Underway MET data collected on the GLOBEC LTOP cruise NH0307A aboard R/V New Horizon in the Northeast Pacific in 2003

Website: https://www.bco-dmo.org/dataset/3658
Version: 2012-05-21

Project
» U.S. GLOBEC Northeast Pacific (NEP)

Program
» U.S. GLOBal ocean ECosystems dynamics (U.S. GLOBEC)

Contributors	Affiliation	Role
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Dataset Description

Underway MET data collected on GLOBEC LTOP cruises aboard R/V New Horizon. Underway temperature and salinity calibration information is listed in the sensor calibration table (PDF). Additional underway data is also available for GLOBEC LTOP cruises aboard the R/V Wecoma.

Methods & Sampling

Data was acquired by the R/V New Horizon MET Acquisition Software Version 1.76. BCO-DMO obtained the underway data from http://ltop.coas.oregonstate.edu/das.html

Data Processing Description

Parameter names were replaced to conform with BCO-DMO conventions. Values of '-99.000' and '-99.0' were replaced with 'nd'. Values of '0.00000' in lat and lon columns were replaced with 'nd'. Time, originally in HHMMSS format, was converted to time_gmt format.

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Data Files

File
underway_met_NH.csv (Comma Separated Values (.csv), 4.74 MB) MD5:3f7f4beeb373dacd2132abd861ca84f6 Primary data file for dataset ID 3658

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Related Datasets

IsRelatedTo

Smith, R., Huyer, A., Peterson, W., Sherr, E., Barth, J., Fleischbein, J. (2012) **Underway MET data collected on multiple GLOBEC Long Term Observation Program (LTOP) cruises aboard R/V Wecoma in the Northeast Pacific from 1999-2003.** Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1) Version Date 2012-05-03 doi:10.1575/1912/bco-dmo.3645.1 [view at BCO-DMO]

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Parameters

Parameter	Description	Units
cruiseid	Cruise identifier.	dimensionless
month_gmt	Month of year, GMT.	month, 1-12
day_gmt	Day of month, GMT.	day, 1-31
lat	Latitude (south is negative). Originally named 'LA'.	decimal degrees
lon	Longitude (west is negative). Originally named 'LO'.	decimal degrees
temp_air	Air temperature measured by RM Young sensor mounted 36' above mean water line. Originally named 'AT'.	degrees C
humidity	Percent relative humidity. Originally named 'RH'.	percent
press_bar	Barometric pressure in millibars. Originally named 'BP'.	millibars
temp2_ss	Sea surface temperature measured by the sensor hull-mounted in the second deck machine room Originally named 'ST-2'.	degreesC
sal_ss	Sea surface salinity, measured by SBE-21 thermosalinograph. Originally named 'SA'.	PSU

temp_air2	Air temperature from the Vaisala humidity/temp sensor mounted 36' above mean water line. Originally named 'RT'.	degrees C
yrday	Day of the year.	yearday, 1-365
wind_speed	True wind speed measured in m/s. Measured by RM Yound instrument mounted 36' above mean water line. Originally named 'TW'.	m/s
radiation_s	Shortwave radiation measured by the pyranometer. Originally named 'SW'.	watts/m^2
PAR	Surface PAR measured in microEinstein(uE)/m^2/sec). Originally named 'PA'.	uE/m^2/sec
radiation_l	Longwave radiation measured by the pyranometer. Originally named 'LW'.	watts/m^2
wind_dir_r	Relative wind direction measured by the RM Young 05103 sensor. Originally named 'WD'.	degrees
cond_ss	Sea surface conductivity, measured by SBE21 thermosalinograph. Originally named 'TC'.	mS/meter
temp_ss	Sea surface temperature measured by the hull-mounted sensor. Originally named 'ST'.	degrees C
speed_lon	Ship's speed (speed longitude) in knots. Originally named 'SL'.	knots
head	Ship's heading (gyro compass) in degrees. Originally named 'GY'.	degrees
temp_pir_body	Temperature of the PIR body, measured in degrees K. Originally named 'LB'.	degrees K
temp_pir_dome	Temperature of the PIR dome, measured in degrees K. Originally named 'LD'.	degrees K
cog	Ship's course; GPS Course over Ground measured in degrees. Originally named 'CR'.	degrees
sog	Ship's speed (GPS SOG) measured in knots. Originally named 'SP'.	knots

