

Environmental data collected along the track of NBP 10-02 to the W Antarctic Peninsula from RVIB Nathaniel B. Palmer NBP1002 in the Western Antarctic Peninsula from March to May 2010 (Antarctic_micronek project)

Website: <https://www.bco-dmo.org/dataset/489350>

Data Type: Cruise Results

Version: 14 January 2014

Version Date: 2014-01-14

Project

» [Possible climate-induced change in the distribution of Pleuragramma antarcticum on the Western Antarctic Peninsula Shelf](#) (Antarctic_micronek)

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Table of Contents

- [Coverage](#)
- [Dataset Description](#)
 - [Methods & Sampling](#)
 - [Data Processing Description](#)
- [Data Files](#)
- [Parameters](#)
- [Deployments](#)
- [Project Information](#)
- [Funding](#)

Coverage

Spatial Extent: N:-52.7769 E:-56.4925 S:-70.4288 W:-77.0048

Temporal Extent: 2010-01-04 - 2010-03-31

Dataset Description

Environmental and navigational data from the ship's monitoring systems, reported along the ship's track.

These data include temperature of the water and air, salinity, relative humidity, PAR, wind direction and speed, barometric pressure, fluorometry and short- and long-wave radiation collected at 1 minute intervals.

GCMD link: https://gcmd.nasa.gov/search/Metadata.do?entry=alongtrack_micronek&subse...

Methods & Sampling

These data are part of the suite of measurements from the ship collected by Raytheon Polar Services, the ship operators of the Research Vessel Ice Breaker (RVIB) Nathaniel B. Palmer, distributed on CD to the departing Chief Scientist.

The [Data Report](#) provided by Raytheon at the conclusion of the cruise contains a list of all instruments and measurements made routinely by the ship's instruments.

Data Processing Description

This along track (JGOFS) data set was obtained primarily by applying calibrations to raw data and decimating to whole minute intervals. Several fields are derived measurements from more than an single raw input. For example, Course Made Good (cmg) and Speed Over Ground (sog) are calculated from gyro and GPS inputs. Cruises often used '9.99' or '9999' or NaN to indicate bad or missing data. Not all bad data were flagged in this way however.

[[table of contents](#) | [back to top](#)]

Data Files

File
alongtrack_NBP1002.csv (Comma Separated Values (.csv), 10.36 MB) MD5:ebcb5ba278295860841fe938d382a498
Primary data file for dataset ID 489350

[[table of contents](#) | [back to top](#)]

Parameters

Parameter	Description	Units
date_GMT	day, month and year, GMT. e.g. 18/03/10	dd/mm/yy
time_GMT	time GMT, 24 hour clock	HH:MM:SS
lat	Latitude, negative = South	decimal degrees
lon	Longitude, negative = West	decimal degrees
SOG	Speed over ground	knots
GPS_HDOP	Horizontal Dilution of Position is an indicator of the precision of the GPS measurement. The lower the number, the more precise the position.	-
Head	The ship's heading, measured by the Gyroscope.	Degrees(azimuth)
CMG	Course made good: the course actually achieved on the chart (map), after making allowances for wind direction and currents.	Degrees(azimuth)
PAR_Mast	downwelled Photosynthetically Available Radiation 400-700nm (PAR), sensor package mounted on ship's science mast.	uE/m2/sec
temp_SS	Sea surface temperature	degrees C
cond_SS	Sea surface conductivity	siemens/meter
sal_SS	Sea surface salinity	dimensionless
depth_w	Depth of water, uncorrected	meters
wind_spd	Wind speed (true, corrected for ship motion)	meters/sec
wind_dir	Wind direction (true, corrected for ship motion)	degrees(azimuth)
temp_air	Air temperature	degrees C
rel_hum	Relative humidity	percent
bar_press	Barometric pressure	milliBars
fluor_SS	Sea surface fluorometer output.	micrograms per liter or milligrams per cubic meter (interchangeable)
radiation_l	long wave radiation, using a Precision Infrared Radiometer	watts/meters ²
radiation_s	short wave radiation, using a Precision Spectral Pyranometer	watts/meters ²
Day_GMT	Non-cryptic date field to unambiguously anchor the daily data.	d d b b b Y Y Y Y
ISOdateTime.UTC	ISO19115 Data Standard time.	yyyy-mm-ddThh:mm:ss.ssZ
trans	transmissometry	percent

[[table of contents](#) | [back to top](#)]

Deployments

NBP1002

Website	https://www.bco-dmo.org/deployment/474285
Platform	RVIB Nathaniel B. Palmer
Report	http://dmoserv3.bco-dmo.org/data_docs/Antarctic_micronek/NBP10-02SitRepWhole.docx
Start Date	2010-03-16
End Date	2010-05-02

[[table of contents](#) | [back to top](#)]

Project Information

Possible climate-induced change in the distribution of *Pleuragramma antarcticum* on the Western Antarctic Peninsula Shelf (Antarctic_micronek)

Coverage: Western Antarctic Peninsula

Pleuragramma antarcticum, the Antarctic silverfish, plays a key role in the trophic pyramid of the Antarctic coastal ecosystem, acting as food for larger fishes, flying and non-flying seabirds, pinnipeds, and whales. In turn, they are predators on coastal euphausiids, including both *Euphausia superba* and *E. crystallorophias*. Historically, *Pleuragramma* have been an important food source for Adélie Penguins of the Western Antarctic Peninsula (WAP), but during the last decade *Pleuragramma* have disappeared from the Adélie diet. We suggest that *Pleuragramma*'s absence from the diets of top predators is linked to the declining sea ice canopy, which serves as a nursery for eggs and larvae during the austral spring. The research will investigate four hydrographic regimes over the WAP continental shelf with the following features: (1) persistent gyral flows that act to retain locally spawned larvae, (2) spring sea ice that has declined in recent years (3) the prevalence of adult silverfish, and (4) the presence of breeding Adélie penguins whose diets vary in the proportions of silverfish consumed. The research will evaluate the importance of local reproduction versus larval advection, and the extent to which populations in the subregions of study are genetically distinct, via analysis of population structure, otolith microchemistry and molecular genetics of fish. The *Pleuragramma* data will be compared with penguin diet samples taken synoptically.

[[table of contents](#) | [back to top](#)]

Funding

Funding Source	Award
NSF Antarctic Sciences (NSF ANT)	ANT-0741348

[[table of contents](#) | [back to top](#)]