



Results from the professional-amateur collaboration to investigate the Cloud Discontinuity phenomenon in Venus' atmosphere

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The cloud discontinuity of Venus is a planetary-scale phenomenon known to be recurrent since, at least, the 1980s. It was initially identified in images from JAXA's orbiter Akatsuki. This disruption is associated to dramatic changes in the clouds' opacity and distribution of aerosols and is interpreted as a new type of Kelvin wave. The phenomenon may constitute a critical piece for our understanding of the thermal balance and atmospheric circulation of Venus. The reappearance on the dayside middle clouds four years after its last detection with Akatsuki/IR1 is reported in this work. We characterize its main properties using exclusively near-infrared images from amateur observations for the first time. The discontinuity exhibited temporal variations in its zonal speed, orientation, length, and its effect over the clouds' albedo during the 2019/2020 eastern elongation in agreement with previous reports. Moreover, amateur observations are compared with simultaneous observations by Akatsuki UVI and LIR confirming that the discontinuity is not visible on the upper clouds' albedo or thermal emission. While its zonal speeds are faster than the background winds at the middle clouds, and slower than winds at the clouds' top, it is evidencing that this Kelvin wave might be transporting momentum up to upper clouds.