

Arctic Ocean 2016 - Meteorological and Aerosol Data

SND-ID: ecds0232-1. **Version:** 1.0. **DOI:** <https://doi.org/10.5879/zt6n-1x47>

Is part of collection at SND: [Arctic Ocean 2016](#), [Icebreaker Oden](#)

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Download data

ECDS 0232-001-V1.0.zip (8.16 KB)

Associated documentation

ECDS 0221-001 ao16route.png (1.43 MB)

Download all files

ecds0232-1-1.0.zip (~1.44 MB)

Citation

Brooks, I. (2018) Arctic Ocean 2016 - Meteorological and Aerosol Data (Version 1.0) [Data set]. Swedish Polar Research Secretariat. Available at: <https://doi.org/10.5879/zt6n-1x47>

Creator/Principal investigator(s)

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Research principal

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Description

This dataset contains data collected during the Canadian-Swedish expedition Arctic Ocean 2016. The research cruise took place August through September 2016, using the icebreaker Oden.

For ship data from the cruise, as well as graphics and files describing the route, see <https://snd.gu.se/sv/catalogue/study/ecds0221>

For descriptions of Work Packages and research conducted during the cruise, see the SWEDARCTIC Arctic Ocean 2016 Expedition Report: <http://urn.kb.se/resolve?urn=urn:nbn:se:polar:diva-3475>

Additional information on the expedition, including links to publications, is available at <http://www.polarforskningsportalen.se/en/arctic/expeditions/arctic-ocean-2016>

Work Package: Meteorology, Atmospheric Boundary Layer and Surface Fluxes

The meteorology work package has three distinct objectives:

1) Profiling of the thermodynamic structure of the polar atmosphere from the surface to approximately 25 km to provide information on synoptic structure.

2) Measurement of turbulent surface exchange (momentum, heat, water vapour), the surface energy balance, and evaluation of exchange coefficients over sea ice. This objective is primarily aimed at the development and evaluation of surface flux parameterizations for use in numerical models, both for operational forecasting and climate studies.

3) Measurement of the aerosol particles on which polar clouds and fog form. The Arctic boundary layer is extremely clean compared to that over the open oceans or continental landmasses – aerosol concentrations are often exceptionally low. Our understanding of the sources of aerosol particles on which Arctic cloud and fog droplets form is poor, and models of aerosol typically struggle to reproduce even basic features of the size distribution and seasonal variability.

Data include:

Measurements: Wind speed and direction, air temperature, humidity, water vapour concentration, surface temperature, overhead cloud base height, cloud fraction statistics, backscatter profiles from aerosol/cloud droplets, solar and infra red radiation, cloud/fog droplet spectrometry, and aerosol size distributions.

Images: 10 second timelapse thermal images of the ice off port side, 10 second (port/stb) and 60 second (forward) visible images of the surface to the horizon.

Sampling: Fog water droplets, aerosol particles.

A detailed description of data, methods, and equipment is available in the file 'AO16 Meteorological and Aerosol Data Info'.

Data contains personal data

No

Language

[English](#)

Time period(s) investigated

2016-08-08 – 2016-09-20

Data format / data structure

[Geospatial](#)

Data collection 1

- Mode of collection: Physical measurements and tests
- Time period(s) for data collection: 2016-08-08 – 2016-09-20

Geographic spread

Geographic location: [Arctic Ocean](#)

Geographic description: Arctic Ocean

Research area

[Climate research](#) (Standard för svensk indelning av forskningsämnen 2011)

[Meteorology and atmospheric sciences](#) (Standard för svensk indelning av forskningsämnen 2011)

[Oceanography, hydrology and water resources](#) (Standard för svensk indelning av forskningsämnen 2011)

[Climatology / meteorology / atmosphere](#) (INSPIRE topic categories)

[Oceans](#) (INSPIRE topic categories)

[Natural environment](#) (CESSDA Topic Classification)

Keywords

[Surface winds](#), [Incoming solar radiation](#), [Fog](#), [Aerosol backscatter](#), [Aerosol particle properties](#), [Air temperature](#), [Humidity](#), [Fog](#), [Cloud frequency](#), [Cloud height](#), [Sea surface temperature](#), [Surface winds](#), [Turbulence](#), [Ice temperature](#), [The icebreaker oden](#)

Publications

Link to publication list:

[Publikationer](#)

If you have published anything based on these data, [please notify us](#) with a reference to your publication(s). If you are responsible for the catalogue entry, you can update the metadata/data description in DORIS.

Polygon (Lon/Lat)

-180, 90

-180, 77.6642

180, 77.6642

180, 90

-180, 90

Accessibility level

Access to data through SND

Data are freely accessible

Use of data

[Things to consider when using data shared through SND](#)

License

[CC BY 4.0](#)

Versions

Version 1.0. 2018-01-15

Homepage

[Arctic Ocean 2016](#)

Related research data in SND's catalogue

[Expedition Arctic Ocean 2016 - Meteorological, Oceanographic and Ship Data Collected Onboard Icebreaker Oden during August to September 2016](#)

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