



Large scale variability, long-term trends and extreme events in total ozone over the northern mid-latitudes based on satellite time series

H.E Rieder (1,*), J. Staehelin (1), J.A. Maeder (1), M. Ribatet (2), and A.C. Davison (2)

(1) Institute for Atmospheric and Climate Science, ETH Zurich, Zurich, Switzerland, (2) Institute of Mathematics, EPF Lausanne, Lausanne, Switzerland, (*) contact: harald.rieder@env.ethz.ch

Various generations of satellites (e.g. TOMS, GOME, OMI) made spatial datasets of column ozone available to the scientific community. This study has a special focus on column ozone over the northern mid-latitudes. Tools from geostatistics and extreme value theory are applied to analyze variability, long-term trends and frequency distributions of extreme events in total ozone. In a recent case study (Rieder et al., 2009) new tools from extreme value theory (Coles, 2001; Ribatet, 2007) have been applied to the world's longest total ozone record from Arosa, Switzerland (e.g. Staehelin 1998a,b), in order to describe extreme events in low and high total ozone. Within the current study this analysis is extended to satellite datasets for the northern mid-latitudes. Further special emphasis is given on patterns and spatial correlations and the influence of changes in atmospheric dynamics (e.g. tropospheric and lower stratospheric pressure systems) on column ozone.

References:

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