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Data Set Description:
PI: Osamu Uchino, W. Andrew Matthews
Instrument: Lidar
Site(s): NIWA Lauder, New Zealand
Measurement Quantities: Aerosol Backscatter

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Reference Articles:
R. L. McKenzie, J.M. Roson, N.T. Kjome, T.J. McGee, M.R. Gross, U.N. Singh, R.F. Ferrare, P. Kimvilakani, O. Uchino and T.Nagai: Multi-wavelength profiles of aerosol backscatter over Lauder, New Zealand, 24 November 1992. Geophys. Res. Lett., 21, 789-792, 1994.

O. Uchino: Global lidar monitoring of the Pinatubo volcanic aerosols and their effects on climate, Abstracts of papers of 17th International Laser Rader Conference, 381-384, 1994.

O. Uchino, T. Nagai, T. Fujimoto, W.A. Matthews and J. Orange: Extensive lidar observations of the Pinatubo aerosol layers at Tsukuba (36.1N), Naha (26.2N), Japan and Lauder (45.0S), New Zealand. Geophys. Res. Lett., 22, 57-60, 1995.

W. Steinbrecht, H. Jager, A. Adriani, G. di Donfrancesco, J. Barnes, G. Beyerle, R. Neuber, C. David, S. Godin, D. Donovan, A. I. Carswell, M. Gross, T. McGee,F. Masci, A. D'Altorio, V. Rizi, G. Visconti, I. S. McDermid, G. Megie, A. Mielke, B. Stein, C. Wedekind, T. Nagai, O. Uchino, H. Nakane, M. Osborn and D. Winker: NDSC Intercomparison of Stratospheric Aerosol Processing Algorithms, Advances in Atmospheric Remote Sensing with Lidar, 501-504, 1997.

Instrument Description:

Location:

National Institute of Water and Atmospheric Research
Lauder, Central Otago, New Zealand
45.03 S, 169.68 E, elevation 370 msl;

Transmitter:

Continuum Surelite Nd:YAG laser; 532 nm, 150 mJ, 10 Hz

Receiver:

25.4 cm diameter Schmidt Cassegrain Telescope
bandwidth 3 nm

Detectors:

Hamamatsu R1332 photon counting PMT
depolarization capable

Signal and data processing:

1-channel photon counter (100 MHz, 16 Kbins, 16 bit).

Algorithm Description:

The calculation is a single pass calculation (Fernald et al, 1972) which uses a Rayleigh normalization at reference altitude of around 30 km to 35 km. The atmospheric density comes from Invercargil radiosonde and US standard atmosphere.

Algorith intercomparison: see Steinbrecht et al.

Expected Precision/Accuracy of Instrument:

Accuracy:

Instrument History:

The instrument built in November 1992.