

## **Analyses of Ozone Variability in the Stratosphere using GOMOS Measurements**

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The information about variability of ozone field is important for validation, data assimilation and in multi-instrument data analyses. High accuracy of GOMOS ozone measurements and realistic error estimates of the retrieved profiles allow studying small-scale variability of ozone field using measurements in close temporal and spatial coincidence.

Since the launch of Envisat, a substantial amount of such closely collocated GOMOS measurements has been identified. They have allowed probing high latitudes in winter (in both hemispheres), Southern Hemisphere (SH) mid-latitudes in local winter, and tropics in spring/autumn.

We characterized the variability of the ozone field by the structure function (describing the rms of ozone difference as a function of separation distance) estimated for different altitudes in the interval 20-50 km. We have found that ozone variations for separations up to  $\Sigma$ 300 km are nearly isotropic in latitudinal and longitudinal directions. The rms ozone difference in two points grows from ~2-3% to 4-6% as separation distance increases from 30 km to 300 km. Among the considered locations and seasons, the ozone variability is found to be the largest at SH high latitudes in winter. For polar winter locations in both hemispheres, an increase of ozone variability with altitude is observed, while the dependence is opposite for locations in tropic and at SH mid-latitudes.