# Drift Towing Ocean Profiler (DTOP) on Meereisportal.de

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## Description of autonomous platform

Drift Towing Ocean Profiler (DTOP) measure vertical profiles of water temperature, pressure and salinity underneath sea ice. The DTOP consists of a CTD, a measuring device for conductivity, temperature and depth, along a 120 m long cable. In addition, a DTOP has an atmospheric component measuring air temperature, relative humidity and barometric pressure.

| Property name | Property value |
|---|---|
| Designer | Ocean University of China, Qingdao, China |
| Data provider | Ocean University of China, Qingdao, China |
| Deployment type | Installation on sea ice, hanging into the ocean |
| Power supply | Batteries (life time >1 year) |
| Data transmission interval | 1 hour (user defined) |

## Parameters and accuracy

| Parameter | Sensor | Accuracy |
|---|---|---|
| Barometric pressure (hPa) | BTB110 | ±0.3 hPa at 20 °C |
| Temperature (°C) and Relative humidity (%) | HMP155A | ± (0.226 °C- 0.0028 x temperature in °C) |
| Conductivity, water pressure and water temperature | SBE 41 Argo CTD | |
| Position (from GPS) | | |

## Data Processing

The data set has been processed and contains quality flags for different kinds for erroneous data. Flag values are the sum of individual error codes. The value of 0 refers to no error.

Quality flag, position: The geographic position is flagged +1 if the drift velocity, as derived from the GPS longitude and latitude, exceeds a threshold of 10 deg latitude or 50 deg longitude per time step; +2 if the position exceeds extreme values, such as longitude > 360 deg; +4 if the position is exactly 0.0.

## How to cite

1. The reference for the (data portal of) Meereisportal.de is:

Grosfeld, K.; Treffeisen, R.; Asseng, J.; Bartsch, A.; Bräuer, B.; Fritzsch, B.; Gerdes, R.; Hendricks, S.; Hiller, W.; Heygster, G.; Krumpen, T.; Lemke, P.; Melsheimer, C.; Nicolaus, M.; Ricker, R. and Weigelt, M. (2016), Online sea-ice knowledge and data platform <www.meereisportal.de>, Polarforschung, Bremerhaven, Alfred Wegener Institute for Polar and Marine Research & German Society of Polar Research, 85 (2), 143-155, doi:10.2312/polfor.2016.011.

2. Please include the following phrase into the acknowledgment, substituting PARAMETER and DATE according to your usage:

Autonomous sea ice measurements (PARAMETER) from DATE to DATE were obtained from https://www.meereisportal.de (grant: REKLIM-2013-04).

3. Buoy data is archived at PANGAEA, a Data Publisher for Earth & Environmental Science, after the buoy has stopped sending data. Please refer to the buoys DOI.