File Revision Date:
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Data Set Description:

PI:	Roland Neuber
Instrument:	Stratospheric Ozon Differential Lidar
Site(s):	Koldewey station, Ny-Alesund

Measurement Quantities: ozon concentration profiles

Contact Information:

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Reference Articles:

Krüger, B.C., R. Neuber, S. El Naggar, H. Walther, Measurements of ozone profiles by a LIDAR method during the arctic winter and spring 1988, in: R.D. Bojkov, P. Fabian, edts, Ozone in the Atmosphere, A. Deepak, Hampton, 1989

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Heese, B., Investigations of contributions by chemical and dynamical processes to the variability of stratospheric ozone above the Arctic, PhD thesis, Ber. Polarforsch. 196, 1996

Neuber, R., P. von der Gathen, O. Schrems, The Multiwavelength Lidar Facility at Spitsbergen: Nine years observations of stratospheric aerosols and ozone, Abstract for a science contribution at the NDSC Steering Committee Meeting 1997, Koldewey-Station, Ny-Ålesund/Spitsbergen, 24.-28. Aug. 1997

Neuber, R., NINE YEARS OF POLAR OZONE AND AEROSOL OBSERVATIONS AT THE GERMAN ARCTIC STATION (SPITSBERGEN), in: H. Wold et al., edts., Proceedings of the 24th Annual European Meeting on Atmospheric Studies by Optical Methods, Andenes/Norway, (ISBN 82-994583-0-7), 1997

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Steinbrecht, W., M. R. Gross, T. J. McGee, R. Neuber, P. von der Gathen, P. Wahl, U. Klein, and J. Langer, Results of the 1998 Ny-Ålesund Ozone Measurements Intercomparison NAOMI, accepted J. Geophys. Res., 1998

Instrument Description:

Location:
Ny-Alesund, Spitsbergen, 78.92°N, 11.93°E, 10 m asl

until fall 1994 in a 20ft container
since fall 1994 in a dedicated NDSC observatory
see http://www.awi-potsdam.de/www-pot/koldewey/kolndscgeb.html

Transmitter:

until 1994:
Lambda Physik EMG 150 TMSC Excimer laser
353 nm (150 mJ) (stimulated Raman scattering in H2)
30 Hz pulse repetition frequency

since 1994:
Lambda Physik LPX 250T Excimer laser
353 nm (50-100 mJ) (stimulated Raman scattering in H2)
90 Hz pulse repetition frequency

Receiver:

60 cm diameter Newtonian type telescope, mechanical chopper,
elastic backscattering : 308, 353 nm
inelastic backscattering : 332, 385 nm
filter bandwidth:
5 nm

Detectors:

EMI 9893Q / 9863QA	(UV & VIS)
	until 1994 w/o preamplifier,
	since 1994 w. preamplifier

Signal and data processing:

until 1994: dedicated Dual Multi Channel Counter (DMCC) for UV & VIS
since 1994:
EG&G TurboMCS Multi channel scaler (photon counting)

Algorithm Description:
Algorith intercomparison: see Godin et al.

Expected Precision/Accuracy of Instrument:
Precision:

at 15 to 30 km altitude	: 1 - 4 %
at 30 to 40 km altitude	: 4 - 30 %
above 40 km altitude	: > 50 %

Instrument History:
NDSC qualification since 1991.
NDSC data submission since 1991.
NDSC on site intercomparison w. GSFC mobile O3 lidar: Jan./Feb. 1998

Measurement periods

winter 1988/1989	:	5 Jan 1989	-	26 Apr 1989
winter 1989/1990	:	19 Jan 1990	-	11 Mar 1990
winter 1990/1991	:	3 Jan 1991	-	17 Mar 1991
winter 1991/1992	:	13 Nov 1991	-	27 Mar 1992
winter 1992/1993	:	1 Dec 1992	-	1 Mar 1993
winter 1993/1994	:	5 Oct 1993	-	6 Apr 1994
winter 1994/1995	:	9 Jan 1995	-	5 Apr 1995
winter 1995/1996	:	1 Nov 1995	-	19 Mar 1996
winter 1996/1997	:	3 Jan 1997	-	6 Mar 1997
winter 1997/1998	:	24 Aug 1997	-	21 May 1998
winter 1998/1999	:	18 Oct 1998	-	30 May 1999

Detection channels

winter 1988/1989	:	308 & 353 nm
winter 1989/1990	:	308 & 353 nm
winter 1990/1991	:	308 & 353 nm
winter 1991/1992	:	308 & 353 nm
winter 1992/1993	:	308 & 353 nm
winter 1993/1994	:	308 & 353, 332 & 385 nm
winter 1994/1995	:	308 & 353, 332 & 385 nm
winter 1995/1996	:	308 & 353, 332 & 385 nm
winter 1996/1997	:	308 & 353, 385 nm
winter 1997/1998	:	308 & 353, 385 nm
winter 1998/1999	:	308 & 353 nm