



## Long-term monitoring SO<sub>2</sub> above the clouds of Venus using SPICAV-UV in nadir mode

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Sulphur dioxide (SO<sub>2</sub>) has been measured at the cloud top level of Venus ( $\approx 72$  km) since the 1980s, and long-term variability has been observed: a decrease in observable column density during the 1980s and up to the early 1990s, when SO<sub>2</sub> column density fell below the detection threshold in the UV. Esposito et al. (1988) have interpreted this as an evidence for a recent massive injection of SO<sub>2</sub> due to some volcanic activity. Another possible interpretation is that observable SO<sub>2</sub> column density is controlled by the convective activity within and above the clouds, the reservoir of SO<sub>2</sub> being the lower atmosphere instead of volcanic out-gassing.

A renewal of interest regarding SO<sub>2</sub> is undergoing thanks to the success of the *Venus Express* mission operating since 2006 which enables a long-term study of SO<sub>2</sub> above the clouds, mainly thanks to the SPICAV-SOIR instrument. UV nadir data have been recently processed by Marcq et al. (2011) and showed that SO<sub>2</sub> was detectable once again above the clouds of Venus, with some indication that an enrichment event happened during early 2007. Using the same methodology, we will present measurements of observable SO<sub>2</sub> column density during more recent orbits. Such a monitoring for several years with a yet unprecedented spatial and temporal sampling using SPICAV in conjunction with other instrumental data (both Earth and space-based) could help in a better understanding of the process actually responsible for this spatial and temporal variability.

### Bibliography

- L. W. Esposito et al., Sulphur dioxide at Venus cloud tops 1978-1986, *Journ. of Geophys. Res.*, 93 (1988)
- E. Marcq et al., An investigation of the SO<sub>2</sub> content of the Venusian atmosphere using SPICAV-UV in nadir mode, *Icarus*, *under press* (2011)