SPARC Water Vapor Assessment: Evolution and variability of water isotopologues in the tropopause region and stratosphere derived from satellite measurements

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The evolution and variability of water vapour in the tropical tropopause region and stratosphere is analyzed using "historical" (SAGE-II, UARS/HALOE) and "recent" (Odin/SMR, ENVISAT/MIPAS, ACE/FTS, Aura/MLS) satellite measurements along with Boulder frost-point hygrometer balloon data for the mid-latitude lower stratosphere. In addition, time-series of the water isotopologues HDO, H2O-17, and H2O-18, observed by Odin/SMR and ACE/FTS since 2001 and 2003, have been evaluated with regard to their sensitivity to changes of the tropical tropopause temperature.