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Homogenization of SSM/T2 and AMSUB upper tropospheric humidity data sets.

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Water vapour in the upper troposphere has a dominating role in the Earth's radiative budget. The water vapour content in the upper troposphere is described by the upper tropospheric humidity (UTH). Satellite borne instruments using the microwave range measure UTH with global coverage, both, with good horizontal and temporal resolution. Since 1994 microwave radiometers using the 183.3 GHz water vapour line are operated on meteorological satellites. From 1994 to 2005 the SSM/T2 instruments were operated on board different DMSP satellites. From 1999 to present AMSU-B and its successor, MHS are operated on board the NOAA-series. Differences in the instrumental design and individual calibration lead to certain differences in the results of the individual instruments. The differences are assessed and analyzed. Goal is a consistent and well described time series of UTH datasets from complementary satellite-borne microwave instruments covering a time range of 16 years.