

## Enormous cloud cover as seen by Akatsuki/IR2 on the night-side disk of Venus

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Night-side observations in transparency windows of CO<sub>2</sub> atmosphere of Venus allow visualizing inhomogeneous clouds in ~50 to ~60 km altitudes. The IR2 camera on board Akatsuki captured such images at 1.735, 2.26, and 2.32  $\mu\text{m}$  wavelengths. In the IR2 night-side data, an enormous cloud of greater opacity and very sharp edge in the front (western end) is seen repeatedly. This feature seems to encircle the planet with a period of ~4.5 days (Peralta).

Although interesting, property of particles in this feature was not studied before due to difficulty of photometric measurements in IR2 night-side data. This difficulty comes from a combination of the intense day crescent and extended tail of IR2 point-spread function (multiple reflection in the detector is the cause). We have developed a technique to restore the contrast of the night-side data by deconvolution so that the photometric studies can be done with IR2 night-side data.

The data acquired on 18th and 27th August 2016 are analyzed. We have performed a series of radiative transfer computations to reproduce both 1.735- and 2.26- $\mu\text{m}$  opacities in this enormous cloud. Properties of the cloud particles will be presented and possible mechanism of this remarkable phenomenon will be discussed.

Keywords: Akatsuki IR2, Venus night-side, Cloud opacity