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Structure of enormous cloud cover seen in Venus' night-side by Akatsuki/IR2

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The spatial and temporal structures of "Enormous Cloud Cover" (ECC), seen in 2.26- and 1.735-μm Venus' night-side images acquired by Akatsuki/IR2, are investigated. The data were acquired on 18th and 27th August 2016 and have been processed newly-developed "Restoration by Deconvolution" (RD) method that effectively removes contaminating light spread from the intense day crescent. Spectral radiances are compared between ECC and "seemingly normal" area (BC = Background Clouds). Attenuation by ECC is stronger at 2.26 μm (~70 to 80 %) than at 1.735 μm (~50 %) due primarily to lower single-scattering albedo of cloud particles at 2.26 μm. Detailed radiative-transfer analyses suggest the followings:

A possible scenario to explain these observational characteristics, strong upwelling region near the western end (front of propagating feature), pushing H_2SO_4 vapor to condensate in high altitudes. After the region of strongest upwelling propagates away, the cloud particles gradually sediment or are pulled back by downwelling motion of atmosphere.

Details of data analysis, interpretation of phenomena with comarison to numerical simulations will be presented.