DYKE SWARMS OF NINMAH CORONA AREA, EASTERN EISTLA REGIO, VENUS. A. Hasanaine[1], H. El Bilali[2,3], R.E. Ernst[2,3], N. Youbi[1]. [1]Department of Geology, Faculty of Sciences-Semlalia, Cadi Ayyad University, Marrakesh, Morocco; rziki.23kech@gmail.com, [2]Department of Earth Sciences, Carleton University, Ottawa, Ontario, Canada; hafidaelbilali@cunet.carleton.ca; richard.ernst@ernstgeosciences.com, [3]Faculty of Geology and Geography, Tomsk State University, Tomsk, Russia.

Introduction: Coronae are common tectonomagmatic features on Venus. They typically have a quasi-circular/elliptical annulus of graben (or occasionally compressional ridges) with diameters ranging from 60 to 2600 km (mean ~300 km) (e.g. [1]). Recent studies suggest that a terrestrial analogue of corona can be circumferential swarms associated with mantle plumes or diapirs [2]. Detailed mapping of coronae is required to further test this hypothesis.

Ninmah Corona: In this research we investigate graben-fissure systems associated with a cluster of four large corona in Eastern Eistla Regio: Didilia, Pavlova, Ninmah, and Isong [3].

This abstract focusses on mapping results from Ninmah corona which is 700 km in diameter. Previous study of Ninmah corona (and the other corona) includes the 1:5,000,000 scale quadrangle map V-21 [3]. On this map abundant extensional lineaments ("fractures") are mapped, but are not distinguished by trend or distribution (Fig. 1). In our research we apply the dyke swarm context to mapping of graben-fissure-fractures (e.g. [2]) and group them into separate radiating, circumferential and linear dyke swarms.

Methods: Our approach begins with detailed 1:500,000 scale mapping of grabens-fissures-fractures, which are then grouped into radiating, circumferential and linear dyke swarms. Radiating and circumferential swarms can be directly associated with magmatic centres. Linear swarms are linked to distal magmatic centres outside the study area, where possible.

Geological mapping is being carried out using full-resolution (75m/pixel) Magellan SAR images and its altimetry data in ArcGIS ArcMap v. 10.8. JMARS [4] is also used for reconnaissance.

Graben Sets (Dyke Swarms): We have mapped 16,000 extensional lineaments (mainly grabens and fissures) (Fig. 2) and these have been generalized and grouped into multiple systems (swarms) based on trend and geometry (radiating, circumferential and linear) (Fig. 3).

Ninmah corona*:* This corona (labelled N in figures 2 and 3) has a prominent radiating dyke swarm (coloured red) which extends 580 km to the west and 520 km to the east.

At least two circumferential swarms are identified to be associated with Ninmah: light blue lines partially circumscribe Ninmah, and yellow lines prominently and fully circumscribe centre 1, which is offset by 160 km to the north from the Ninmah centre

Pavlova Corona: The yellow dykes in the western part of the study area converge to Pavlova corona.

Didilia Corona: The NW linear green swarm trends toward Didilia corona (labelled D).

Isong Corona: Radiating swarm 4 converges to the south, to Isong corona (Fig. 3)

Centres 2 and 3: Two adjacent, and partially overlapping, circumferential swarms are located in the southeastern part of the map area. These coronae have diameters of 160 km and 120 km, respectively.

Linear Swarms: There are additional linear swarms which have not yet been linked with any magmatic centres.

References: [1] Gülcher et al. (2020) Nat. Geosci., 13, 547–554. [2] Buchan K.L., Ernst R.E. (2021) Gond. Res. 100, 25–43. **[3]** Campbell, B.A., Clark, D.A. (2006). USGS Sci. Invest. Map 2897. [4] Christensen, P. R. et al. (2009) AGU Fall Meeting, Abstract #IN22A-06

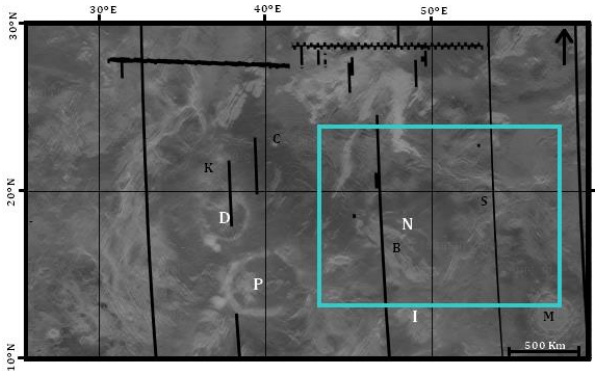

Figure 1. *Location of study area in Eastern Eistla Regio. Named Coronae:* ***N****=* ***Ninmah****,* ***P*** *=* ***Pavlova****,* ***D*** *=* ***Didilia,*** ***I= Isong****, and named impact craters: K = Karo, M = Mead, S = Sheila, B = Bradstreet. G = Gautier, C = Corinna, V = Huarei. Background Magellan SAR image from JMARS [4].*

