

Suggested CODIAC data set name

ACE-1: Macquarie Island PRELIMINARY Particle Concentration,
diameter > 3 nm (N/cm³) (ASCII)

Description of data

FILE START TIME (UTC) = MMDDHHMMSS=1121113611
FILE STOP TIME (UTC) = 1212080536
PI NAME = S. KREIDENWEIS, F. BRECHTEL
FACILITY = MAC = Macquarie Island Station, Tasmania
DATA VERSION = 1.0 preliminary
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DIRECT READING PARTICLE COUNTER DATA, PARTICLE NUMBER CONCENTRATION

This is data of particle number concentration collected at Macquarie Island Station from a 4.6 m inlet attached to the meteorological sampling mast of the station. The instruments were operated in the clean air laboratory of the station at ca. 20°C and ambient pressure. The sample was drawn through the 4.6 m inlet which consisted of ca. 7.6 m of 1.2 cm ID conductive tubing at a flow rate of 20 L/min. Ca. 2 m of 1.2 cm ID stainless steel tubing with a flow rate of 20 L/min carried the sample flow from the conductive tubing to within 10 cm of the counter inlet. A ca. 10 cm long, 0.5 cm ID stainless steel tube with flow rate of 1.5 L/min was used to carry the aerosol sample into the counter. The data are reported in units of number of particles per cubic centimeter @ 20°C and ambient pressure.

$n(>3\text{nm})$ is the concentration greater than nominal 3 nm diameter measured by model 3025a UCPC; TSI inc., St. Paul, MN., operated at a total flow 1.5 L/min and aerosol sample flow of 0.03 L/min.

The particle counts have been integrated over 1 minute intervals (ending at the stamped UTC time).

The first column is reported as UTC Day of Year 1995 and the second column is $n>3\text{nm}$. The first line of the data file contains the total number of data file lines. The data may be read with the Fortran format statement '(F10.6,3x,E10.4)'.

Flow calibration of the instrument was checked (and adjusted as needed) daily with a bubble flowmeter with an accuracy of +/- 2%. Day to day drift was always less than 5%. The instrument was calibrated at the UW/PMEL ACE1 CPC workshop in Seattle, WA, August 1995. The data from this workshop will be included in the NCAR, ACE1 data set. The instrument required in-field re-calibration due to sample flow drift around Julian Date (UTC) 339.942 producing a small, but noticeable offset between this and the Model 3010 particle concentration data.

This record has not been edited for baseline, local contamination or other meteorological conditions but calibration times and other non-valid, non-atmospheric data have been removed by the PI's. This results in a non-continuous time record which would need to be accounted for during any averaging procedure.

Please contact the PI's for proper acknowledgement before using this data for publication.