Automatic Weather Station (BAS) on Meereisportal.de

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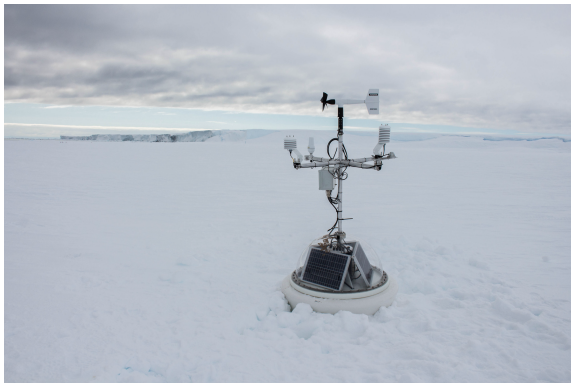

Photo: AWI

Description of autonomous platform

The automatic weather station is designed to be installed on an ice floe, measuring air temperature, barometric pressure, relative humidity, short and long wave radiation as well as wind speed and direction at approx. 2 m height. All data plus the GPS position are sent via Iridium at hourly intervals.

Property name	Property value
Manufacturer	British Antarctic Survey
Data provider	AST
Height of mast	2 m
Weight	approx. 100 kg
Deployment type	Installation on sea ice (into 25cm diameter hole)
Power supply	Rechargeable lead acid batteries
Data transmission interval	1 hour

Parameters and accuracy

Parameter	Sensor	Accuracy
Wind speed (m/s)	RM Young #05103AP anemometer	±0.3 m/s
Wind direction (deg)	RM Young #05103AP anemometer and PNI TCM2.5 compass	±3 deg
Air temperature (°C)	PT100/3 (Campbell Scientific)	±0.1 °C
Barometric pressure (hPa)	CS106 (Campbell Scientific)	±1.0 hPa
Pyranometer	CS300 (Apogee)	± 5 % for daily total radiation
Pyrgeometer	IR02 (Hukseflux)	15 x 10-6 V/(W/m2)
Position (from GPS)	Jupiter 32xLP (Navman Wireless)	± 3 m

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.