



13 years time series of stratospheric and mesospheric ozone profiles measured by the NDACC microwave radiometer SOMORA over Switzerland: comparison to radiosonde and MLS/AURA satellite ozone profiles.

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The microwave radiometer SOMORA measures ozone volume mixing ratio in the stratosphere and lower mesosphere since January 2000 with a time resolution of 30 min. The ozone vertical distribution is calculated from the measurement of the rotational emission line of ozone at 142.17 GHz. Ozone profiles are retrieved using ARTS/Qpack, a general environment for radiative transfer simulation and retrieval of ozone profiles based on the optimal estimation method (OEM) of Rodgers. SOMORA is an instrument of the NDACC. The measurement time series has been influenced by the upgrade from an acousto optical spectrometer (AOS) setup to a digital FFT spectrometer setup in 2010. The ozone profiles dataset measured by the AOS (2000-2010) and FFT spectrometer (since 2010) is then homogenized using one year parallel measurements by adding an altitude dependent offset to the AOS ozone profiles. The ozone profiles measured by AOS show a slightly better vertical resolution above 55 km than the ozone profiles measured by FFT due to the higher spectral resolution. The homogenized 13 years SOMORA time series has been validated against Payerne radiosonde (RS) ozone profiles, GROMOS microwave radiometer ozone profiles of Bern, another NDACC instrument, and MLS/AURA satellite simultaneous ozone profiles, and the results will be shown. For the whole period of respective common measurements, SOMORA ozone profiles are within 5% of Payerne RS, 15% of GROMOS and 10% of MLS ozone profiles.