Light Ice Tethered Observatory (LITO) or Envipope on Meereisportal.de

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Description of autonomous platform

The Light Ice Tethered Observatory (LITO), also called Envipopes, measures visible light at discrete depths. Twelve nodes are located along a power and communication cable that hangs vertically from the underside of the buoy. The nodes hang at nominal depths of 1, 2, 3, 4, 5, 6, 7, 9, 14, 21, 32, and 50 m. Each node has 6 light sensors, three detecting downwelling light and three upwelling light. Two of each set of three sensor sets have optical filters: one 'orange' and one 'blue', the third is unfiltered 'white'. All data plus the GPS position are sent via Iridium at hourly intervals.

Property name	Property value
Manufacturer	SAMS
Manufacturer name	SAMS Optical Chain
Data provider	SAMS
Data transmission interval	10 minutes

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.