time_gmt	Time, in GMT format. Calculated from time originally in HHMMSS format.	HHMM
temp_ss_SBE	Sea surface temperature measured by the SBE-21 thermosalinograph. Originally named 'TT'.	degrees C
wind_dir_r2	Relative wind direction measured by the RM Young WS425A2C2B sensor. Originally named 'WD-2'.	degrees
wind_dir	True wind direction measured by the RM Young 05103 sensor. Originally named 'TI'.	degrees
wind_dir2	True wind direction measured by the RM Young WS425A2C2B sensor. Originally named 'TI-2'.	degrees
time_sec	GPS time in seconds (0-86400). Originally named 'GT'.	seconds
sigma_t	Sigma T density measured by the SBE-21 thermosalinograph. Originally named 'SD'.	kg/m^3
sound_vel	Sound velocity (Chen/Millero) measured by SBE-21 thermosalinograph. Originally named 'SV'.	m/s
flow	Flowmeter reading (model: Flocat C-ES45-B004). Originally named 'FI'.	LPM
fluor	Reading from Wetlabs WetStar fluorometer. Originally named 'FL'.	ug/L
depth_bottom	Bottom depth, in meters, measured by Knudesn 320BR. Originally named 'BT'.	meters
dew_point	Dew point in degrees C measured by Vaisala device. Originally named 'DP'.	degreees C
precip	Precipitation measured by RM Young 50202. Originally named 'PR'.	mm
pir_volts	Long wave radiation thermopile voltage in micro-Volts. Instrument: Eppley Labs PIR. Originally named 'LT'.	uV
head2	Heading, in degrees, from Ashtech ADU2-1 GPS. Originally named 'SH'.	degrees

wind_speed_r	Wind speed, measured by RM Young instrument mounted 36' above mean water line. Originally named 'WS'.	m/s
wind_speed_r2	Second measurement of wind speed in m/s. Originally named 'WS-2'.	m/s
wind_speed2	Second measurement of true wind speed in m/s. Originally named 'TW-2'.	m/s
pitch	Pitch, in degrees, measured by Ashtech ADU2-1. Originally named 'SM'.	degrees
roll	Roll, in degrees, measured by Ashtech ADU2-1. Originally named 'SR'.	degrees
ISO_DateTime_UTC	Date and time (UTC) formatted to ISO8601 standard. T indicates start of time string; Z indicates UTC.	YYYY-mm-ddTHH:MM:SS.ssZ

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Instruments

Dataset-specific Instrument Name	Barometer
Generic Instrument Name	Barometer
Dataset-specific Description	Vaisala PTB101C (Range 900-1100 mb; Accuracy + or - 0.3 mb); part of MET station. The Barometer utilizes a static pressure head.
Generic Instrument Description	A barometer is an instrument used to measure atmospheric pressure. There are many types of barometers identified by make and model and method of measurement.

Dataset-specific Instrument Name	QSR-240
Generic Instrument Name	Biospherical QSR-240 surface PAR
Dataset-specific Description	Biospherical Instruments QSR-240P; part of MET system. Range 400 to 700 nm. Measures surface PAR.
Generic Instrument Description	Shipboard radiometer with a PAR spectral response (400-700nm) designed to monitor surface irradiance during underwater light profile measurement. Hemispherical collector measuring 2-pi scalar irradiance.

