Topography of the multiple coronae on Venus

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We recognize 64 multiple coronae [1,2] on the surface of Venus. Of these 46 are Type 1 and 18 Type 2 coronae (Type 1 and 2 as in [2]). We defined the topographic group of each multiple corona from the Magellan altimetry data. In about 40% of the multiple coronae (47% of Type 1 and 22% of Type 2 multiple coronae) the joined parts comprising a multiple corona belong to different topographic groups (groups as in [3]). Therefore multiple coronae were classified in such a way that each part of a multiple corona was classified separately. Three topographic groups dominate the multiple corona population: Rims with a central high, rimmed depressions and depressions without rims. Multiple coronae appear to be less often domes or plateaus than all coronae. About 16% of the multiple coronae have topographic rims with a central high. More than half of the multiple coronae are depressions typically either with or without rims. We also compared the topographic group vs. morphological class [2] for the multiple coronae. There does not seem to be any clear correlation between the topographic group and the morphological class. Class A, B and F multiple coronae [2] exhibit more varied topographic morphologies and have parts more evenly belonging to different topographic groups than coronae in other classes.

We are continuing to analyze topographic characteristics of the multiple coronae and working to understand their evolutionary histories, especially how different formation models relate to their topographic characteristics. We have also measured main topographic characteristics of the multiple coronae, such as basal altitude, maximum elevation, minimum depth, rim height etc. Some initial results of the analysis of this data will be reported.

References: [1] Stofan E.R. et al. (1992), *JGR, 97*, 13347-13378. [2] Törmänen et al. (2005) *LPS XXXVI*, #1640 [3] Stofan E.R. et al. (2001) *GRL*, 28, 4267-427.