



The SPARC water vapour assessment II: Profile-to-profile comparisons of stratospheric and lower mesospheric water vapour data sets obtained from satellite

Stefan Lossow, Michael Kiefer, Gabriele Stiller, and the WAVAS-II team

Karlsruhe Institute of Technology, Institute for Meteorology and Climate Research, Leopoldshafen, Germany
(stefan.lossow@kit.edu)

Within the framework of the second SPARC (Stratosphere-troposphere Processes And their Role in Climate) water vapour assessment (WAVAS-II), profile-to-profile comparisons among 33 data sets of stratospheric and lower mesospheric water vapour were performed. These were derived from observations from 15 different satellite instruments: ACE-FTS (Atmospheric Chemistry Experiment - Fourier Transform Spectrometer), GOMOS (Global Ozone Monitoring by Occultation of Stars), HALOE (Halogen Occultation Experiment), HIRDLS (High Resolution Dynamics Limb Sounder), ILAS-II (Improved Limb Atmospheric Spectrometer-II), MAESTRO (Measurements of Aerosol Extinction in the Stratosphere and Troposphere Retrieved by Occultation), MIPAS (Michelson Interferometer for Passive Atmospheric Sounding), MLS (Microwave Limb Sounder), POAM III (Polar Ozone and Aerosol Measurement III), SAGE II (Stratospheric Aerosol and Gas Experiment II), SAGE III (Stratospheric Aerosol and Gas Experiment III), SCIAMACHY (Scanning Imaging Absorption Spectrometer for Atmospheric Chartography), SMILES (Superconducting Submillimeter-Wave Limb-Emission Sounder), SMR (Sub-Millimetre Radiometer) and SOFIE (Solar Occultation for Ice Experiment).

Here we present the typical biases and drifts derived from these comparisons to draw a characteristic picture of the uncertainties in the observational database of water vapour.