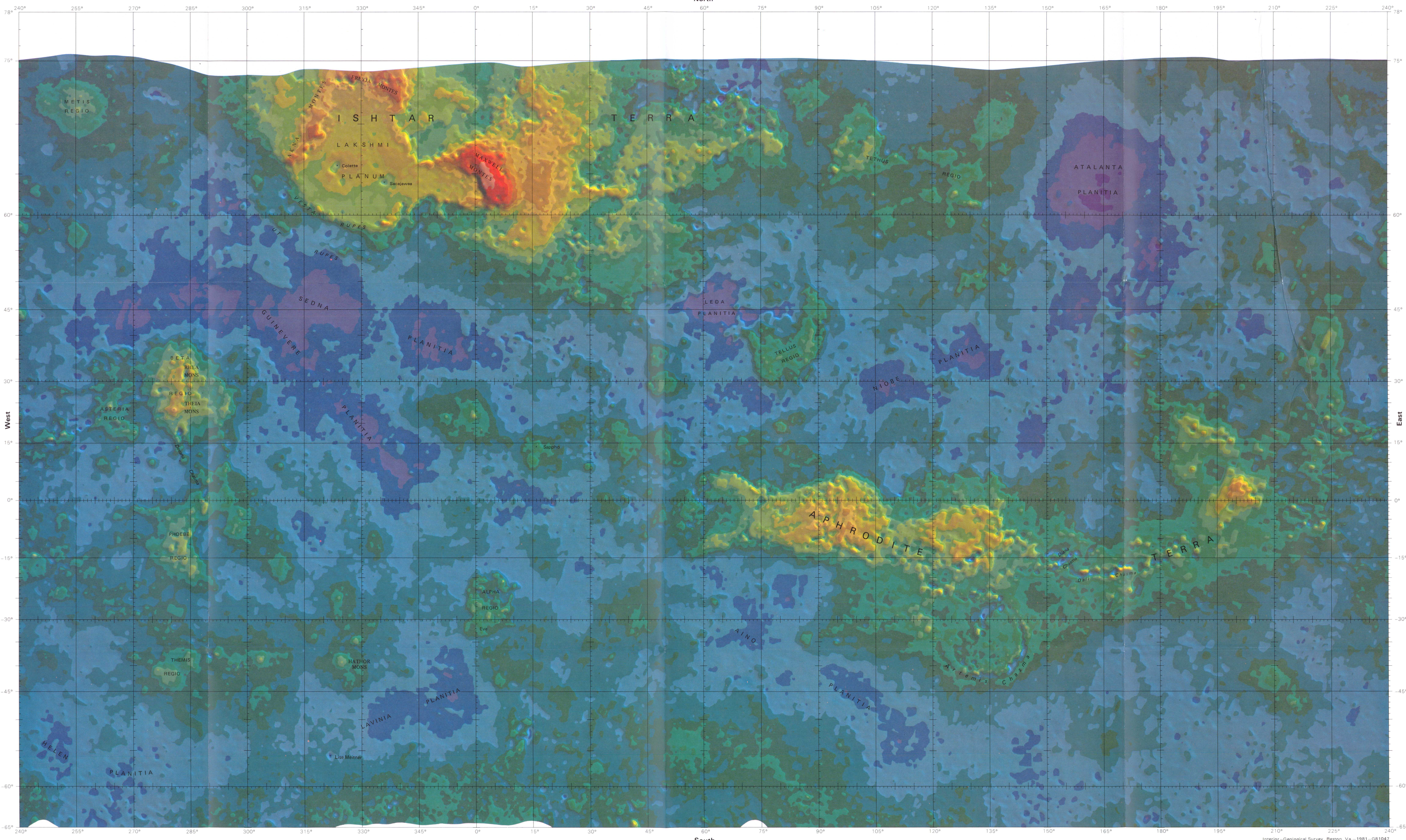
NOMENCLATURE

Names on this sheet are approved by the International Astronomical Union (1980). Names have been selectively deleted to avoid obscuring map details.
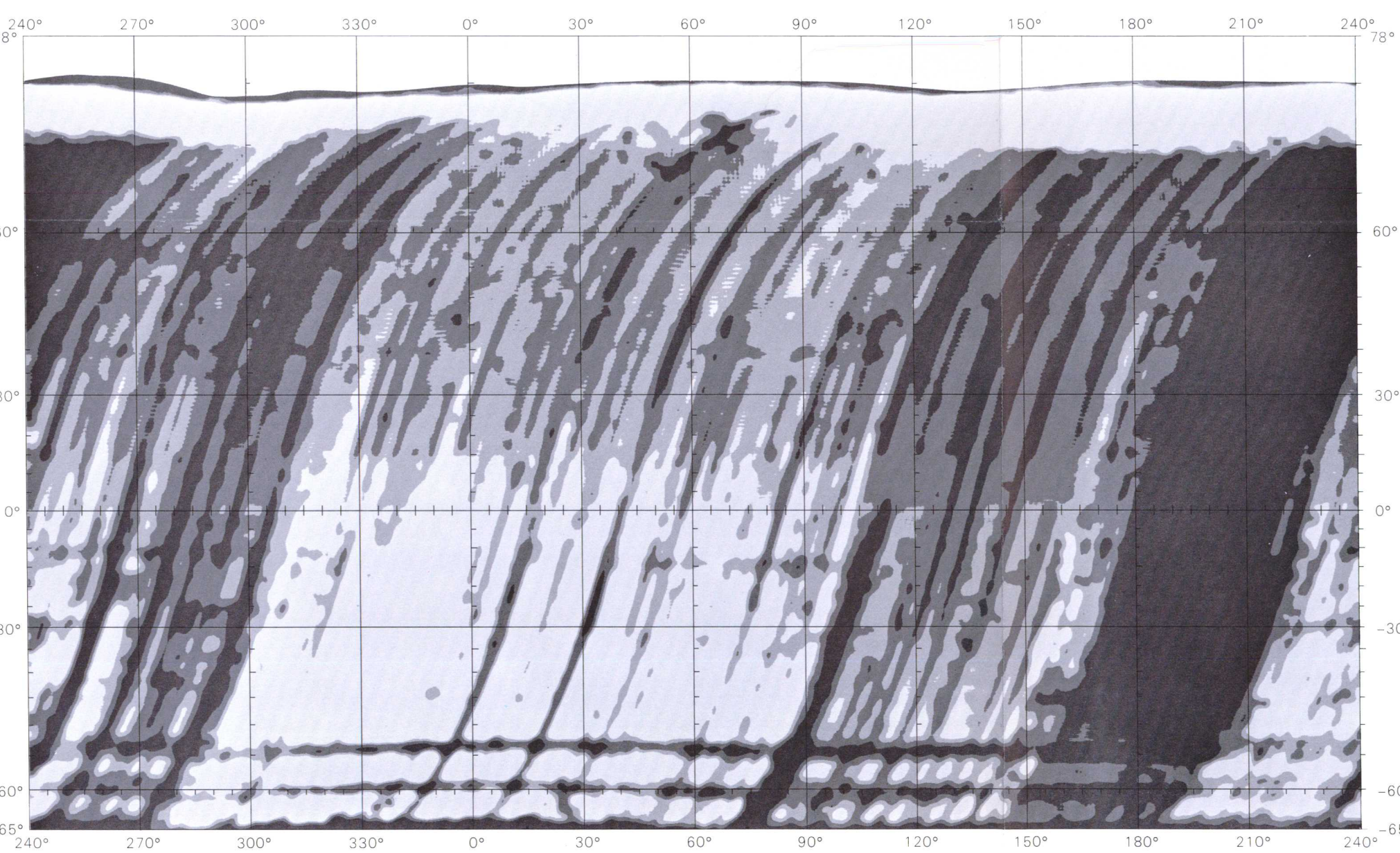
MAP DESIGNATORS

V50M 6/60 RKT — Abbreviation for Venus 1:50,000,000 series; center of map, lat 6°, long 60°; R, color contours and nomenclature; KT

REFERENCES

Batson, R. M., Edwards, Kathleen, and Eliason, E. M., 1975, Computer-generated shaded relief images: U.S. Geological Survey Journal of Research, v. 3, no. 4, p. 401-408.
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Pettengill, G. H., Eliason, E. M., Ford, P. G., Loriot, G. B., Masursky, Harold, and McGill, G. E., 1980, Pioneer-Venus radar results: Altimetry and surface properties: Journal of Geophysical Research, v. 85, no. A13, p. 8261-8270.
Pettengill, G. H., Horwood, H. F., and Keller, C. H., 1978, Pioneer Venus orbiter radar mapper: Design and operation: Institute of Electrical and Electronics Engineers Transactions on Geoscience and Remote Sensing, GE 18, p. 2-32.
Phillips, R. J., Sjogren, W. L., Abbott, E. A., Smith, J. L., Wimberly, R. M., and Wagner, C. A., 1979, The gravity field of Venus: A preliminary analysis: Science, v. 205, no. 4401, p. 93-96.

