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K-band spectro-imaging beneath Venusian clouds : latitudinal abundance variations of CO and OCS

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Although the Venusian lower atmosphere is optically unreachable from Earth, near IR spectro-imagery provides a powerful way to study it : night-side thermal emission is strong in the K-window, where the CO_2 opacity is weak enough for other consituents to be detected. We have observed at IRTF, Hawaii using the SpeX spectro-imager in the $2.1 - 2.5\ \mu\mathrm{m}$ range, during Venusian quadratures in Feb. 2003 and in Aug. 2004.

Our first results are abundance profiles estimates for CO and OCS as a function of latitude at several different longitudes. Whenever the S/N ratio is good enough, there appears an anti-correlation is observed between the latitudinal abundances of CO and OCS. Such an anti-correlation is expected on the basis of thermodynamical models of the Venus atmosphere.

The methods we have developped can be used for other constituents such as water vapour, provided the acquired spectra have an outstanding S/N ratio. The VIRTIS spectro-imager of the *Venus Express* mission may enable us to improve dramatically our results.