
[EE] Evening Poster | P (Space and Planetary Sciences) | P-PS Planetary Sciences

[P-PS04]Results from Akatsuki and advances in Venus science

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Tue. May 22, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

More than two earth years in Venus orbit, Akatsuki has acquired a volume of high-quality data, unveiled many new phenomena and is allowing researchers to investigate the underlying mechanisms. As the data accumulate, numerical models and theories are being advanced as well. We are no doubt living in the new golden era of Venus studies. This session invites papers of the new scientific results with Akatsuki data and the latest results of theoretical and numerical works. We expect participants of this session share the latest research results through presentations and discussion.

[PPS04-P06]The global variation of Venus cloud observed by IR1 camera onboard AKATSUKI

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Keywords:Venus, NearInfraRed, cloud

Venus is our nearest neighbor, and has a size very similar to the Earth's. However, previous observations discovered an extremely dense (92 bar at the surface) and CO₂-rich atmosphere, with H₂SO₄ thick clouds. The Venus cloud consists of H₂SO₄ main cloud deck at 47 ~ 70 km, with thinner hazes above and below. The upper haze on Venus lies above the main cloud surrounding the planet, ranging from the top of the cloud (70 km) up to as high as 90 km.

Near infrared (0.986 μm) dayside image of Venus has taken by solid state imaging (SSI) of the Galileo spacecraft (NASA). It appears almost flat, there are some small scale features with a contrast of 3 % [Belton et al., 1991]. In Takagi et al. (2011), it may be calculated that the source of the contrast of the order of 3 % in near infrared Venus dayside image is due to variation in the cloud optical thickness. On December 7, 2015, AKATSUKI (JAXA) approached Venus and the Venus orbit insertion was successful. After the Venus orbit insertion, many 0.90 μm Venus dayside images were taken by the 1 μm near infrared camera (IR1) onboard AKATSUKI.

In this study, cloud optical thickness variation are investigated from 0.90 μm Venus dayside images taken by IR1 camera and radiative transfer calculation globally. Furthermore, we will examine Venus meteorological some change that contribute to cloud variation.