MARAM CORONA, VENUS: AFFECTED BY FAULTING OF PARGA CHASMATA.

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Introduction: The spatial association between coronae and chasmata (rift zones) has been extensively discussed but genetic relationships remain less clear (e.g. [1-6]).

Maram Corona: We selected a study area along Parga Chasmata about 2000 km SE from the centre of Atla Regio (Fig. 1) which had previous quadrangle scale (1:5,000,000) mapping [7]. We focus on the large Maram corona.

In our previous LPSC 2022 abstract [8] we focused on the graben-fissure systems of Maram corona and vicinity and their interpretation as dyke swarms. In the present contribution we consider topographic evidence for major faulting affecting Maram corona. We aim to build on the observation in [7] that Maram corona was affected by rift tectonics that tilted "the plateau … along its east-west axis with the north rim standing 2.3 km higher than the south rim." In this abstract we report additional measurements and observations to further characterize this rift tectonics.

Stages of Faulting Affecting Maram Corona: Numerous fault scarps are evident from the topography (Figs. 2-5; see also [7]), and these can be mostly interpreted as normal faults associated with the rift zone. A preliminary history of the tectonics affecting Maram corona is offered below in 5 stages.

Stage 1: The NW trending fault north of Maram corona was active prior to corona formation since this fault seems truncated by the Stage 3 faults along the northern margin of Maram corona.

Stage 2: An important observation is that the plateau of the corona is flooded by lava flows, which did not flow off the northern edge despite its current higher elevation. Also, as noted by [7] and apparent in Fig. 2, the floor of Maram corona is tilted southward, and yet the flows on the plateau do not seem to have preferentially flowed south. Therefore, the plateau of Maram corona must have been flat at the time of lava flooding, and was subsequently tectonically tilted (see Stage 3).

Stage 3: During this stage, Maram corona (and its plateau) was tilted at an angle of 0.5 degrees to the south (consistent with the interpretation of [7]). It is assumed that this was associated with normal faulting.

Stage 4: Major NNW trending faults parallel the east and west sides of Maram, and in particular the fault on the east side can be traced in the topography to the SSE for a distance of about 1000 km (Fig. 3). These faults are associated with dip slip movement,

Stage 4: On the eastern side of Maram, additional faulting has caused a triangular wedge of extension (see direction of arrows).

Stage 5: This is the final stage where the uplifted plateau seems to break along a WNW- ESE fault.

References: [1] Hamilton, V.E., Stofan, E.R. (1996) Icarus, 121, 171–194. [2] Martin, P., Stofan, E.R. (2004). 35th LPSC, Abstract 1576. [3] Martin, P., et al. (2007) JGR, 112, E04S03. [4] Smrekar, S.E., et al. (2010). JGR, 115, No. E07010. [5] Ivanov, M.A., Head, J.W. (2015). Planet. Space Sci., 113-114, 10-32. [6] Graff, J.R., et al. (2018). Icarus, 306, 122-138. [7] Brian, A.W., et al. (2005). USGS SIM 2813. [8] Mghazli K. (2022) LPSC abstr. 1971.

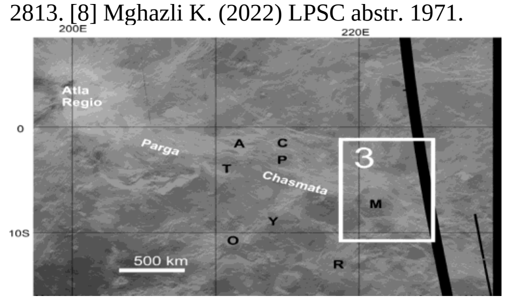

Figure 1: *Location map of present study along Parga Chasmata. Named corona (in black letters) are: A = Attabeira, C = Chantico,* ***M = Maram****, O= Oduduwa, P= Pazar-ana, R = Repa, T = Tadaka, and Y = Ya-Yerv. The box labeled 3 locates Figure 3.*

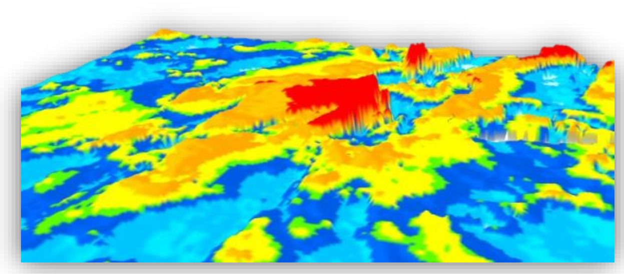

Figure 2. *Oblique view from the east of the topography of Maram corona region (north is to the right. Maram corona is in the centre with the northern part of its plateau in red (highest topography).*

