STRUCTURAL MAPS OF THE V-17 BETA REGIO QUADRANGLE, VENUS. A. T. Basilevsky[1,2] and J. W. Head[2], [1]Vernadsky Institute of Geochemistry and Analytical Chemistry, RAS, Moscow, Russia, atbas@geokhi.ru, [2]Department of Geological Sciences, Brown University, Providence, RI 02912 USA.

Introduction: This work resulted from the photogeologic mapping of the V-17 quadrangle, which is dominated by the Beta Regio structural uplift. This mapping is part of the USGS 1:5M planetary mapping project [1]. The V-17 map has been accepted for publication and now is in the final editing and production process [2]. The results of the photogeologic analysis, mapping and interpretations have been recently published by [3]. Here we report on the structural maps which are part of the products of the V-17 project. We find them to be useful for structural analysis and interpretations and suggest that other mappers use this tool.

Structural maps: These represent slices of the geologic map into 7 time-stratigraphic levels whose descriptions are found in [3-6]. From older to younger they are: 1) Tessera material unit (t), 2) Densely fractured plains material unit (pdf), 3) Fractured and ridged plains material unit (pfr), 4) Tessera transitional terrain structural unit (tt), 5) Fracture belts structural unit (fb), 6) Shield plains (psh) and plains with wrinkle ridges (pwr) material units combined, and 7) Lobate (pl) and smooth (ps) plains material units combined and, approximately contemporaneous with them, the structural unit of rifted terrain (rt). Each slice shows the generalized pattern of structures typical of these units. Figures 1-7 show the seven maps and Figure 8 shows the combined map illustrating what is shown in the seven maps. To visualize the Beta Regio uplift outlines, the major structure of this area, we show the +0.5 km and +2.5 km contour lines, corresponding respectively to the base and the mid-height of the uplift.

It is seen in Figures 1-2 and 4 the trends of t, pdf and tt occupy relatively small areas and their structures seen in these small windows appear rather variable and with almost no orientation heritage with time. Figure 3 shows that swarms of ridge belts trend mostly NW and go through the Beta structure with no alignment with it, suggesting that this structure did not yet exist at this time.

Figure 5 shows that fracture belts align along the northern base of the Beta uplift suggesting onset of the formation of this structure. Figure 6 shows that wrinkle ridges do not show alignment with the Beta uplift suggesting that this already forming structure was not high enough to exert topographic stress in its vicinity. Figure 7 shows that the Beta uplift has Devana Chasma as an axial rift zone, suggesting a genetic link between the uplift and rifting. Figure 8 shows that structural trends in this area significantly changed with time.

There are several centers of radiating fractures, all mapped earlier by [7]. The most prominent are the following four, centered at 34.5°N, 293.5°E; 39°N, 277°E; 40°N, 279.5°, and 42°N, 287.5°. The first three of these are part of the fracture belt. The fourth one, an unnamed astrum centered at Wohpe Tholus, is composed of several generations of structures. Its NE and SE sectors have abundant faults associated with unit pdf. Its SW sector is partly made of structures associated with unit fb. The young, post-regional-plains astrum structures radiate in almost all directions.

References: [1] Tanaka, K.L. (1994) *USGS Open File Report* 94-438. [2] Basilevsky, A.T. (2008) Geologic Map of the Beta Regio quadrangle (V-17), Venus, USGS Geologic Investigation Series, (in press). [3] Basilevsky, A.T., Head, J.W. (2007) Icarus 192, 167-186. [4] Basilevsky, A.T., Head, J.W. (1998) J. Geophys. Res. 103, 8531-8544. [5] Basilevsky, A.T. & Head, J.W. (2000) *Planet. Space Sci., 48,* 75-111. [6] Basilevsky and McGill (2007) in Exploring Venus as a Terrestrial Planet. AGU Geophysical Monograph Series. Wasington, D.C., 23-43. [7] Ernst et al. (2003) Icarus, 164, 282-316.

