

**VOLCANIC GEOLOGY OF THE IMDR REGIO (V-51) QUADRANGLE, VENUS: AN INITIAL LOOK**

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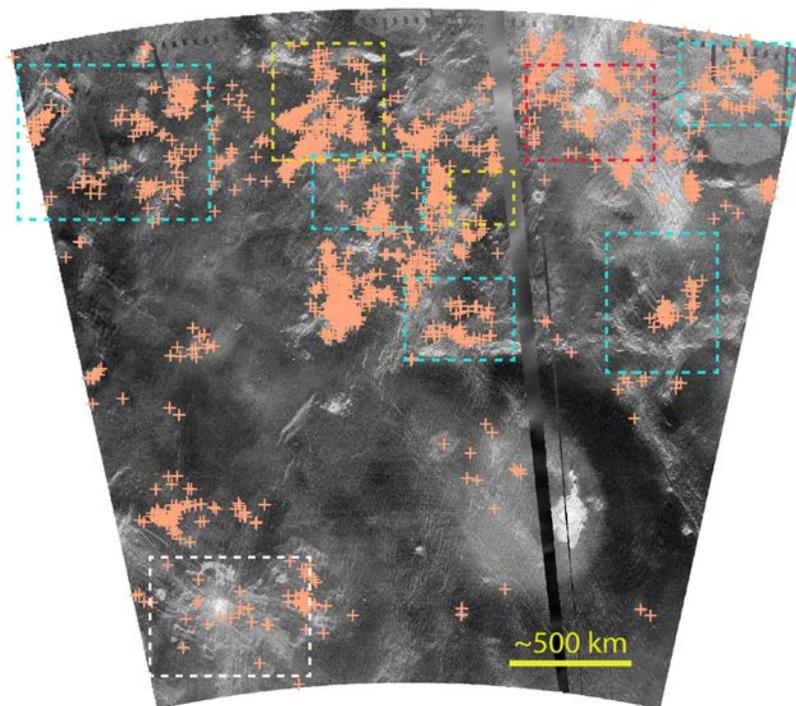
**ABSTRACT**

**Introduction:** The Imdr Regio quadrangle (V-51; **Figure 1**), is a 25 degree latitude by 30 degree longitude quadrangle in Venus' southern hemisphere (25° S – 50° S, 210° E – 240° E). The quadrangle covers an area of  $>7 \times 10^6$  km<sup>2</sup>, contains two topographic basins, and is named after an area of high-standing terrain and volcanism in V-51's southwestern corner. Here we describe an informal initial investigation into the volcanic geology of V-51 at the 1:5M scale.

**Volcanic Geology:** Both planitiae appear to have served as depocenters for numerous extensive volcanic flows that have been sourced from within and outside of the basins. Volcanic sources within each basin include clusterings of small shield volcanoes and domes, unnamed intermediate volcanoes, coronae and coronae-like features, and fracture belts. The major volcanic source outside the basins (specifically, Helen Planitia in this map area) appears to be Idunn Mons, a 200 km diameter volcano that rises ~3 km above the surrounding terrain, has shown evidence of recent volcanism [1-2], and resides on the eastern edge of Imdr Regio (SW corner V-51). Small shield edifices are the most abundant source of volcanism here and are predominantly concentrated in northern V-51 where they are spatially (and seemingly genetically) related to intermediate-sized volcanoes, a corona, and corona-like features (both calderas and an arachnid). Small shields are also abundant in the SW corner of V-51 where they appear to be related to magmatism associated with Idunn Mons.

**Next Steps:** We have completed mapping the distribution of small shields [3] and will next focus on detailed mapping of the larger volcanic structures.

**References:** [1] Smrekar S. E. et al. (2010) *Science*, 328(5978), 605–608, doi:10.1126/science.1186785. [2] D’Incecco P. et al. (2017), *Planet Space Sci*, 136, 25–33, doi:10.1016/j.pss.2016.12.002. [3] Lang et al. (2020) *LPSC LI*, abstract #1560.



**Figure 1:** Left-look Magellan SAR image of the V-51 quadrangle (25–50°S, 210–240°E) showing the distribution of small shield edifices (shields; orange plusses). Larger volcanic structures that appear to have associations with shields are shown in the dashed boxes. The different colored boxes represent different types of volcanic structures. White = Idunn Mons, a large shield volcano; light blue = calderas; red = corona-like feature (arachnid); yellow = intermediate-sized volcano.