DYKE SWARM HISTORY OF THE EVE CORONA REGION ON THE SOUTHERN SIDE OF ALPHA REGIO, VENUS, AND POTENTIAL IMPLICATIONS FOR THE UPCOMING DAVINCI MISSION. I. J. Fardy[1], R. E. Ernst[1], and H. El Bilali1[1], [1], [1]Department of Earth Sciences, Carleton University, Ottawa, Ontario, Canada, ikefardy1@gmail.com

Introduction: Detailed mapping (1:500,000 scale) and geological interpretation was conducted on the Eve Corona region, located on the southern side of Alpha Regio tesserae [1,2] (Figs., 1,2), which is the proposed final impact region of the upcoming NASA's DAVINCI mission scheduled.

Eve Corona area: A total of 26,265 extensional lineaments (grabens) have been mapped which are interpreted as the surface expression of mafic dykes (and which are common on Venus due to the absence of erosion). These grabens (dykes) are grouped into radiating, circumferential and linear swarms and linked to magmatic centres where possible. They are linked to magmatic centres within Eve Corona, and also outside of the study area. Analysis of the cross-cutting relationships of swarms reveals an evolutionary history, with initial centres located on the southern side of Eve Corona, before magmatic centres shift to the north and then outward, to both the northeast and northwest.

Alpha Regio Tesserae: Mapping of graben (ribbon fabric and other extensional lineaments) within the Alpha Regio tesserae, on the north side of Eve Corona (Figs. 1, 2), is currently underway. Two groups are being identified: those which represent the continuations of swarms from outside the tesserae, and those which are restricted to the tesserae (interpreted as forming during a pre-plains history). The geologic history derived from this dyke swarm study of Eve corona and surrounding plains [1], and those from within Alpha Regio tesserae will be useful ground-truthing for the interpretation of images to be taken of Alpha Regio Tesserae region during the descent of the DAVINCI spacecraft through the atmosphere.

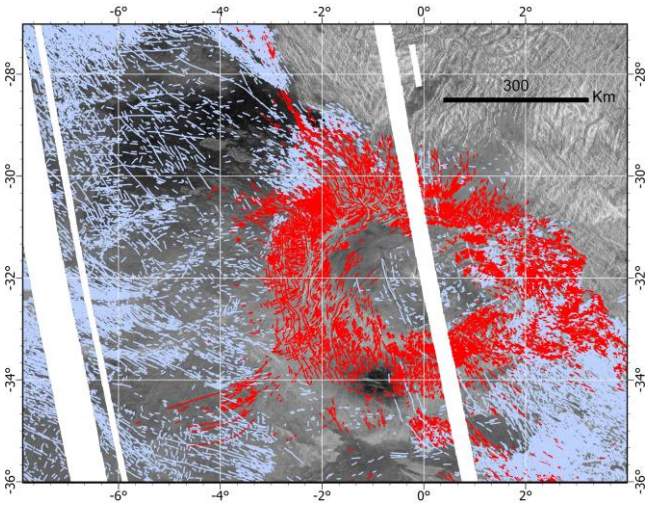

Figure 1. *Distribution of* 26,265 *extensional lineaments (grabens, fissures and fractures) mapped in the study area. Those associated with Eve Corona are in red, and those linked to other centres or of unknown linkage are in light blue (After [1]).*

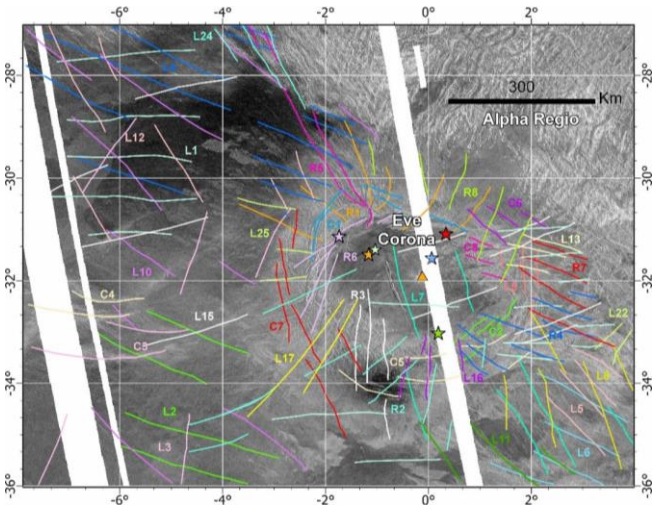

Figure. 2. *Generalized distribution of graben-fissure systems (interpreted as dyke swarms) distinguished by colour and labels. Stars and triangles locate the centres of radiating (labelled R) and circumferential (labelled C) systems, respectively. Linear swarms (labelled L) are also shown. (After [1]).*

References: [1] Fardy, et al. (2024) LPSC 55, abstr. #1479. [2] Fardy et al. (2024) Manuscript in prep.