JMARS FOR VENUS: COLLECTING AND INGESTING DATA TO CREATE A USEFUL SCIENTIFIC ANALYSIS TOOL. R. R. Herrick[1], and P. Wren[2], [1]Geophysical Institute, University of Alaska Fairbanks, Fairbanks, AK 99775-7320 (rrherrick@alaska.edu), [2]Mars Space Flight Facility, Arizona State University, AZ 85287-1404 (pwren@mars.asu.edu)

Introduction: JMARS, Java Mission-planning and Analysis for Remote Sensing [1], has become a valuable research tool for analysis of multiple solar system bodies. While the analysis tools are limited compared to comprehensive GIS programs such as ArcGIS, JMARS excels at data visualization because it can overlay multiple data sets and the display can be rapidly reprojected into a local cylindrical projection that shows both shape and distances accurately. Because it is Java-driven, JMARS works on all major computer operating systems. Relatively recently, Venus has been added as one of the planetary bodies available in JMARS. The lead author has begun collaborating with the second author, a scientific programmer for JMARS, to ingest scientifically valuable data sets into JMARS. Many of these data sets are neither in PDS format nor easy to find for the general public. This abstract details the current plans for JMARS for Venus and solicits input from the community of Venus researchers.

Existing data sets:

As of 9/1/2017 the data sets available in JMARS are the following:

- The FMIDR data sets: The three different cycles of Magellan SAR data at their processed resolution of 75 m.
- The GxDR mg_3002 data sets: Magellan altimetry, emissivity, slope (roughness), and reflectivity at their processed resolution of 4.64 km/pixel. The altimetry is available as either planetary radii or elevation relative to 6051.0 km radius.
- A shaded relief map of the topography, generated with ISIS using the GTDR data.
- A colorized shaded relief map (rainbow, blues low elevations, reds high) of the topography, generated with ISIS using the GTDR data.
- A colorized (JPL burnt-orange, Hot!) version of the C3-MIDR mosaic processed to a resolution of 4.64 km/pixel.
- Planetary nomenclature from the USGS.

Some of the redundant data (e.g., the colorized mosaic) will likely be removed from JMARS in future releases.

Proposed future data sets:

Additional data sets that the lead author has proposed adding to JMARS, in roughly decreasing priority order, are the following:

- Databases of impact craters from Herrick et al. [2] and Schaber et al. [3]. These are in testing and should be in the next JMARS release.
- The volcano database of Crumpler et al. [4].
- A corona database, although we are not aware of a publicly available version.
- The revised versions of the gridded emissivity and topography that Peter Ford generated that was never put in the PDS (ftp://voir.mit.edu/pub/mg_3003/).
- Stereo-derived topography processed to 900 m/pixel resolution from Herrick et al. [5].
- Landing sites with error ellipses for previous probes and landers.
- Some version of the spherical harmonic gravity. Current thoughts are that the most useful maps might be the geoid, the free-air anomaly, and the two-layer inversion of James et al. [6].
- Topography-corrected IR emissivity from Venus Express and other derived near-IR maps.
- South-pole mosaic from Senske and Ford [7].
- Thermal IR maps from Galileo NIMS data.
- Other SAR data sets for Venus, especially Venera 15/16 and Arecibo mosaics. Arecibo mosaics from different years might be particularly useful.
- Other databases that can be located, such as dune fields, wind streaks, landslides.
- Global photogeologic unit maps, such as those generated by Price et al. [8].

The prioritization of these data sets represents a combination of their importance and the ease of obtaining and importing the data.

Solicitation for input:

This is an incipient (and largely unfunded) activity and the authors are interested in opinions and data contributions from the Venus community. Please contact the lead author if you have input.

References: [1] Christensen P. R. et al. (2009) *EOS Trans. AGU, 90(52), Fall Meet. Suppl.*, Abs. #IN22A-06. [2] Herrick R. R. et al. (1997) *Venus II*, 1015-1046 [3] Schaber G. G. et al. (1992) *JGRP, 97*, 13257-13302. [4] Crumpler L. S. et al. (1997) *Venus II*, 697-756. [5] Herrick R. R. et al. (2012) *EOS Trans. AGU, 93(12)*, 125-126. [6] James P. B. et al. (2013) *JGRP, 118*, 859-875. [7] Senske D. A. and Ford P. G. (2015) *46th LPSC*, abs. 1432. [8] Price M. H. (1995) *Earth Moon and Planets, 71*, 99-145.