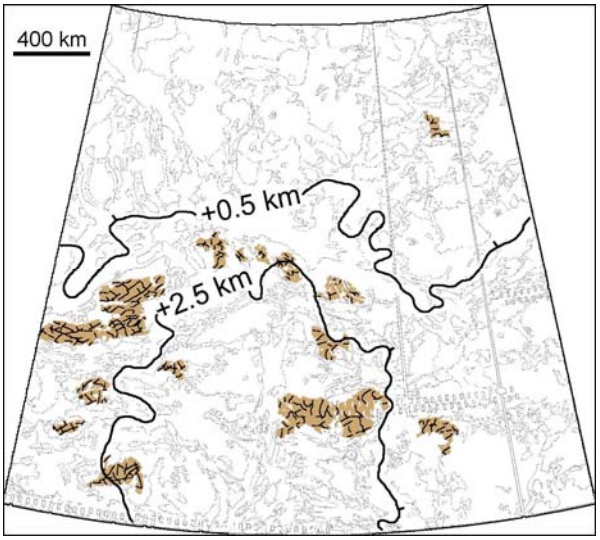

Figure 1. Tessera unit (t) and its dominant structures.

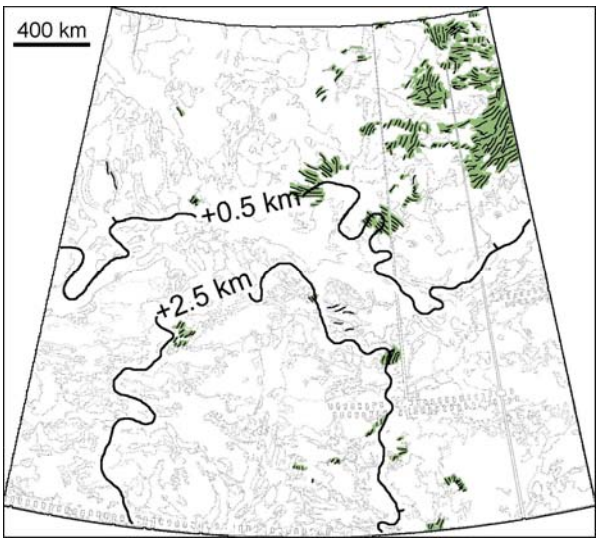

Figure 2. Densely fractured plains unit (pdf) and its structures.

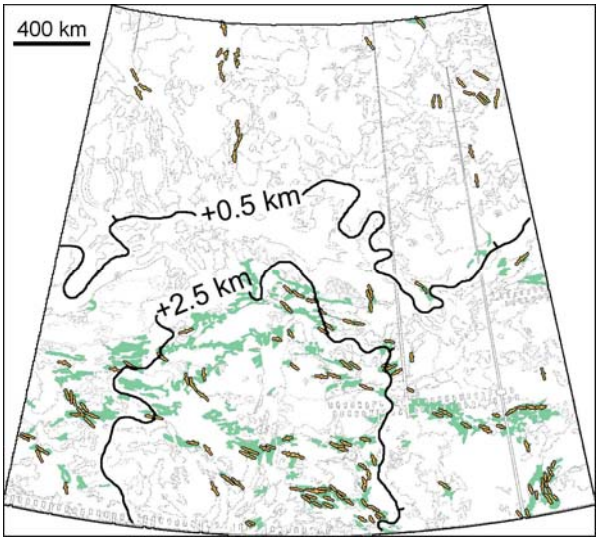

Figure 3. Material unit pfr and its typical ridge belt structures.

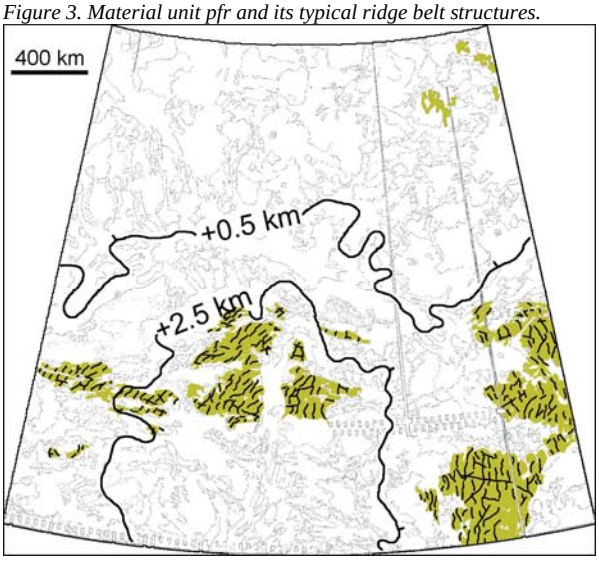

Figure 4. Tessera transitional terrain unit (tt) and its structures.

