

Spectral properties of clouds studied with GOME

P. Stammes and R.B.A. Koelemeijer Royal Netherlands Meteorological Institute (KNMI) Postbus 201, 3730 AE De Bilt, The Netherlands stammes@knmi.nl The Global Ozone Monitoring Experiment (GOME) is an absolutely calibrated nadir-viewing spectrometer which observes the spectra of Earth and Sun from 240 to 790 nm with a spectral resolution of 0.2 to 0.4 nm. In addition to its spectroscopic capability, GOME also has a limited polarisation measuring capability by means of so-called Polarisation Measurement Devices (PMDs) in three broad bands centered at 355, 490, and 700 nm. We perform imaging of the Earth by means of these PMDs, especially to select cloudy or cloudfree scenes for which spectra are to be analysed. GOME has been designed to measure atmospheric trace gases and aerosols, but it also yields new spectral information on clouds. One example is the oxygen A-band around 760 nm, which is indicative of cloud top pressure. The oxygen A-band is used in the GOME data processing to derive the cloud cover fraction. In the GOME validation phase we validated the GOME cloud cover fraction by comparison with Meteosat imaging data over Western Europe. Another spectral quantity relevant for clouds is the reflectivity at continuum wavelengths for deriving spectral cloud optical thickness. First results of the GOME measurements of clouds will be shown and compared to spectral radiative transfer calculations. Keywords: GOME, clouds, validation, oxygen A-band, cloud top pressure