ADCP data from the Long-Term Observation Program (LTOP) from Mooring site NH10 on the Oregon Shelf from 1997-2004 as part of the U.S. GLOBEC program (NEP project)

Website: https://www.bco-dmo.org/dataset/2458
Data Type: Cruise Results
Version: 1
Version Date: 2007-04-13

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

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

Contributors	Affiliation	Role
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Allison, Dicky	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

Abstract
ADCP data from the Long-Term Observation Program (LTOP) from Mooring site NH10 on the Oregon Shelf from 1997-2004 as part of the U.S. GLOBEC program.

Table of Contents

Coverage

Spatial Extent: **Lat**:44.6467 **Lon**:-124.3067
Temporal Extent: 1997-10-21 - 2004-12-31

Dataset Description

ADCP U.S. GLOBEC Long-Term Observation Program (LTOP) NH10 Mooring

A long-term mooring site on the Oregon shelf (44.6467N -124.3067E) was established in August 1997 and maintained with few gaps through December 2004 with U.S. GLOBEC funding. The mooring is at 81 m water depth, near the historical Newport Hydrographic Line. The nearest standard NH line station is NH10 (10 nautical miles off shore), so this mooring is referred to as Mooring NH10.

Upward looking acoustic Doppler current profilers have been used to measure vertical profiles of water velocity (insert actual sample interval here) at 2 or 4 m vertical intervals depending on instrument. The mooring is serviced in spring and fall: winter deployments generally use a Sontek 250 kHz profiler with 4 m vertical resolution; summer deployments use a Sontek 500 kHz profiler with 2 m resolution. There are a few data gaps.

Currents are processed using a cosine-Lanczos filter with a 40-hr half-power point. Six-hourly data included here are Eastward (u) and Northward (v) velocities in cm/s interpolated to 2 m depth bins.

The data were collected by Mike Kosro, 104 COAS Admin Bldg, COAS, Oregon State University, Corvallis, OR 97331-5503 (kosro@coas.oregonstate.edu; Phone: 541-737-3079).

For further details about sampling/processing, see:

Kosro, M. 2003. Enhanced southward flow over the Oregon shelf in 2002: A conduit for subarctic water. Geophysical Research Letters, 30 (15), 8023, doi:10.1029/2003GL017436

Last modified: March 26, 2006

[table of contents | back to top]

Data Files

File
NH10_uv6hr.csv (Comma Separated Values (.csv), 22.29 MB) MD5:e42897819606ed59f520cc9a3c5507ad Primary data file for dataset ID 2458

[table of contents | back to top]

Parameters

Parameter	Description	Units
year	Year.	dimensionless
mooring	Mooring ID (NH10 for this dataset).	dimensionless
lat	Latitude in decimal degrees North	decimal degrees
long	Longitude in decimal degrees East	decimal degrees
depth_w	Water depth in meters	meters
depth	Depth of velocities in meters	meters
julian_day	Julian day, where JD2440000 is 0000 hrs on 23 May 1968.	dimensionless
yrday0_gmt	Day of Year, where 0.5 is 1200 hrs on 1 January.	dimensionless
month_gmt	Month in GMT.	dimensionless
day_gmt	Day of Month in GMT.	dimensionless
time_gmt	Time of Day in GMT (HHMM).	dimensionless
u	Eastward Velocity (cm/s; Positive East)	centimeters/sec
v	Northward Velocity (cm/s; Positive North)	centimeters/sec

[table of contents | back to top]

Instruments

Dataset-specific Instrument Name	Acoustic Doppler Current Profiler
Generic Instrument Name	Acoustic Doppler Current Profiler
Dataset-specific Description	Upward looking acoustic Doppler current profilers have been used to measure vertical profiles of water velocity (insert actual sample interval here) at 2 or 4 m vertical intervals depending on instrument. The mooring is serviced in spring and fall. winter deployments generally use a Sontek 250 kHz profiler with 4 m vertical resolution; summer deployments use a Sontek 500 kHz profiler with 2 m resolution.
Generic Instrument Description	The ADCP measures water currents with sound, using a principle of sound waves called the Doppler effect. A sound wave has a higher frequency, or pitch, when it moves to you than when it moves away. You hear the Doppler effect in action when a car speeds past with a characteristic building of sound that fades when the car passes. The ADCP works by transmitting "pings" of sound at a constant frequency into the water. (The pings are so highly pitched that humans and even dolphins can't hear them.) As the sound waves travel, they ricochet off particles suspended in the moving water, and reflect back to the instrument. Due to the Doppler effect, sound waves bounced back from a particle moving away from the profiler have a slightly lowered frequency when they return. Particles moving toward the instrument send back higher frequency waves. The difference in frequency between the waves the profiler sends out and the waves it receives is called the Doppler shift. The instrument uses this shift to calculate how fast the particle and the water around it are moving. Sound waves that hit particles far from the profiler take longer to come back than waves that strike close by. By measuring the time it takes for the waves to bounce back and the Doppler shift, the profiler can measure current speed at many different depths with each series of pings. (More from WHOI instruments listing).

[table of contents | back to top]

Deployments

NH10

Website	https://www.bco-dmo.org/deployment/57488
Platform	Mooring NH10
Start Date	1997-08-01
End Date	2004-12-01
Description	Moored buoy owned and maintained by Oregon Coastal Ocean Observing System (OrCOOS). See more information from OrCOOS and NOAA.

[table of contents | back to top]

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.

[table of contents | back to top]

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).

[table of contents | back to top]

Funding

Funding Source	Award
National Oceanic and Atmospheric Administration (NOAA)	unknown GB NOAA
NSF Division of Ocean Sciences (NSF OCE)	OCE-0000733

[table of contents | back to top]