VOLCANOES OF THE LACHESIS TESSERA QUADRANGLE (V-18), VENUS. D. L. Buczkowski[1], L. A. Fattaruso[2], E. M. McGowan[2,3], and G. E. McGill[2]. [1]Johns Hopkins Applied Physics Laboratory, Laurel, MD 20723 (Debra.Buczkowski@jhuapl.edu); [2]University of Massachusetts, Amherst, MA.

Introduction: Regional plains [1] cover ~80% of the Lachesis Tessera V-18 quadrangle (25°-50°N, 300°-330°E), which also includes tesserae, multiple deformation belts, impact craters, coronae, arachnoids, maculae, and a linear grouping of a NW to SE oriented structural features [2]. There are also four large central volcanoes, abundant small shield volcanoes and associated flow materials. Here we present an evaluation of the volcanoes and volcanic materials, as revealed by geologic mapping.

Methods: Mapping was based on a 250 m/p Magellan cycle 1 synthetic aperture radar (SAR) 1:5M scale controlled mosaic [3]; analysis utilized 75 m/p FMAPS. Topographic information was derived from digital elevation models and from gridded elevation data; altimetry data were combined with SAR data to create synthetic stereoscopic images [4].

Stratigraphic units were defined primarily by their radar brightness and surface textures, although crosscutting relations, relative ages, and apparent association with topographic or structural features were also considered.

Volcanic Materials: Exposures of volcanic materials superpose regional plains throughout the quadrangle. Areally significant flow fields associated with small shields (~10 km diameter) are moderately brighter than the regional plains. Small shields similar to those within the shield fields are common (as individuals or in isolated small groups) superposed on the older regional plains unit. Isolated flows are relatively rare, moderately bright, and digitate, and generally do not have a resolvable construct at their source.

Eostre Mons, located at 45.1°N, 329.1°E., is 26 km in diameter with ~250 m of relief. It has small field of moderately bright flows surrounding it and is located adjacent to a shield field.

Central volcano A has ~850 m of relief and a large field of digitate flows extending east and northeast. The caldera, centered at 28.5°N, 326.3°E, is characterized by multiple, very bright, concentric rings; it is about 50 km in diameter. Flows have variable brightness but are mostly moderately bright. Proximal flows are smaller and probably younger than distal flows.

Central volcano B (located at 35.7°N, 317.2°E) is surrounded by a field of digitate flows of variable brightness, with the brightest (roughest) parts of individual flows located farthest from the source caldera. Flows extend generally eastward. There is no topographic data of volcano B.

Northeast of volcano B a series of graben extend radially from a point at 38.2°N, 322.6°E. A large field of dark digitate flows also extend away in all directions from this point, partially covered by several younger, brighter flows. While the central point is within a FMAP data gore, a caldera 112 km in diameter can be identified in the topography (Fig. 1). The radial graben deform the flows proximal to the caldera but farther away the flows are deformed by several sets of lineaments and a fracture belt. This proposed central volcano C has >1 km of relief.

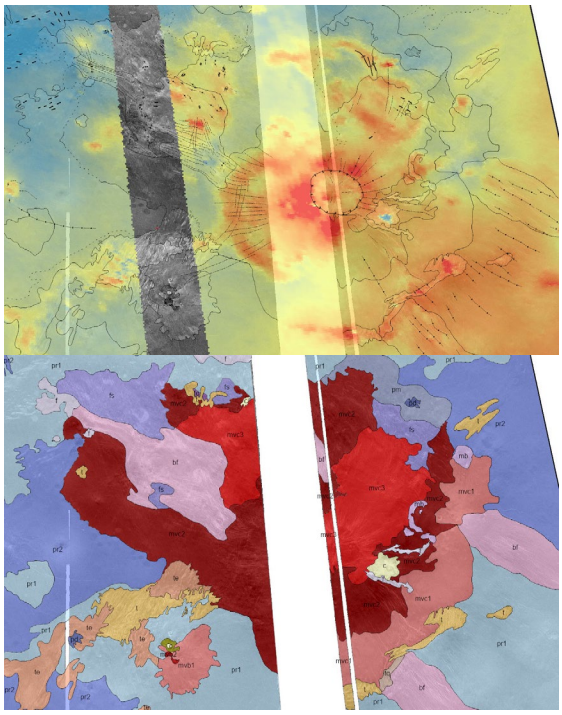

Figure 1. a) Topography reveals Volcano C. Linear structures and unit contacts are displayed. b) Geologic map of Volcano C flow units in shades of red.

References: [1] McGill G.E. (2000) V-20 quadrangle [2] McGowan E. M. & McGill G. E. (2011) *LPSC XLII*, abs.1300 [3] Ford J.P. (1993) JPL Publication 93-24, p. 1-18 [4] Herrick R.R. (2012) *EOS AGU, 93*(12), 125-126. doi: 10.1029/2012EO120002