U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Prepared for the
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

ATLAS OF VENUS
1:10,000,000 SERIES
V 10M –90/0 CMRN, 1998
I–2523 SHEET 2 OF 4

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; Batson and others, 1994). 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 (1979) 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 polar stereographic projection is used for this sheet. The scale is 1:9,145,190 at ±56.0° latitude, and 1:10,000,000 at ±90° latitude. 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 Astronomical 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 (1992).

MAPPING TECHNIQUES

This map image base is compiled from the synthetic aperture radar (SAR) image mosaic (sheet 1) overlayed 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/pixel) image strips were compressed and mosaicked to produce C1-MIDR's (Compressed-Once Mosaicked Image Data Records; 225 m/pixel) (Pettengill and others, 1991). C1-MIDR's were assembled and reprojected. Cycles 1 and 2 left (east)-looking and Cycle 2 right (west)-looking 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 altimeter 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 altimetric 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 portrayal 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 aid in adding 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, precluding uniform portrayal of detail.

SAR mosaic processing was done by Robert M. Sucharski; creation of the shaded relief base and image compilation were done by Ralph Aeschliman.

NOMENCLATURE

Names on this sheet are approved by the International Astronomical Union (1983, 1992, 1996, 1998).

V 10M –90/0 CMRN: Abbreviation for Venus; 1:10,000,000 series; center of map, lat 90° S., long 0°; controlled mosaic (CM) with shaded relief (R) and nomenclature (N).

