Modular Sea Ice Buoy on Meereisportal.de

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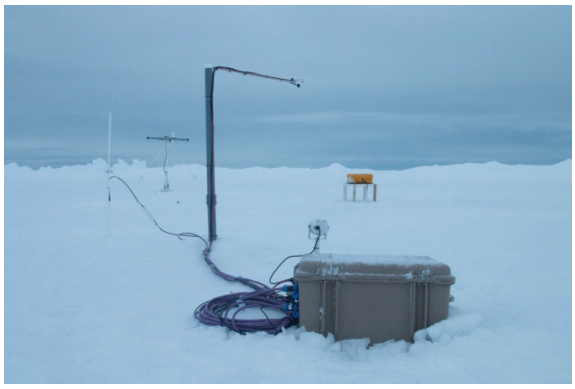

Photo: AWI

Description of autonomous platform

The main component of the modular sea ice buoy is a thermistor string measuring air, snow, ice, and water temperatures. In addition, it allows a most flexible configuration of additional sensors above, in, and under the ice. The main component is designed to be installed on an ice floe, including batteries and all control electronics. The unit usually has a small photo camera included. An above and under ice mast holds additional sensors. Sensor configurations vary from unit to unit, but all platforms report GPS position and atmospheric data via Iridium.

Property name	**Property value**
Manufacturer	Bruncin, Zagreb, Croatia
Manufacturer name	IMB
Data provider	Bruncin, Zagreb, Croatia
Weight	approx. 70 kg
Deployment type	Installation on sea ice
Power supply	Lithium or alkaline batteries (life time >1 year)
Data transmission interval	1 hour (user defined)

Parameters and accuracy

Parameter	**Sensor**	**Accuracy**
Barometric pressure (hPa)	BMP180	±1 hPa
Body temperature and humidity	HIH6130	
Temperature (˚**C)**	240 x ADT7320 for a 5m long chain	±0.015 °C
Pyranometer	Apogee SP-230 or Apogee SP-110	
Fluorescence & Backscatter	WetLabs Eco Triplett	
Dissolved Oxygen Salinity	Aandera Optode BKIN-50	
Camera	LinkSrpite LS-Y201, Picture resolution 160x120px	
Position (from GPS)	S1315R	± 2.5 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.