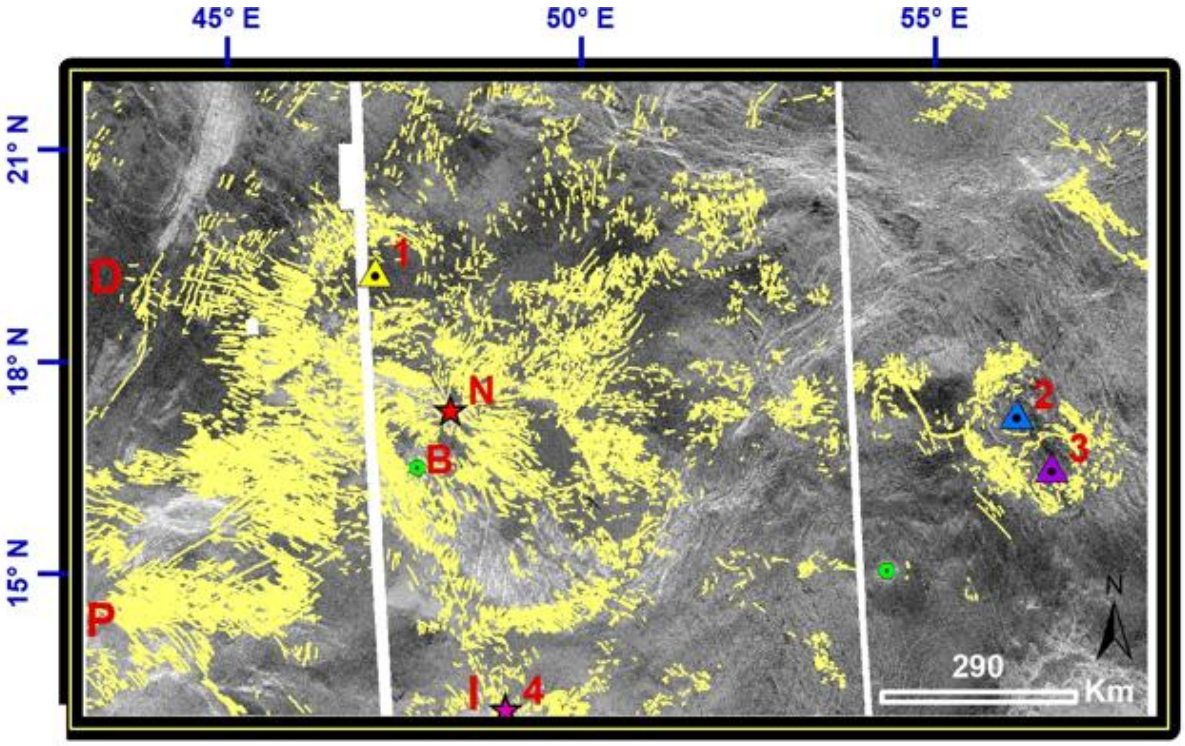

Figure 2. *Detailed mapping of grabens. Stars locate inferred the radiating centres and triangles determine the circumferential centres, and are likely associated with coronas. Green dots located impacts.*

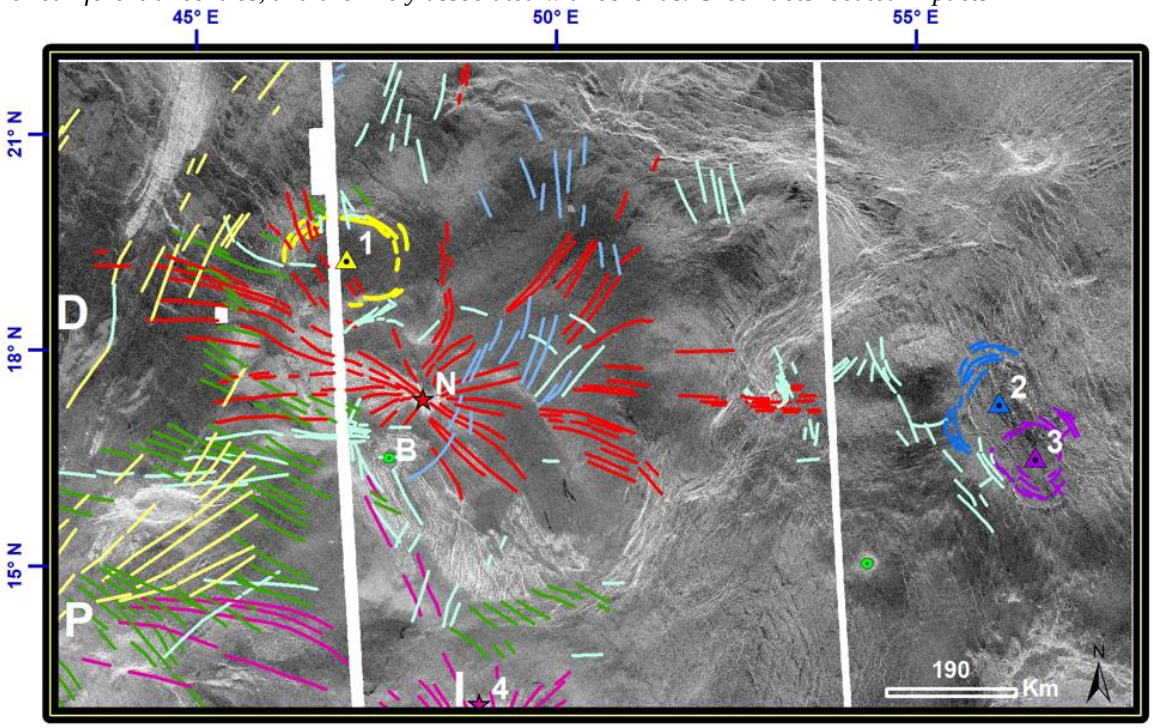

Figure 3. *Generalized distribution of grabens grouped into distinct sets distinguished by colour. Labels are linked to the discussion in the text.*