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ポスター 2 ：9/25　AM1/AM2 （9:00-12:30）

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Aerosol properties in the ”enormous cloud cover” of Venus as inferred from photometrically improved IR2 night-side data

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A very abrupt change of cloud opacity seen in the night-side disk of Venus, which we call Enormous Cloud Cover or ECC for short, was imaged by Akatsuki/IR2 and Venus Express/VIRTIS-M (Peralta et al., 2020). Similar phenomena were repeatedly recorded also by the ground-based instruments since the beginning of the night-side observations (Allen and Crawford, 1984), suggesting this phenomenon is not uncommon in the Venus atmosphere and may include essential dynamical implication. We perform radiative transfer (RT) analyses of ECC with comparison to Background Cloud (BC) to understand how aerosol properties change from BC to ECC.

To improve the photometric accuracy, needed especially for the extremely-low radiance region (ECC), an alternative method to clean the IR2 1.735- and 2.26-um data has been developed (named RSS202). The new method uses an over-exposed (12.97 s) 2.02-um image, recorded between the 2.26- and 2.32-um images, to cancel the contamination from the dayside. Acquisition of the 2.02-um image was introduced when the observing program suite was updated in June 2016 after which ECC was observed with IR2 in five occasions. The RSS202-processed data are validated against those processed with the original RSS method (Satoh et al., 2021). The correlation plot of the RSS radiance and the RSS202 radiance appears linear, indicating good consistency between two methods and the robustness of results with the data.

We will present the results of RT analyses and discuss the variation of BC-to-ECC changes for different occasions. The variability will give us clues to understand the mechanism of this prominent phenomena in the Venus clouds.