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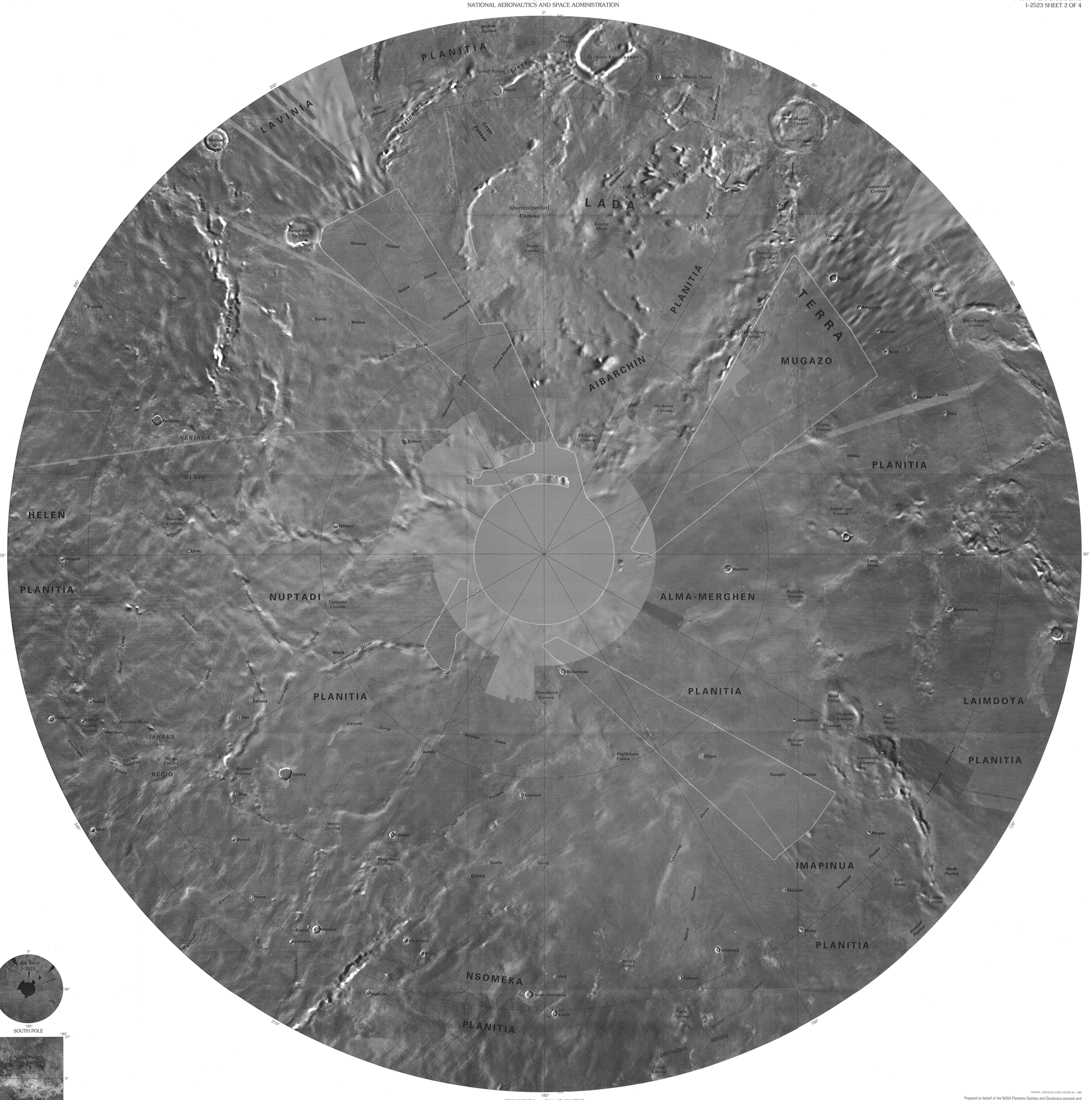
PLANITIA
LAVINIA
LADA
TERRA
MUGAZO
AIBARCHIN
NERINGA
REGIO
HELEN
NUPTADI
ALMA-MERGHEN
ISHKUS
NSOMEKA
DSONKWA
LAIMDOTA
IMAPINUA
Quetzalpetlatl Corona
Eithinoha Corona
Gissen Corona
Dyamenyuo Corona
Toyohime Coronae
Demeunoqit Corona
Oshun-Tengri Corona
Sio-Anasy Corona
Obilukha Corona
Nyama Corona
Ambar-ono Corona
Dunne-Musin Corona
Lanig Mons
Mykhi-Imi Corona
Boucharova
Addams
Romi-Kumi Corona
Siksaup
Saryakyz
Shelikhova Patera
Gilliani
Tsunghi
Fluctus
Latnikaik Corona
Pahto Mons
Kati-Imi Mons
Deohako Corona
Laulani
Jacqueline
Rusd Colles
Megan
Melasie
Blixen
Ichikawa
Colleen
Salafa Colles
Fanla Corona
Usai Corona
Guan Daosheng
Kahlo
Uluk
Pudoola
Vecsrascu
Bryce
Morisot
Evelyn
Koretchen
Vesna
Durant
Edinger
Leonard
Orlette
Kadlu
Phra Narei Corona
Ament Corona
Pullaju
Sayers
Okiu
Isolde
Isis
Bickerdyke
Wieck
Nilna
Godiva
Nolfret
Delilah
Marzhan
Ximena
Ines
Saloui Corona
Mooibi Corona
Nilsson
Lyon
Guspell
Vesuna Corona
Poinsette
Erinna
Jane
Yvonne
Sandi
Melina
Dorsa
Spiskola
Naliuk
Cavillaka Fluctus
Narunai
Fossae
Kamui-Hum Corona
Meitner
Hurston
Band
Denute
Sartika
Kucia
Itka
Hikka
Marah
Bergolts
Loowit Mons
Shiva-Amashe Corona
Gravanda
Olenin
Oshimaki
Dana
Juanita
Ariadne
Eve
Ariadne Fluctus
Juturna Fluctus
Dorsa Ariadne
Nuptadi
Upulume Corona
Nuptadi Linea
Sarsar Linea
Ikagyuk
Dorsa Ikagyuk
Vaya-mate
Dorsa Vaya-mate
Kotsumonjuko Dorsa
Dorsa Dorsum
Dorsum Dorsum
Dorsum Kadlu
Dorsum Chuh Nu
Dorsum Tekumsing
Tekumsing Fluctus
Fluctus Ratera
Ratera Fluctus
Fluctus Nanshula
Nanshula Fluctus
Fluctus Sagamuskha
Sagamuskha Fluctus
Fluctus Arabat Fluctus
Fluctus Medb Fluctus
Tekumsing Tekumsing
Tekumsing Venuja
Venuja Regio
Dorsa Dorsum
Dorsum Nuptadi
Nuptadi Dorsum
Dorsum Ikagyuk
Ikagyuk Dorsum
Dorsum Vaya-mate
Vaya-mate Dorsum
Dorsum Sarsar
Sarsar Linea
Linea Dorsum
Dorsum Dorsum
Dorsum Dorsum
Dorsum