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27 years of Brewer total ozone column measurements in Sodankylä

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Brewer total ozone column measurements started in Sodankylä in May 1988, 9 months after the signing of The Montreal Protocol. The Brewer instrument has been well maintained and frequently calibrated since then to produce a high quality ozone time series now spanning over 27 years. The data have now been uniformly reprocessed between 1988 and 2015. The quality of the data has been assured by automatic data rejection rules as well as by manual checking.

In this work the time series goes through an advanced statistical analysis. The trends over the time series are assessed as well as the sensitivity of total ozone column to different proxies related to ozone transport, chemical loss and meteorological variability. Such proxies include for example tropopause altitude, poleward heat flux and polar stratospheric cloud volume. To see the possible differences in results, similar analysis is done to Brewer time series processed in the new EUBREWnet database and to satellite based measurements.