

**CANALI W-SW OF SALUS TESSERA AND LINK WITH NABUZANA CORONA.** J. C. Sanchez<sup>1</sup>, R. E. Ernst<sup>1,2</sup>, K. L. Buchan<sup>3</sup>, H. El Bilali<sup>1</sup>, <sup>1</sup>Department of Earth Sciences, Carleton University, Ottawa, ON, Canada; jcsan13@my.yorku.ca, richard.ernst@ernstgeosciences.com), <sup>2</sup>Faculty of Geology and Geography, Tomsk State University, Tomsk, Russia, <sup>3</sup>273 Fifth Ave., Ottawa, Ontario, Canada K1S 2N4

**Introduction:** Venusian canali are narrow (1-5 km wide), sinuous channelized features that are often associated with coronae and plains, and can extend for hundreds or thousands of kilometres [1-3]. While having morphological similarities to fluvial systems [4-5] they are generally interpreted to represent lava flows [6-10].

Our detailed mapping of six canali in the region W and SW of Salus tessera reveal that at least two canali are linked via dykes to Nabuzana corona (Figs. 1-3). Nabuzana corona consists of an older stage 1 centred at the purple star in Fig. 2a, and a younger stage 2 centred at the green star. Canali A is sourced from the corona stage 1, and canali B from the corona stage 2.

**Methods:** Geological mapping was carried out using full-resolution (75 m/pixel) Magellan SAR images and its altimetry data in ArcGIS ArcMap v. 10.3.

**Canali mapped W and SW of Salus tessera:** Canali are shown in red on Figures 1-3.

**Canali A.** Canali A extends N for about 280 km and is sourced from the circumferential dyke swarm with surface expression as graben (pink) located along the rim of Nabuzana corona stage 1 (Fig. 2). Valley network X (orange in Fig. 2) may be linked to canali A. If so, it is also sourced from the circumferential swarm (pink lines) of Nabuzana corona stage 1.

**Canali B.** Canali B extends for 240 km in a NNW direction and it is sourced from a dyke (graben) (Fig. 2). The dyke is inferred to belong to a radiating swarm (green) associated with Nabuzana corona stage 2. Along its path, canali B diverts around the western side of a 800 m hill (H in Fig. 1).

**Canali C and D.** Canali C and D are 220 and 130 km long, respectively (Fig. 3). They follow the same path for 60 km and then diverge as shown in Figure 3c. Canali C appears to be younger of the two. The southern end of canali C-D is in the proximity of dykes shown in blue (Figs. 2a and 3a), from which they may be sourced. These dykes (blue) are interpreted to radiate from Nabuzana corona stage 1. Canali C diverts around the eastern side of hill H before merging with canali B (Fig. 1).

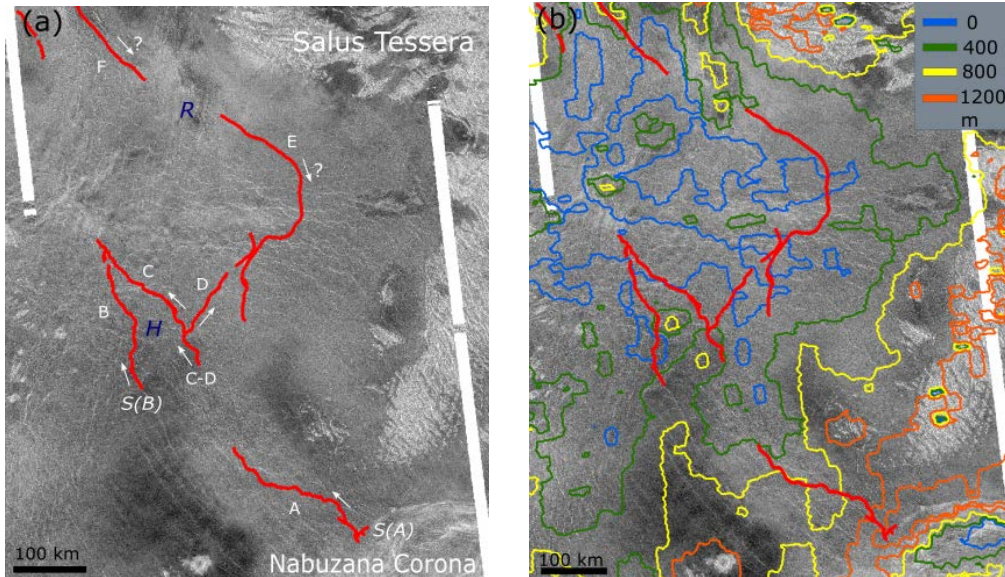
**Canali E and F.** Canali E and F are 380 and 170 km long, respectively. They are on strike but separated by a N-S trending ridge (R in Fig. 1). They represent independent canali, unless the ridge is a later uplift feature. We provisionally infer canali E is sourced from the ridge at its N end, and that canali F is fed from its N end.

