

NOTES ON BASE

This sheet is one of a series of maps of Venus at nominal scale of 1:10,000,000 and 1:10,000,000 (Planetary Cartography Working Group, 1984, 1993; Beeson and others, 1996). It is based primarily on data from the Magellan Synthetic Aperture Radar (SAR) and radar altimetry systems. The Magellan Mission was described by Soderstrom and Pateroglou (1993). Magellan radar characteristics were described by Pateroglou and others (1993).

ADOPTED PROJECTIONS

The shape of Venus used for the construction of the map projection is a sphere with a mean radius of 6,051.8 km, consistent with the preliminary gravity figure reported by Phillips and others (1978) but not used for previous maps of Venus. Spheroid values of the mean radius of Venus have subsequently been reported based on Pioneer Venus (Pateroglou and others, 1980) and Magellan altimetry (Ford and Pateroglou, 1993).

CONTROL

Planimetric control is derived from the radio-televized positions of the spacecraft. The line numbers given through the vertical paths of the

image indicate, at lat 43.0° N, according to current International Astronomical Union conventions, absolute reference latitudes. Elevations at the same geographic longitude were the location of the ground stations (Dunn and others, 1986). The various cartographic coordinate systems are described by Dunn and others (1986).

NUMERICAL TECHNIQUES

This sheet summarizes the knowledge of the various radar altimetry systems through intensive radar investigations between 1977 and 1994 was used in constructing Magellan and pre-Magellan maps and altimetry data. The map base consists of a mosaic of radar images with approximately 10% of the pixels contained by Magellan synthetic aperture radar data. The mosaic of this image depicts areas on sheet 1 and is presented as described here. Most of the area imaged by Magellan is illustrated from the west, but some areas are illustrated from the east. Gaps in the Magellan coverage were filled with data from the Soviet Venera 15 and 16 spacecraft (Smith et al., 1993) or from the ground-based Arecibo radio telescope for the intermediate elevation range (at 0° latitude and 200° longitude). The 31 by 3-kilometer spatial resolutions of the Soviet images (Petrov and others, 1986) and Arecibo images (Campbell and others, 1989) are considerably greater than that of the Magellan data but are adequate for the scale of this map. The Venera images are presented from the west. The altimetric data from the Arecibo data is derived from the center of the image hemisphere. A small number of altimetry gaps near the north pole were filled with a second base. The composite mosaic of radar data sets slightly offset to enhance small details and prevent for speckle control.

A global, composite digital terrain model was constructed in the same manner as the image base. The Magellan altimetry provided data for one 80% of Venus's globe area that with lower resolution Venera 15/16 and Pioneer Venus altimetry data, to be directly comparable with the altimetry data. Data errors were assigned to altimetry values, and the altimetry-based color map was merged with the color image base as described by Soderstrom and others (1994). The color table is a continuous spectrum from color 0 to color 255 (see text). The relation between color 0 and color 255 is non-linear, chosen based on the relation of the altimetry data to the actual areas of each low appear on the global map. Color has also been used to identify the highest elevations, which occur only on a few scattered mountains, given the elevation. Placed, blue, green, and blue, which indicates less than 1% of the surface area. The color bar shows both planetary radii and altimetry values in a reference value of 1001.8 m.

Cartographic projection was done by Beaman et al., 1986.

ABBREVIATIONS

V 10M 30/240 CMK: Abbreviation for the Venus 1:10,000,000 series, center of map, at 30° N, long 240° west, and mean: 678 with color altimetry, 0.

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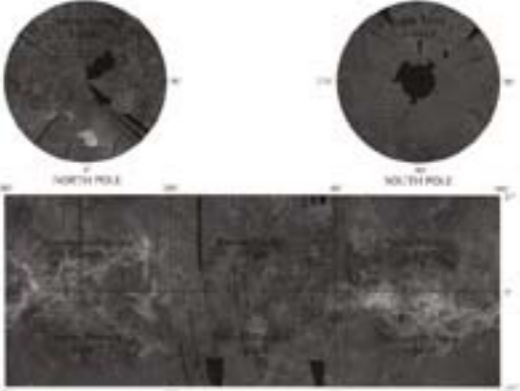
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INDEX OF THE 1:10,000,000 SCALE MAP SERIES OF VENUS
Number provided by "V" indicator published map.

ALTIMETRIC RADAR IMAGE MAP OF THE GUINEVERE PLANITIA REGION OF VENUS

V 10M 30/240 CMK