Multiyear observations of the middle atmosphere by the GOMOS and OSIRIS instruments

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We present observations of the middle atmosphere from the OSIRIS/Odin and GOMOS/Envisat instruments. Both instruments measure the vertical structure of the atmosphere for chemical species such as O_3 and NO_2 and achieve global coverage. We have already obtained almost a decade of measurements and over one million atmospheric profiles.

GOMOS (Global Ozone Monitoring by Occultation of Stars) is a stellar occultation instrument with superior vertical resolution and high accuracy/precision during night observations. The stellar occultation method offers several advantages such as accurate pointing and self-calibration. The GOMOS inversion problem is also relatively straightforward to solve.

OSIRIS (Optical Spectrometer and Infrared Imaging System) measures limb scattered UV-visible sunlight during daytime and features good signal to noise ratio. On the other hand, the modelling of the multiple scattering of photons is a challenging task.

These two totally different measurement methods are able to provide e.g. highly consistent ozone measurements. Thus, the instruments may contribute to the long time series of high resolution ozone profile measurements started earlier, for example, with the SAGE instruments.