

File Revision Date:

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Data Set Description:

PI: Prof. Justus Notholt (Prof. Klaus Kuenzi)
Instrument: Millimeter wave radiometer
Site(s): Ny-Aalesund
Measurement Quantities: Chlorine Monoxide (ClO)

Contact Information:

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Reference Articles:

No reviewed paper on the instrument exists (yet).
But there are a number of conference contributions, e.g.

U. Raffalski, K.Kuenzi, J.Langer, G.Schwaab, B. M. Sinnhuber, M. "Millimeter Wave Observations of Ozone and Chlorine Monoxide at Ny-Aalesund/Spitsbergen from 1993-1995", Abstracts, International Conference on Ozone in the Lower Stratosphere, Halkidiki, 1995

U. Raffalski, U. Klein, K.Kuenzi, J.Langer, G.Schwaab, B. M. Sinnhuber, M. P. Chipperfield, "Stratospheric Ozone and Chlorine Monoxide and Tropospheric Water Vapor measured at the Arctic NDSC Station Ny-Aalesund, Spitsbergen, 1994-1996", Abstracts, Quadrennial Ozone Symposium, L'Aquila, 1996

Preprints of papers on the instrument and ozone and ClO measurements at the Quadrennial Ozone Symposium are available at request.

(Apr 1999): A more recent list can be found in kk-ozone.txt

Instrument Description:

The Radiometer for Atmospheric Measurements (RAM) is a ground-based millimeter wave radiometer for measurements of stratospheric ozone and chlorine monoxide. It was designed and built at the University of Bremen. Ozone is measured at 142 GHz, ClO at 204 GHz. An acousto optical spectrometer with 2048 channels at a bandwidth of 950 MHz is used as the spectrometer backend.

[To be continued...]

Algorithm Description:

The spectra have been integrated for 12 hours for day and night spectra, respectively. Assuming the night CIO to disappear during night we subtracted night from day spectra. The difference spectrum has been inverted.

For profile retrieval the optimal estimation method is used with an a priori covariance of 1 ppb diagonal and a diagonal measurement error covariance.

Expected Precision/Accuracy of Instrument:

Still under investigation.

Instrument History:

(dates and description of significant changes in instrument or algorithm)

The radiometer was used on two campaigns in late winter/spring 1993 and 1994 and is operated continuously since fall of 1994.

February 1995:	Polarizer included, which reduced the spectral baseline significantly.
December 1995:	Filter included, further reduction of baseline.
March 2005:	Measurements discontinued