Dataset-specific Instrument Name	Eppley Longwave Radiometer
Generic Instrument Name	Eppley Longwave Radiometer
Dataset-specific Description	Eppley PIR; part of MET station. Long-wave range: 3.5 to 50 um; Short-wave range: 285 to 2800 nm. Measures long- and short-wave radiation.
Generic Instrument Description	The Eppley Precision Infrared Radiometer (PIR) pyrgeometer measures longwave (infrared) radiation. It is housed in a weatherproof titanium canister that has been painted with a very flat black paint that absorbs radiation. A small glass dome at the top of the instrument is covered with an 'interference coating' which allows only infrared radiation to come through. Light levels are detected as temperature changes creating voltages in fine wire coil detectors. more from Eppley Labs

Dataset-specific Instrument Name	Flow Meter
Generic Instrument Name	Flow Meter
Dataset-specific Description	FLO-CAT Flow Meter (Model: C-ES45-B004) located in SBE-21 system aft lab.
Generic Instrument Description	General term for a sensor that quantifies the rate at which fluids (e.g. water or air) pass through sensor packages, instruments, or sampling devices. A flow meter may be mechanical, optical, electromagnetic, etc.

Dataset-specific Instrument Name	Fluorometer
Generic Instrument Name	Fluorometer
Dataset-specific Description	Wetlabs WetStar fluorometer located in Aft lab (Range 0.03 to 75 ug/L). Fluorometer connected to one of the 4 channels built into the SBE-21.
Generic Instrument Description	A fluorometer or fluorimeter is a device used to measure parameters of fluorescence: its intensity and wavelength distribution of emission spectrum after excitation by a certain spectrum of light. The instrument is designed to measure the amount of stimulated electromagnetic radiation produced by pulses of electromagnetic radiation emitted into a water sample or in situ.

Dataset-specific Instrument Name	Global Positioning System Receiver
Generic Instrument Name	Global Positioning System Receiver
Dataset-specific Description	Ashtech ADU2-1.
Generic Instrument Description	The Global Positioning System (GPS) is a U.S. space-based radionavigation system that provides reliable positioning, navigation, and timing services to civilian users on a continuous worldwide basis. The U.S. Air Force develops, maintains, and operates the space and control segments of the NAVSTAR GPS transmitter system. Ships use a variety of receivers (e.g. Trimble and Ashtech) to interpret the GPS signal and determine accurate latitude and longitude.

Dataset-specific Instrument Name	gyro
Generic Instrument Name	Gyro
Dataset-specific Description	Sperry MK37 Gyro
Generic Instrument Description	Compass with a motorized gyroscope that tracks true north (heading).

Dataset-specific Instrument Name	Knudsen 320 BR deepwater echosounder
Generic Instrument Name	Knudsen 320 BR deepwater echosounder
Dataset-specific Description	Knudsen 320BR located in Main Lab.
Generic Instrument Description	The Knudsen 320 B/R deepwater echosounder is a digital data logging system used to measure water depth (e.g. depth of the seafloor). The system is configured to work with different frequency transducers. For example, the Edo 323 B is a 12 kHz High Frequency (HF) transducer or it can be configured to work with an array of 3.5 kHz Low Frequency (LF) transducers mounted in the hull of a vessel.

Dataset-specific Instrument Name	Meteorological Station
Generic Instrument Name	Meteorological Station
Dataset-specific Description	MET configuration: Meteorological Sensors on Top bridge forward rail; Thermosalinograph in aft lab; Sea Surface Temperature sensors (Hull mounted); GPS Pcode; Gyro; Knudsen Water Depth. Distance from Mean Water Line to sensors: about 36'. Air temperature sensor: RM Young 41342LC (Range -50 to +50 degrees C; Accuracy + or - 0.3 deg C). Wind monitor: RM Young 05103. Humidity and temperature probe: Vaisala HMP45A (temp range -40 to +60 degrees C; humidity range 0-100%; temp accuracy + or - 0.2 deg C). Precipitation Gauge: RM Young 50202 (Range 0 to 50 mm; Accuracy + or - 0.1 mm).
Generic Instrument Description	MET station systems are designed to record meteorological information on board ships or mounted on moorings. These are commonly referred to as EMET (Electronic Meteorological Packages) or IMET (Improved Meteorological Packages) systems. These sensor packages record measurements of sea surface temperature and salinity, air temperature, wind speed and direction, barometric pressure, solar and long-wave radiation, humidity and precipitation.