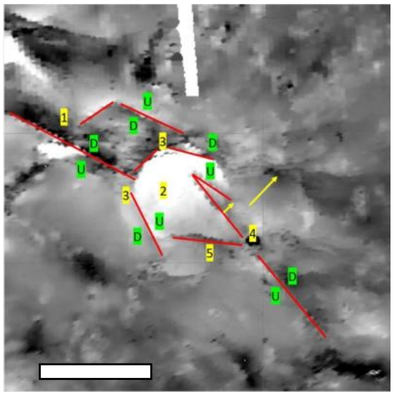

***Figure 3**. Faults identified on the basis of topographic scarps. Background is Magellan topographic data with higher to lower elevations in grey scale from white to black. Proposed faults in red and fault movement indicated by U (up) and D (down). Fault 4 may extend for 1000 km. White scale bar is about 200 km long.*

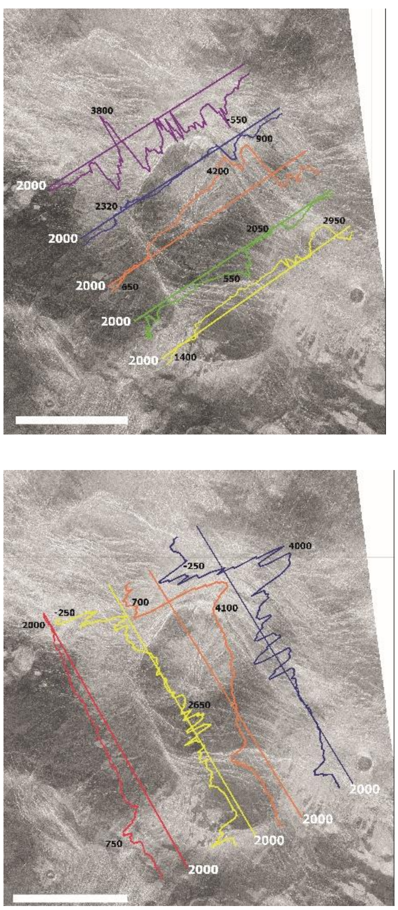

***Figure 4:** Location of topographic profiles across Maram corona. White scale bar is about 100 km*

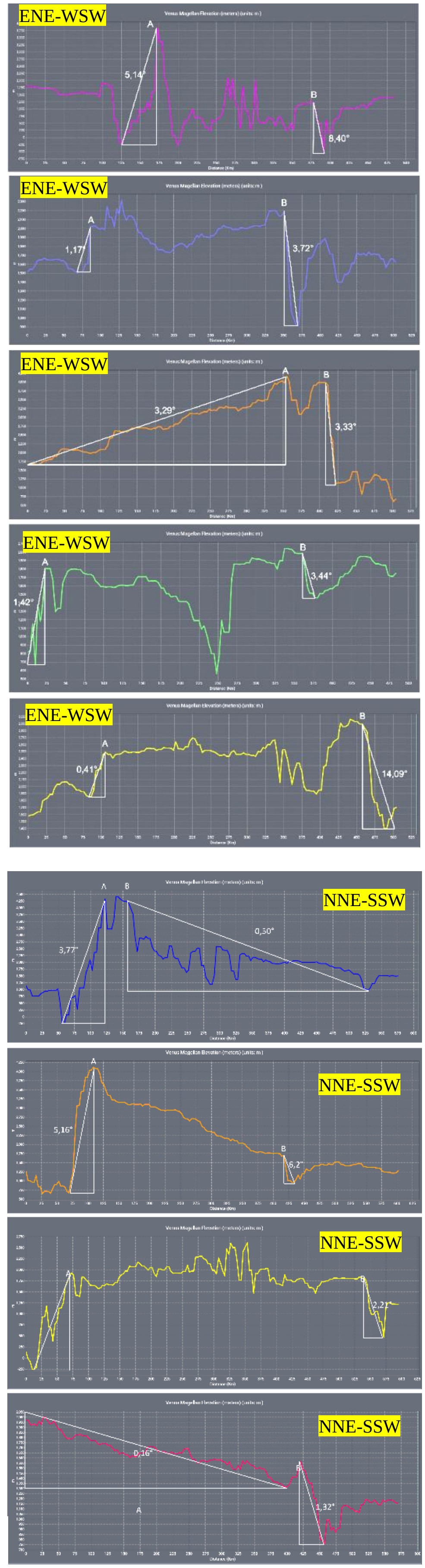

***Figure 5**: Topographic profiles (ENE-WNE and NNW-SSE) across Maram corona (100x vertical exaggeration: ENEWNE and NNW-SSE)*