



Ozone sondes (WOUDC) - comparison between ECHAM5-MOZ simulations and measurements

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We analyse the seasonal cycle and the variability of the ozone concentration profiles in the ozone sonde measurements and an ECHAM5-MOZ simulation. This model is based on the chemistry scheme of MOZART2.4 and the global circulation model ECHAM5. The analysis uses the monthly mean profiles derived from the measurements at selected sites and the corresponding simulation results. These sites are expected to provide sufficiently large sample sizes. We chose the model time steps at which the profiles are extracted as close as possible to the reported time of the measurements. A statistical analysis is performed. The measured ozone concentration shows a statistical spread that strongly depends on location, season, and height. At most of the stations, the distribution of the ozone concentration within a sample is not a normal distribution in particular at heights and seasons when the spread is high. This is true even if the sample size exceeds 10. The seasonal variations in the statistical spread and its dependence on height are generally reproduced by the simulation.