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# Drift-corrected Trends and Periodic Variations in MIPAS IMK/IAA Ozone Measurements

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MIPAS was a limb emission mid-infrared spectrometer that was measuring temperature and atmospheric constituent profiles from June 2002 to April 2012. Drifts, trends and periodic variations were calculated from monthly zonally averaged ozone profiles. The ozone profiles, among those of many other species, were derived from level-1b data of the Michelson Interferometer for Passive Atmospheric Sounding (MIPAS) by means of the scientific level-2 processor run by Karlsruhe Institute of Technology (KIT), Institute for Meteorlogy and Climate Research (IMK). All trend and drift analyses were performed using a parametric trend model which includes a linear term, the annual and semi-annual oscillation as well as several subharmonics and the quasi-biennial oscillation (QBO). Drifts at 2-sigma significance level were mainly negative for ozone relative to Aura/MLS and Odin OSIRIS and negative or near zero for most of the comparisons to Lidar measurements. Lidar stations used here include those at Hohenpeissenberg (47.8°N, 11.0°E), Lauder (45.0°S, 169.7°E), Mauna Loa (19.5°N, 155.6°W), Observatoire Haute Provence (43.9°N, 5.7°E) and Table Mountain (34.4°N, 117.7°W). Drifts against ACE-FTS were found to be mostly nonsignificant. Determining these drifts is an important step on the way of providing a solid basis for the results of the trend analysis. From the drift analyses we derive that the ozone trends might be slighly more positive/less negative in reality than those calculated from the MIPAS data, by conceding the possibility of MIPAS having a very small (approx. within -0.3 ppmv/dec) negative drift for ozone. These findings lead to predominantly near zero or slightly positive ozone trends for the time period covered by MIPAS Envisat measurements which is in good agreement with recent literature. Results for the amplitudes of the QBO, AO, and SAO and their latitude/altitude dependence are also in very good agreement with recent literature.