
Dataset name: iCUPE Dataset (DS) from Deliverable 1.3.2:

DS on vertical profiles of equivalent black carbon in the Arctic boundary layer at Ny-Ålesund, Svalbard

Author(s) and affiliations: Mauro Mazzola¹, David Cappelletti², Vito Vitale¹

¹ Institute of Polar Science - National Research Council of Italy (CNR-ISP) - Via Gobetti 101, 40129, Bologna, Italy

² Dipartimento di Chimica, Biologia e Biotecnologie, Università di Perugia, 06123 Perugia, Italy

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Vito Vitale

CNR-ISP, Institute of Polar Sciences, National Research Council of Italy, Bologna branch, Via Gobetti 101, 40129, Bologna, Italy

E-mail: vito.vitale@cnr.it

Phone: +39 051 6399595 - cell. +39 348 4086782

The produced dataset (ASCII-format) contains vertical profiles of aerosol and meteorological parameters in the Arctic boundary layer at Ny-Ålesund (Svalbard Archipelago) during spring 2016.

Vertical profiles were collected with a tethered balloon system equipped with a custom instrumented payload (Mazzola et al., 2016) at the Gruvebadet observatory (78.918° N, 11.895° E; 61 m above sea level), which is located 800 m south-west of the Ny-Ålesund research village.

Dataset includes 35 vertical profiles carried out during the period from 4th to 25th April 2016. The values are recorded as averaged values on a vertical grid of 50 meters, and are organized in files where the values for a specific parameter are provided for all 35 profiles.

Parameters provided include the following:

equivalent Black Carbon concentration	(BC_single_ave.txt)	unit	ng/m ³
atmospheric temperature	(t_single_ave.txt)	unit	°K
atmospheric potential temperature	(pott_single_ave_txt)	unit	°K
atmospheric relative humidity	(rh_single_ave_txt)	unit	%
atmospheric wind speed	(ws_single_ave.txt)	unit	m/sec
atmospheric pressure	(p_single_ave.txt)	unit	KPa

All files have the same header and column structure. In each file, the first row includes the header. The header has: date, time, height, field, nval, stdev.

column 1 – date – Date (AAAA-MM-DD)

column 2 – time – Time (HH:MM:SS) in CET

column 3 – height – middle height of the layer (m)

column 4 – field – 50 m layer average of measured parameter (see above file name & units)

column 5 – nval – number of values determining the 50 m layer average

column 6 – stdev – standard deviation

where: AAAA – year, MM – month, DD – day
 HH – hour, MM – minute, SS - second
 CET– Central European Time

Note, all columns are separated by tabulator (tabs), and an empty row separates one profile from another.

The dataset is accessible at:

<https://doi.org/10.5281/zenodo.3978254>

References:

Mazzola M., Busetto M., Ferrero L., Viola A.P., Cappelletti D. (2016), AGAP: an atmospheric gondola for aerosol profiling, Rend. Fis. Acc. Lincei (2016) 27 (Suppl 1):S105–S113 DOI 10.1007/s12210-016-0514-x