

## **Large-scale variability of ozone in the stratosphere**

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Information about natural ozone variability is mandatory for retrievals from remote sensing (satellite) instruments that use a priori information in the context of Bayesian statistical optimization. It defines the a priori covariance matrix  $S_a$ . Information about natural variability of ozone is especially important for ozone profile retrievals from nadir-looking instruments and for characterization of uncertainties due to non-uniform spatio-temporal sampling.

The variability of the ozone field depends on the scale at which the phenomenon is considered. This work is dedicated to ozone variability within a month and in  $10^\circ$  latitude zones, which we refer to as large-scale variability (or climatological variability).

We use ozone profiles from MIPAS (Michelson Interferometer for Passive Atmospheric Sounding) and MLS (Microwave Limb Sounder) for detecting the spatio-temporal large-scale ozone variability. Realistic data uncertainty estimates and dense sampling allow accurate estimates of the natural ozone variability. We compare our results with previous estimates of climatological ozone variability and study its evolution with time vs the evolution of ozone itself (trends).