

## Venus' clouds as inferred from the phase curves acquired by IR1 and IR2 on board Akatsuki

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We present phase curves for Venus in the 1-2 micron wavelength region, acquired with IR1 and IR2 on board Akatsuki (February - March 2011). A large discrepancy with the previously-published curves was found in the small phase angle range ( $0^\circ$  -  $30^\circ$ ). Through analysis by radiative-transfer computation, it was found that the visibility of larger ( $\sim 1$  micron or larger) cloud particles was significantly higher than in the standard cloud model. Although the cause is unknown, this may be related to the recently reported increase in the abundance of  $\text{SO}_2$  in the upper atmosphere. It was also found that the cloud top is located at  $\sim 75$  km and that 1-micron particles exist above the cloud, both of these results being consistent with recent studies based on the Venus Express observations in 2006 - 2008. Further monitoring, including photometry for phase curves, polarimetry for aerosol properties, spectroscopy for  $\text{SO}_2$  abundance, and cloud opacity measurements in the near-infrared windows, is required in order to understand the mechanism of this large-scale change.

Keywords: Venus, phase curve, cloud structure, Akatsuki, IR1, IR2