Dataset-specific Instrument Name	Thermosalinograph
Generic Instrument Name	Thermosalinograph
Dataset-specific Description	Hull-mounted sea surface temperature sensor: STS SEG-14 (Range -2 to +35 degrees C; Accuracy + or - 0.1 deg C). Sensor located in the machine shop compartment, starboard side, between the hull and insulation. Ouput connected to the main MET acquisition computer.
Generic Instrument Description	A thermosalinograph (TSG) is used to obtain a continuous record of sea surface temperature and salinity. On many research vessels the TSG is integrated into the ship's underway seawater sampling system and reported with the underway or alongtrack data.

Dataset-specific Instrument Name	Thermosalinograph
Generic Instrument Name	Thermosalinograph
Dataset-specific Description	SBE-21 thermosalinograph located in Aft lab (Temp range -5 to +35 degrees C; Cond range 0 to 65 mS/cm). Output connected to the main MET acquisition computer.
Generic Instrument Description	A thermosalinograph (TSG) is used to obtain a continuous record of sea surface temperature and salinity. On many research vessels the TSG is integrated into the ship's underway seawater sampling system and reported with the underway or alongtrack data.

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Deployments

NH0307A

Website	https://www.bco-dmo.org/deployment/57560
Platform	R/V New Horizon
Report	http://globec.whoi.edu/nep/reports/ccs_cruises/jul03cr.pdf
Start Date	2003-07-02
End Date	2003-07-08

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Project Information

U.S. GLOBEC Northeast Pacific (NEP)

Website: http://nepglobec.bco-dmo.org

Coverage: Northeast Pacific Ocean, Gulf of Alaska

Program in a Nutshell

Goal: To understand the effects of climate variability and climate change on the distribution, abundance and production of marine animals (including commercially important living marine resources) in the eastern North Pacific. To embody this understanding in diagnostic and prognostic ecosystem models, capable of capturing the ecosystem response to major climatic fluctuations.

Approach: To study the effects of past and present climate variability on the population ecology and population dynamics of marine biota and living marine resources, and to use this information as a proxy for how the ecosystems of the eastern North Pacific may respond to future global climate change. The strong temporal variability in the physical and biological signals of the NEP will be used to examine the biophysical mechanisms through which zooplankton and salmon populations respond to physical forcing and biological interactions in the coastal regions of the two gyres. Annual and interannual variability will be studied directly through **long-term observations** and detailed **process studies**; variability at longer time scales will be examined through **retrospective analysis** of directly measured and proxy data. Coupled **biophysical models** of the ecosystems of these regions will be developed and tested using the process studies and data collected from the long-term observation programs, then further tested and improved by hindcasting selected retrospective data series.

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Program Information

U.S. GLOBal ocean ECosystems dynamics (U.S. GLOBEC)

Website: http://www.usglobec.org/

Coverage: Global

U.S. GLOBEC (GLOBal ocean ECosystems dynamics) is a research program organized by oceanographers and fisheries scientists to address the question of how global climate change may affect the abundance and production of animals in the sea.

The U.S. GLOBEC Program currently had major research efforts underway in the Georges Bank / Northwest Atlantic Region, and the Northeast Pacific (with components in the California Current and in the Coastal Gulf of Alaska). U.S. GLOBEC was a major contributor to International GLOBEC efforts in the Southern Ocean and

Western Antarctic Peninsula (WAP).

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-0000733

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