



## **Traces of influence of the surface topography in the Venus atmosphere**

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We study the traces of influence of the Venus' topography like Ishtar, Beta Regio, Atalanta Planitia in the Venus atmosphere. From the Fourier Spectrometry on Venera-15 (FS-V15) the 3-D temperature and clouds fields in mesosphere were retrieved [Zasova et al, PSS,2007]. It was found that distribution of temperature is described by the Fourier decomposition with 1, 1/2, 1/3, and 1/4 days and upper boundary of clouds (1, 1/2 days) harmonics in Solar-fixed coordinates. The amplitudes of the thermal tide harmonics with wavenumbers 1 and 2 reach 10 K. We found that in the Sun-fixed frame of reference, both maxima and minima are shifted from noon and from midnight to westwards, in direction of the superrotation. Comparison the fields of temperature at isobaric levels (from 60 to 95 km), altitude of upper boundary of the upper and middle clouds, the thermal zonal wind with the Magellan topography maps shows that for all cases the high correlation with the images of the structures in Ishtar, Beta Regio, Atalanta Planitia are observed. For example, it was found that temperature field near upper boundary of clouds (at 65 km) in latitude-longitude coordinates shows a good correspondence between topography (Ishtar, Beta Regio and Atalanta Planitia) and temperature perturbations with coefficient of correlation  $CC > 0.9$ . The temperature and clouds maps in comparison to the map of Magellan topography show that the perturbations are shifted by  $\sim 30^\circ$  also in the direction of superrotation. Venera-15 had geometry observations very convenient for thermal tides observation (polar orbit with pericenter near N-pole), the important results was obtained even with spatial coverage not enough. Interpretation of observed phenomena still not clear. Detailed study continues, also in comparison with VMS and VIRTIS observations for the Southern hemisphere.