

## Study of the Venus Cloud Upper Haze

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Venus is covered by  $\text{H}_2\text{SO}_4$  clouds floating at 45-90 km. Despite Venus cloud is identified by previous Venus observation, there are many unknown things about Venus cloud because of small number of Venus observations. Moreover, knowledge of Venus cloud upper haze layer (70-90 km) is less than upper, middle and lower cloud remarkably because most of Venus probes observed only below the upper cloud layer (under 70km).

Solar Occultation at InfraRed(SOIR), which is a part of the spectroscopy on board Venus Express, is designed to measure at high resolution the atmospheric transmission in the IR (2.2-4.3  $\mu\text{m}$ ) using solar occultations. SOIR observe Venus atmosphere and cloud existed at high altitude (60-220 km), any latitude and longitude. In this study, analysis of SOIR data obtained between 2006 and 2009 is performed to obtain knowledge of Venus cloud upper haze layer.

Vertical distribution of upper haze extinction and mixing ratio are derived from SOIR data. Mixing ratio increases at above 90 km at both high and low latitude. It shows that haze creation is more dominant than vertical eddy diffusion at above 90 km. From comparison of this study and mixing ratio vertical distribution of  $\text{SO}/\text{SO}_2$ , it is speculated that sulfide is contained in haze. At high latitude, mixing ratio is constant at 70-90 km. It shows that vertical eddy diffusion is more dominant than haze creation at 70-90 km. At low latitude, mixing ratio increases at 70-90 km. It shows that haze creation is more dominant than vertical eddy diffusion at 70-90 km. From comparison of this study and latitude distribution of  $\text{SO}_2$ , it is speculated that sulfide is contained in haze.