

5um spectro-imaging on the Venus dayside

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In the Venus atmosphere, the wind speed increases with height and reaches about 100 m/s at the cloud top, which corresponds to an angular velocity 60 times faster than the rotation of the planet. It is called super-rotation and its generation mechanism is unknown. To investigate atmospheric wave structures in the cloud region (50-70km), which is said to be important as the acceleration region, most studies have used the ultraviolet wavelength to image atmospheric waves at 70 km. Some studies have used the infrared wavelength and analyzed thermal emissions from the nightside to image atmospheric waves at 50 km. We performed infrared spectroscopic measurements using IRTF/CSHELL in May 2014. Our observation aimed at imaging the waves at 60 km and another altitude region simultaneously. We obtained the distributions of cloud height deviation at 60 km by quantifying carbon dioxide absorption in the 1.07um wavelength region. The distributions of cloud temperature at 70 km were also obtained from 5.04um wavelength region. In this presentation, we will show the latter results and discuss the wave structure at 70 km.

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