**Topographic relationships:** In many areas it is inferred that there have been substantial post-emplacement topographic adjustments along canali [11]. However, in our study area the topography is generally consistent with the inferred canali flow directions, suggesting the absence of significant post-canali topographic changes. For example, canali A descends from the high rim of Nabuzana corona stage 1 (Fig 1). Also, canali B and C are diverted around either side of hill H (Fig. 1).

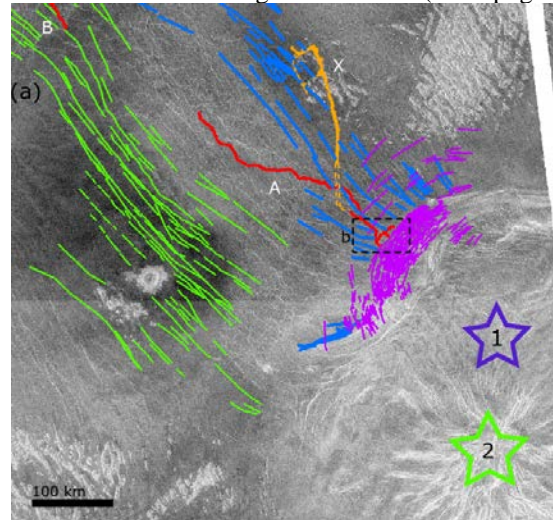
**Summary of links with Nabuzana corona:** As described above, canali A and B are linked with Nabuzana corona stages 1 and 2 respectively. Canali C-D and valley network X are potentially linked to Nabuzana corona stage 1. These relationships support a magmatic origin for canali.

#### References:

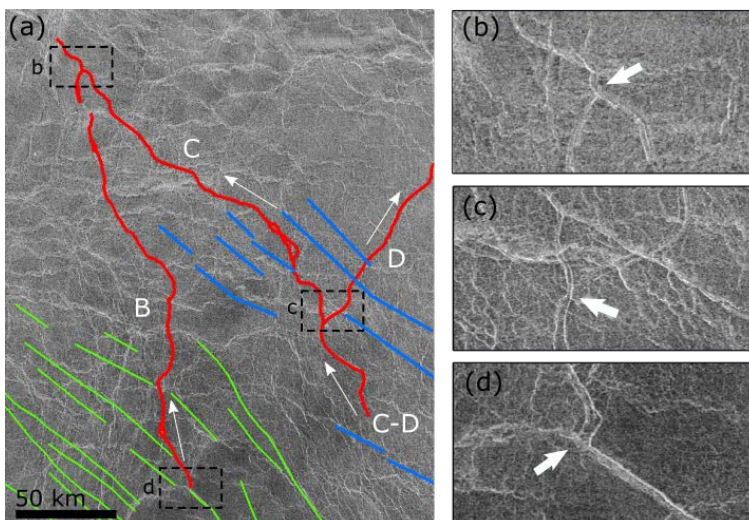
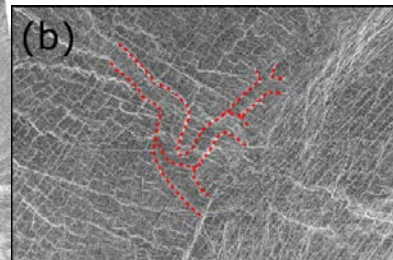
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**Fig. 1.** Canali A-F located W and SW of Salus tessera. a) S(B) and S(A) indicate the canali sources. Arrows indicate flow directions. R = ridge and H = hill (see topography in part b). b) Superimposed Magellan topography.



**Fig. 2.** Canali associated with Nabuzana corona. a) Canali A and perhaps valley network X (orange) fed from circumferential dyke swarm (pink) linked to the corona centre stage 1 at purple star. Canali B fed from portion of dyke swarm (green) associated with corona centre stage 2 at green star. Blue coloured dyke swarm (blue) linked to corona stage 1 b) Enlargement of source area for Canali A.



**Fig. 3.** Canali B-D and their sources and intersections. a) Canali B sourced from dyke of green coloured swarm. Canali C & D originally follow same path and then split. Based on relationship at intersection Canali C is younger. Canali C-D possibly fed from blue coloured dyke swarm. Canali B and C merge. Arrows show flow directions. b), c) & d) Enlargements of key intersections (locations in part a).