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Assimilated total ozone record from 30 year of UV-VIS satellite observations

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For the period 1978-2008 an ozone record is created by assimilating all available total ozone observations from 11 different UV/VIS satellite instruments (TOMS-Nimbus, TOMS-EP, SBUV-7, -9a, -9d, -11, -16, GOME, SCIAMACHY, OMI and GOME-2). These ozone observations are based on the latest and most accurate versions of the retrieval algorithms for these instruments. Using all available ground measurements from WOUDC in the period 1978-2008, the satellite observations are corrected for biases as
function of solar zenith angle, viewing angle, time(trend), and stratospheric temperature. Subsequently the corrected satellite data is assimilated within the chemistry-transport model TM driven by state-of-the-art meteorological analyses. This resulted in a multi-sensor re-analysis (MSR) of global ozone for the period 1978-2008 in time steps of 6 hours. The MSR data set is checked by monitoring observation-minus-forecast differences from the data assimilation and by
comparisons with ground-based data sets.