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## Minor species measurements below the clouds of Venus using VIRTIS-H/Venus Express data set.

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From 2006 to 2014, the ESA *Venus Express* orbiter has provided a wealth of data that has not been fully analyzed yet. Here, using all available and suitable night side thermal spectra provided by the -H channel of the VIRTIS spectral imaging suite near 2.3  $\mu\text{m}$ , we constrained the vertical profiles of various trace gases (CO, OCS, H<sub>2</sub>O or HDO, SO<sub>2</sub>) below the clouds in the 30-40 km altitude range. With the help of an updated version of the radiative transfer model used in our first study [Marcq et al., 2008], our preliminary results confirm previously reported findings [Marcq et al., 2008; Tsang et al., 2009; Arney et al., 2014], especially the latitudinal anti-correlation of CO and OCS. Such reanalyses of past data sets are relevant more than ever, since they provide background truth for designing future instruments on board recently selected missions towards Venus, such as the high-resolution IR spectrometer VenSpec-H onboard ESA's *EnVision*.

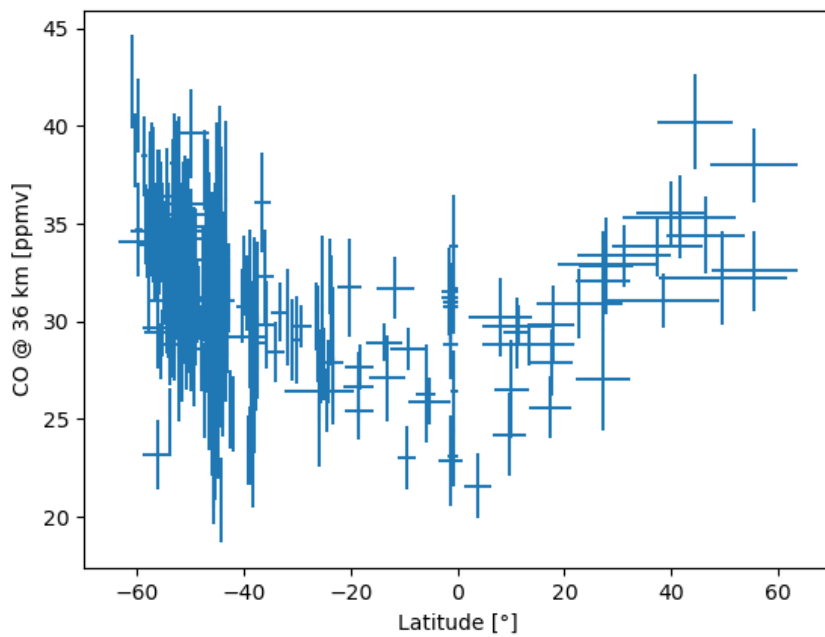
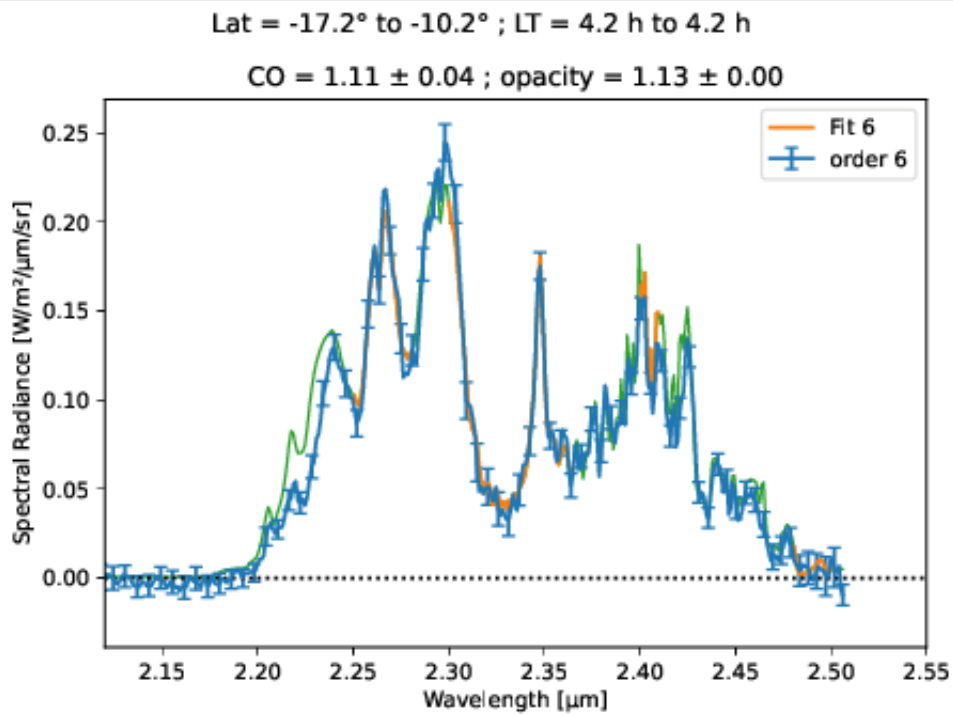


Figure 1 (left): Best CO and cloud opacity fit of a VIRTIS-H (order 6) spectrum acquired during orbit #277

Figure 2 (right) : Retrieved CO abundances (with 1 $\sigma$  error bars) near 36 km with respect to latitude.