

## GOME reflectivity and polarisation validation study

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During the GOME validation campaign, which took place from mid-1995 until mid-1996, we have been studying the quality of the GOME measurements of the Earth's reflectivity (i.e. Earth radiance/solar irradiance) and polarisation. Thereto, we performed consistency checks on the GOME level 1 data and compared these data with radiative transfer model results.

The polarisation validation of GOME is important, because the accuracy of radiance measurements by GOME depends on the correction for the (strong) polarisation-sensitivity of the instrument. The three Polarisation Measurement Devices (PMDs) in combination with spectral channels 2-4 of GOME yield the so-called fractional polarisation in three broad bands. This quantity has been validated by comparison with polarised radiative transfer calculations and by considering the data at special geometries along the orbit.

It has been found that the fractional polarisation measurements of the PMDs are generally consistent and accurate to within a few percent. The additional measurements of fractional polarisation in the channel-overlap regions are strongly deviating, due to the serial read-out of the spectral channel detectors. This serial read-out causes a shifted scene across a spectral channel. In the measured reflectivity spectra often jumps from channel-to-channel are observed, which are also caused by the serial read-out. Reflectivity jumps are especially occurring over inhomogeneous (e.g. partially cloudy) scenes.

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