West

East

ISHTAR TERRA
METIS REGIO
LAKSHMI PLANUM
ATALANTA PLANITIA
SEDNA PLANITIA
GUINEVERE PLANITIA
BETA REGIO
THEIA MONS
LEDA PLANITIA
TELLUS REGIO
NIOBE PLANITIA
APHRODITE TERRA
PHOEBE REGIO
ALPHA REGIO
THEMIS REGIO
LAVINIA PLANITIA
NAVKA PLANITIA
HELEN PLANITIA
AINO PLANITIA

South

SCALE 1:50,000,000 (1mm=50 km) AT 0° LATITUDE
MERCATOR PROJECTION

KILOMETERS

CONTOUR
ELEVATION (Kilometers)
PLANET RADIUS (Kilometers)

|	
12	6063
11	6062
10	6061
9	6060
8	6059
7	6058
6	6057
5	6056
4.5	6055.5
4	6055
3.5	6054.5
3	6054
2.5	6053.5
2	6053
1.5	6052.5
1	6052
0.5	6051.5
0	6051
-0.5	6050.5
-1	6050
-1.5	6049.5
-2.5	6048.5

MAP OF DATA COVERAGE

This map shows the degree of coverage obtained by the orbiting Pioneer Venus spacecraft. The number of data points found in each 3° by 3° area was assigned a tone value. Areas with the greatest number of data points are shown as white, and decreasing numbers of data points are indicated by progressively darker tones.

	>16 points
	13-15 points
	9-12 points
	1-8 points

SHADED RELIEF MAP OF VENUS
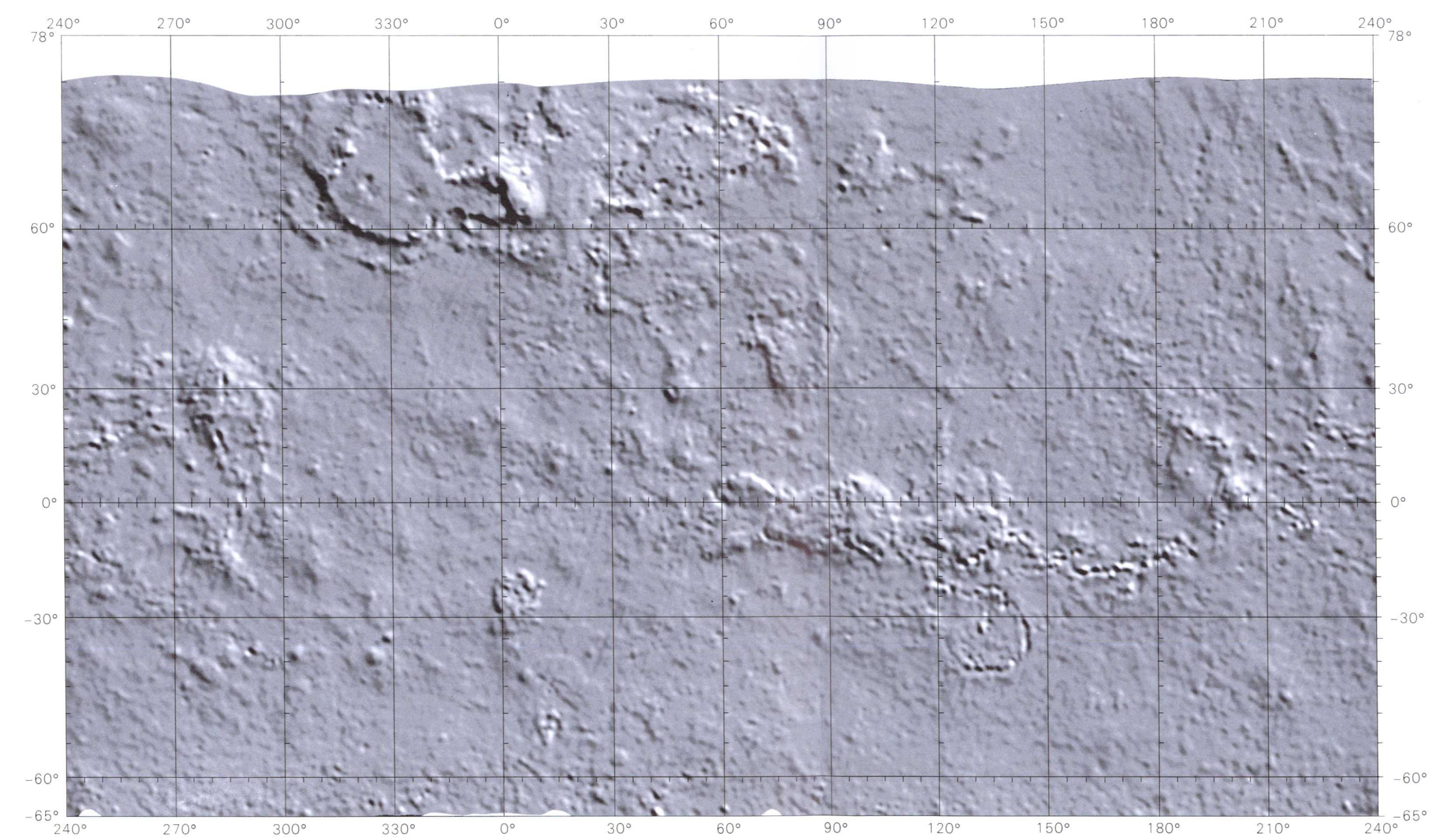
SCALE 1:150,000,000 AT 0° LATITUDE
MERCATOR PROJECTION

