

Prepared in fulfillment of the NASA Planetary Geology and Geophysics program and the Magellan Project Office of the Jet Propulsion Laboratory. Edited by Dennis Frost, cartography by Roger B. Condit and Barbara A. Gaudin. Manuscript approved for publication October 28, 1998.

NOTES ON BASE

This sheet is one in a series of maps of Venus at nominal scales of 1:50,000,000 and 1:10,000,000. Planetary Cartography Working Group, 1984, 1993. Bascom and others, 1992. It is based on data from the Magellan Synthetic Aperture Radar (SAR) and radar altimetry instruments. The Magellan Mission was described by Saunders and Pettengill (1991). Magellan radar characteristics were described by Pettengill and others (1991).

ADOPTED FIGURE

The figure of Venus used for the computation of the map projection is a sphere with a mean radius of 6,051.0 km, consistent with the preliminary gravity figure reported by Phillips and others (1976) that was used for previous maps of Venus. Slightly larger values of the mean radius of Venus have subsequently been reported based on Pioneer Venus (Pettengill and others, 1980) and Magellan altimetry (Ford and Pettengill, 1992).

PROJECTION

The Mercator projection is used for this sheet. The scale is 1:16,354,349 at 0° latitude or 1° 14' 14.190" at ±56.0° latitude, as is the scale at this latitude in the polar stereographic projection. Due to the retrograde rotation of Venus, longitude increases from west to east in accordance with usage of the International Astronomical Union (1971).

CONTROL

Planimetric control is derived from the radio-tracked position of the spacecraft. The first meridian passes through the central peak of the crater Ariadne, at lat 43.8° N, according to current International Astro-

nomical Union convention. (Ariadne replaces the feature "Eve," which, at the same longitude, originally fixed the location of the prime meridian (Davies and others, 1986).) The Venusian cartographic coordinate system was described by Davies and others (1993).

MAPPING TECHNIQUES

This map image base is compiled from the synthetic aperture radar (SAR) image mosaic (sheet 1) overlaid upon the relief image used as a relief base in sheet 4. Magellan SAR datasets were originally produced by the Jet Propulsion Laboratory. Full-resolution (75 m/track) image strips were compressed and mosaicked to produce CI-MDR's Compressed Once Mosaicked Image Data Records, 225 m/track (Pettengill and others, 1991). CI-MDR's were assembled and reprojected. Cycle 1 and 2 left-look and Cycle 2 right-look data records were used in the SAR image mosaic. Cycle 1 radar operations commenced September 15, 1990, and ended May 1, 1991; Cycle 2 began May 16, 1991, and ended January 17, 1992; Cycle 3 began January 17, 1992, and ended September 13, 1992.

The underlying relief image was compiled by interpretation and digital manipulation of computer-generated relief images from the Magellan altimetry data. Topographic information obtained from Magellan radar altimetry measurements was rendered as a shaded relief image by converting the slope segments between elevation values to reflectance values, using methods described by Edwards (1987). All landforms were shown as if illuminated from the west. Data for shaded relief were derived from computer processing of radar altimetry information provided by the Massachusetts Institute of Technology (Pettengill and others, 1991). Interpretive image processing was then used to remove artifacts and to

enhance the digital image details, by use of postprint and photo-interpretive methods described by Inge and Bridges (1976). Synthetic aperture radar (SAR) imagery was used to confirm geographic features and control as well as to add additional distinctive surface features revealed by the sharper resolution of the SAR images. Gaps in coverage by the Magellan radar altimeter were filled by lower resolution image data from the Pioneer Venus Mission, producing uniform portrayal of detail. SAR mosaic processing was done by Robert M. Suchanik; creation of the shaded relief base and image compilation were done by Ralph Auschilman.

NOMENCLATURE

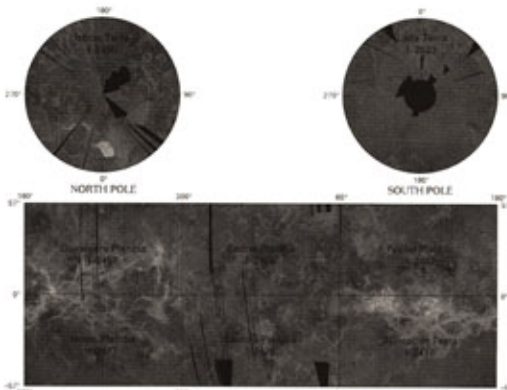
Names on this sheet are approved by the International Astronomical Union (1980, 1983, 1986, 1992, 1996, 1998).
V 10M 30/240 CMRN. Abbreviation for Venus, 1:10,000,000 series, center of map, lat 30° N, long 240°; control led mosaic (CM) with shaded relief (R) and nomenclature (N).

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**RADAR IMAGE AND SHADED RELIEF MAP OF THE GUINEVERE PLANITIA REGION OF VENUS
V 10M 30/240 CMRN**

NOTE TO USERS
Users making errors or omissions are urged to indicate them on the map and to forward it to U.S. Geological Survey, Building 4, Room 451, 2215 N. Gemini Drive, Flagstaff, AZ 86001. A reprint of this map may be obtained.

For sale by U.S. Geological Survey, Information Services, Box 218, Federal Center, Denver, CO 80202