

Spectroscopic analysis of Venus nightside atmosphere in J-band

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We conducted near-infrared imaging spectroscopy of the night-side of Venus at Gunma Astronomical Observatory (GAO) from April, 2004. The J-band spectra show 1.27-micron O₂ IRA (0,0) airglow feature and thermal emission from the lower atmosphere. We can estimate the rotation temperature distributions at airglow layer in a similar way as we developed for OAO data in 2002. Since absorption bands of water molecules overlap 1.18-micron thermal emission, it is expected to derive amount of water in Venus atmosphere. In this study, a result of spectroscopic analysis of GAO data will be presented and we will discuss new information contained in the spectra.