KILOMETERS

PIONEER-VENUS HAGFORS MAP OF VENUS
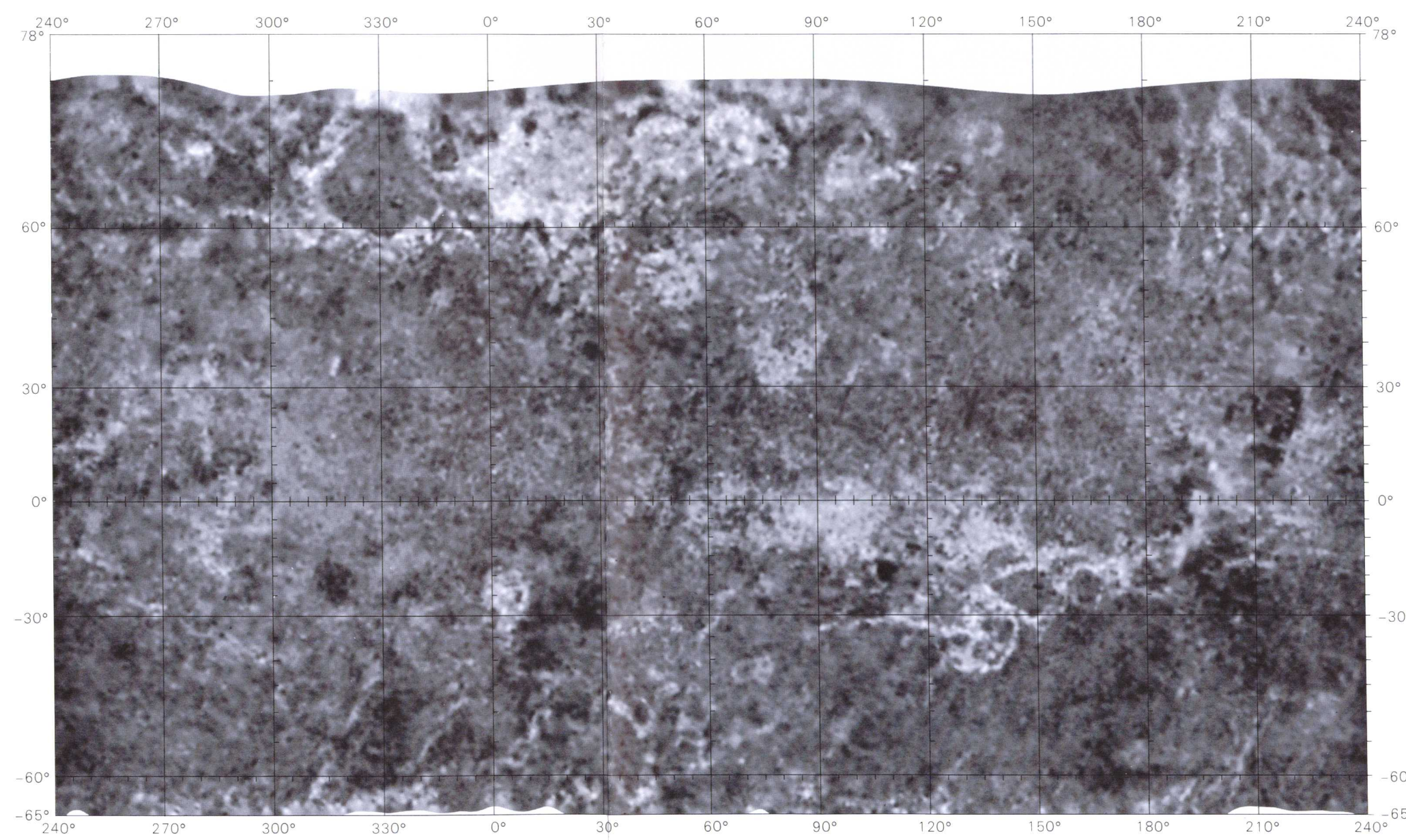
Surface roughness, at a scale of 1 to 10 meters, is shown on this map. Areas with the greatest surface roughness are shown as white, and decreasing roughness is indicated by progressively darker tones.

ALTIMETRIC AND SHADED RELIEF MAP OF VENUS

V50M 6/60 RKT

1981