

あかつき IR2 による金星夜面強化観測

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Initial report of an improved nightside observation by Akatsuki IR2

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The 2-micron camera named IR2 onboard Akatsuki has continuously observed the nightside of Venus with three narrow-band filters (1.735, 2.260, and 2.320 micron) since the late of March, 2016. The main roles of nightside observation by IR2 are (i) to study the dynamics in the lower atmosphere with the cloud-tracked winds, (ii) to deduce CO distribution which is thought to be a good tracer of the atmospheric circulation, and (iii) to investigate aerosol properties of the lower clouds.

Although the nightside images collected until the middle of May, 2016 show the quality enough to be used for deriving the cloud-tracked winds, they are not good enough to be used for conducting studies requiring photometric accuracy. This is due to the contamination by the stray light from the dayside of Venus and the unwanted artifacts which arise electrically when the significantly bright target is read out. To evaluate how the stray light from the dayside contaminates nightside data, 2.020-micron observation was added to the nightside observation. Non negligible count of nightside at 2.020 micron can be regarded as the stray light from the dayside because thermal radiation at this wavelength cannot escape to space due to CO₂ absorption. To reduce the unwanted artifacts, the observation scheme was changed so that the dayside of Venus is out of the detector. This improved observation scheme has been executed since the end of June, 2016.

In this presentation, we will present the initial report of this improved nightside observation.