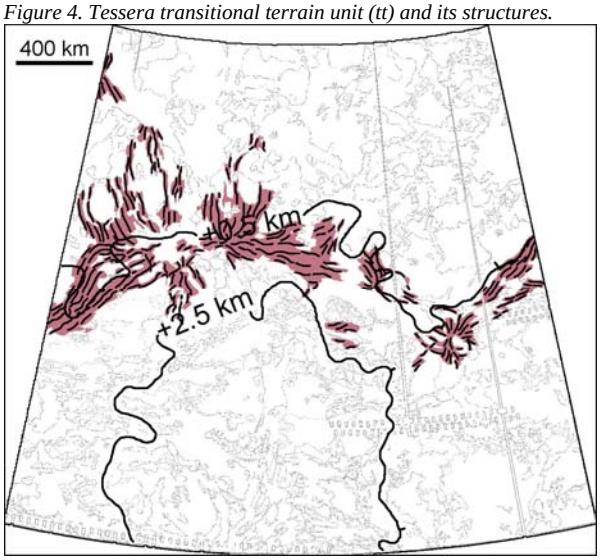

Figure 5. Fracture belts structural unit (fb) and its structures.

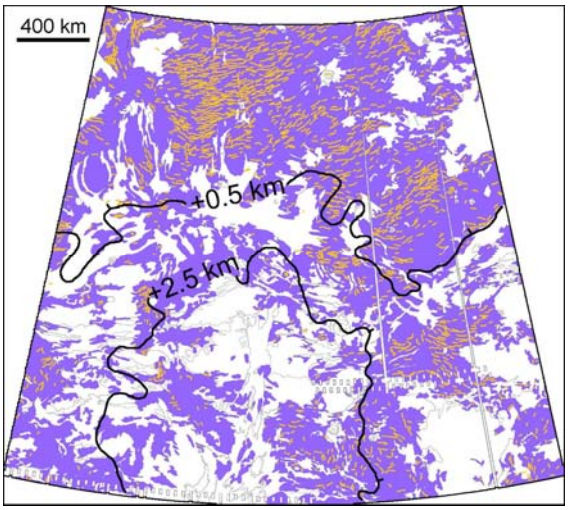

Figure 6. Shield plains (psh) and plains with wrinkle ridges (pwr) material units combined, and wrinkle ridges.

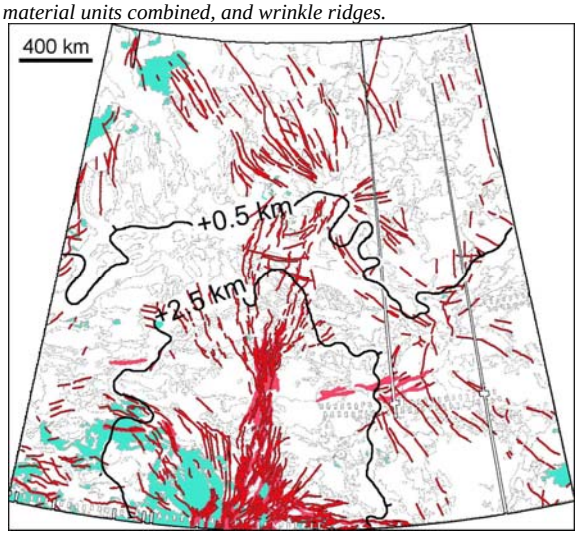

Figure 7. Lobate (pl) and smooth (ps) plains material units and structural unit of rifted terrain (rt).

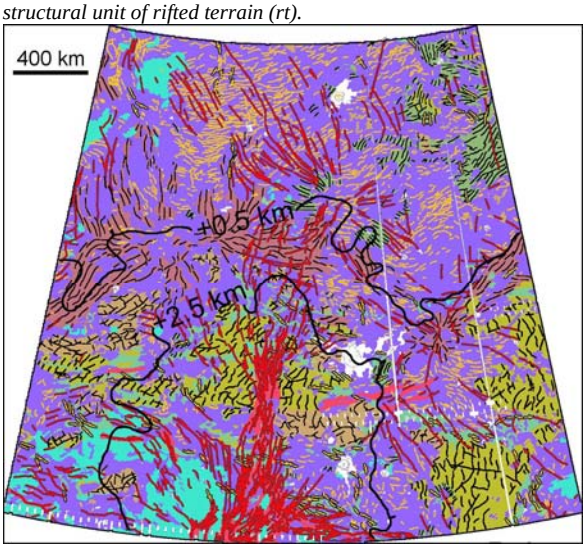

Figure 8. All units considered and their structures combined.