

Study of the inhomogeneity in the brightness temperature of the Venusian atmosphere with Nobeyama Millimeter Array

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In this study, the results of the interferometric observations of the Venusian atmosphere with Nobeyama Millimeter Array are presented. The observations were carried out during 3 periods; April 2004, November 2005, and December 2005 with the spatial resolution of 5 arcsec in 2004, and 3 arcsec in 2005s.

At the millimeter wavelength of 2.6 mm and 2.9 mm, the continuum emission which is emitted from the Venusian atmosphere at the main cloud deck level is observed. In our observations, the nightside brightness temperature of the continuum emission was brighter than that of the dayside by 30 - 40 K. This inhomogeneity can be interpreted as the horizontal variation in the abundance of sulfur dioxide or sulfuric acid, which are the dominant absorbers at these wavelengths under the assumption that the horizontal temperature structure below the main cloud deck is quite uniform.