DETAILED MAPPING OF PANINA PATERA REGION, SOUTHERN NAVKA PLANITIA, VENUS. I. Matveev[1], R.E. Ernst[1,2], H. El Bilali[1,2], [1]Faculty of Geology and Geography, Tomsk State University, Tomsk, Russia, ilya82.matveev@yandex.ru, [2]Department of Earth Sciences, Carleton University, Ottawa, Ontario, Canada; Richad.Ernst@ErnstGeosciences.com, hafidaelbilali@cunet.carleton.ca

Introduction: We are doing detailed mapping (1:500,000 scale) of SW Navka Planitia in Nvaka Planitia Quadrangle (V-42) (Fig. 1). The area is about 3000 km east-southeast of Phoebe Regio. Detailed mapping is focused on graben systems (thought mainly to overlie dykes) and lava flow systems, with the goal of characterizing the magmatism in this region and developing its geological history.

Mapping of Graben Systems: As shown in Figure 2 there are impressive graben sets in the region and they can be grouped into sets based on trend and geometry. Notably there are circumferential sets associated with Panina patera (red) and a larger circumferential pattern in purple circumscribing a separate centre offset to the south by about 100 km. There are also impressive linear swarms (NW trending black, WNW trending green and NW trending light blue). The NE trending green swarm which trends into Panina Patera may also be a linear swarm or may be a portion of a radiating swarm associated with Panina Patera.

Many of these graben systems likely overlie dyke swarms [1,2], and therefore, are important igneous component of their magmatic centres. In addition, those major linear swarms that are also overlying dykes (and not purely rift related) would represent major dyke swarms belonging to more distal magmatic centres, potentially up to more than 1000 km away [1,2].

Mapping of Flows:

Initial mapping of flows is in the vicinity of Panina Patera (Fig. 3). This mapping is integrating the flow history with the associated grabens (dykes) to develop a geological history of Panina Patera.

Future Work: The next stage of research will expand the detailed mapping of grabens and flows out through the broader area (yellow box in Fig. 1). The goal is to build a geological history of this southern portion of Navka Planitia.

References: [1] Grosfils E.B., and Head J.W. (1994) GRL, 21, 701–704. [2] Buchan K.L. and Ernst R.E. (2021) Gond. Res., 100, 25-43. [4] Christensen P. R. et al. (2009) AGU Fall Meeting, Abstract #IN22A-06.

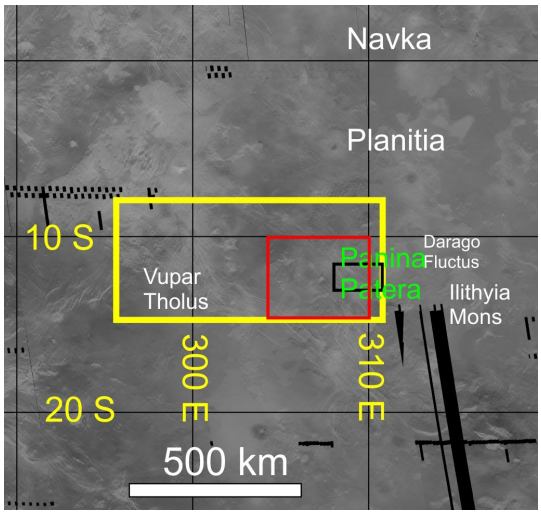

Figure 1. General map showing the distribution of units.

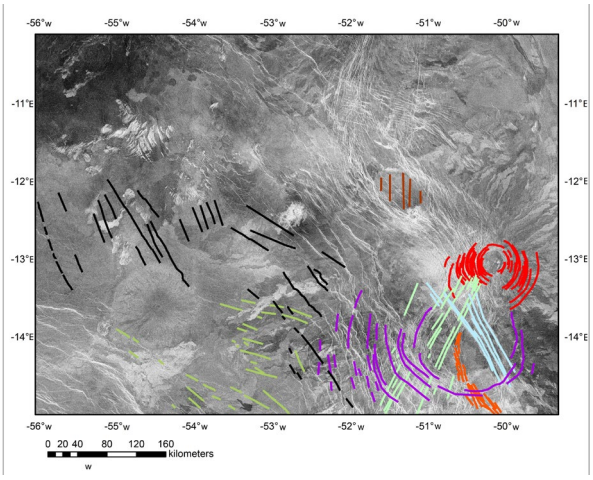

Figure 2. Generalized graben distributions based on mapping of about 2000 lineaments. For location, see red box in Fig. 1

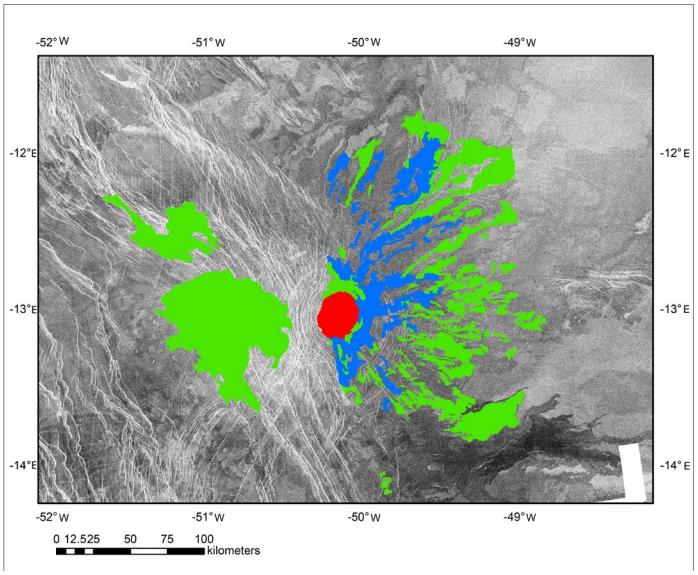

Figure 3. Preliminary mapping of flows associated with Panina Patera. For location, see black box in Fig. 1.