

NOAA PMEL: EcoFOCI - Seattle, WA

Primary supervisor: Phyllis Stabeno

Our focus is understanding how physical forcing (including climate) impact the ecosystems of the Bering Sea and Gulf of Alaska (<http://www.ecofoci.noaa.gov/>). This is a region rich in fish, birds and marine mammals and is very sensitive to changes in climate. The Bering Sea shelf, which is largely ice covered during the winter and spring, is particularly sensitive to climate perturbations. We are presently involved in a large program in the Bering Sea (<http://bsierp.nprb.org/>). An intern is invited to spend 8-10 weeks working as part of EcoFOCI at the Pacific Marine Environmental Laboratory in Seattle, Washington. The intern would have an opportunity to participate on an ecosystem cruise in the Bering Sea and gain an understanding of many aspects of physical oceanographic field work and how it relates to chemical and biological observations. In addition, the candidate would have the opportunity to contribute to manuscripts utilizing the data collected on cruises and/or from the four biophysical moorings that are maintained on the eastern Bering Sea shelf. My goal would be to help the intern in developing sea-going and analysis skills needed as an oceanographer. If you have any questions please contact me via email at Phyllis.stabeno@noaa.gov or call me at 206-526-6453.

NOAA PMEL: Ocean Climate Stations Program - Seattle, WA

Primary supervisor: Meghan Cronin

I would be very pleased to mentor a MPOWIR intern for 8-10 weeks. We have an enormous archive of data that could be used as part of the intern's PhD dissertation. In particular, within the tropical Pacific, there are more than 68 TAO/TRITON moorings, many of which carry enhanced instrumentation for monitoring air-sea heat, moisture and momentum fluxes and upper ocean variability (www.pmel.noaa.gov/tao/). The NOAA PMEL Ocean Climate Stations Program (www.pmel.noaa.gov/OCS/) that I lead also maintains two OceanSITES reference stations: in the Kuroshio Extension recirculation gyre and at the Station Papa site in the Gulf of Alaska. The TAO and OCS data can be used to analyze air-sea interactions that can occur on diurnal to interannual time scales. As the mentor, I would help the intern see connections between the database and field operations, and between the science questions and time series analyses. My goal would be to help the intern complete her dissertation and gain skills that would lead to a fulfilling post-graduate career.

NOAA AOML: Western Boundary Time Series Program - Miami, FL

Primary supervisor: Christopher Meinen

The NOAA Western Boundary Time Series project is one of the key long-term programs for studying ocean currents and water mass changes, with more than 25 years of data collected to date. The program is designed to measure and analyze the Florida Current and Antilles Current, which carry the warm

upper limb of the global Meridional Overturning Circulation (MOC), as well as the Deep Western Boundary Current, which carries the cold deep limb of the MOC. Numerous different technologies are used, including submarine cables, inverted echo sounders, bottom pressure gauges, dropsondes, conductivity-temperature-depth profilers, and acoustic Doppler current profilers (both hull-mounted and lowered). The WBTS program also serves as the cornerstone of a major international experiment to measure the complete MOC flow between Florida and Africa. As part of the WBTS program we undertake two major 2-3 week cruises each year as well as four 2-3 day cruises and ten single day cruises, with each cruise collecting different types of data for the study of different segments of this important climate system.

An intern candidate is invited to spend 8-10 weeks working on this exciting program at the NOAA Atlantic Oceanographic and Meteorological Laboratory in Miami, Florida. The scheduling of the internship visit would be designed to allow the candidate to participate in one of the two major cruises and possibly some of the shorter cruises as well. The candidate would learn about different aspects of physical oceanographic field work and would develop a scientific analysis project utilizing data from some aspect of the WBTS program in consultation with Dr. Chris Meinen, one of the principal investigators of the program. Further information about this opportunity can be obtained by contacting Dr. Meinen via email at Christopher.Meinen@noaa.gov.

NOAA AOML: South Florida Program - Miami, FL

NOAA AOML: Southeast Fisheries Science Center - Miami, FL

Primary supervisor: Libby Johns

I would be happy to sponsor an MPOWIR intern for 8-10 weeks during the period October 2009 - September 2010. She would participate in our coastal south Florida interdisciplinary project, including field work on the Biscayne and Florida Bay cruises and one or more of the 5-day Walton Smith cruise of the larger area of the Keys and the Southwest Florida coast. She could also work with us in the lab on data processing and analysis, pursue an independent project with the data on a mutually agreed upon topic, and make a short final presentation on her project results.

It would also be a possibility for her to participate in next year's 30-day AOML/SEFSC Coral Reef Ecosystem Research (CRER) cruise to the northeastern Caribbean, which will probably be in the January-February 2010 time frame. The lab part of this would be similar to what is described above, but for the Caribbean data. She would have the opportunity to also work with the SEFSC group.

Here is a short description of both programs:

1. We have been conducting the South Florida Program (SFP), recently the South Florida Regional Observing System (SF-ROS) beginning in 1995. This project, conducted jointly with OCD and RSMAS, aims at understanding the circulation and water properties of the south Florida coastal environment before, during, and after the changes in south Florida fresh water inputs to the coastal ocean that are expected as a result of the

Comprehensive Everglades Restoration Program (CERP). We use a combination of shipboard observations, moored instrumentation, satellite-tracked surface drifters, satellite imagery, and numerical model results. Our aim is to provide resource managers, particularly in our case the Florida Keys National Marine Sanctuary (FKNMS), with the scientific input that they need to make the best management decisions.

2. We also work a lot with the Southeast Fisheries Science Center (SEFSC) in studies of the Gulf of Mexico and Caribbean Sea - specifically, since 2002, we have conducted cruises in the Florida Keys, the Mexican/Belizean Yucatan (with Mexican colleagues), and for the past three field seasons in the northeastern Caribbean (with colleagues from the University of the Virgin Islands). These studies involve shipboard surveys, surface drifters, satellite imagery, and numerical model comparisons, as well as net tows at the surface and various depths. The goal is to understand the connection between the regional circulation and water properties and the variety, abundance, and distribution of coral reef fish larvae so that the coral reef resource managers can best design Marine Protected Areas (MPAs).

NOAA AOML: January/February 2010 research cruise collection and analysis - Miami, FL

Primary supervisor: Claudia Schmid

As the chief scientist of a research cruise on the R/V Ronald H. Brown, I am interested in inviting a graduate student to participate during a cruise in January/February of 2010 and to spend some time (e.g. a month) at NOAA/AOML in Miami after the cruise. The cruise will take 26 days. The intention is for the student to be exposed to the collection, processing and analysis of oceanographic data. The main oceanographic projects during the cruise involve the recovery and deployment of Atlas moorings that are part of the PIRATA mooring array. In addition, we will deploy profiling floats and surface drifters, launch expendable bathythermographs, and perform CTD casts (to take profiles of temperature, salinity and oxygen concentration) at the mooring locations. The ship-board systems also collect the velocity field of the upper ocean, and the near-surface temperature and salinity along the cruise track. In the analysis phase, data collected by various operational systems can be combined with the ship-board data to address a scientific problem.

NOAA GFDL: Large-scale ocean circulation and interactions with biogeochemical cycles - Princeton, NJ

Primary supervisor: Anand Gnanadesikan

My research focuses on the interactions between global biogeochemical cycles and the physical circulation of the ocean and on driving mechanisms for the large-scale ocean overturning circulation. Areas where I am currently interested in hosting a student include 1. impact of changes in eddy parameterizations and Southern Ocean winds on global overturning circulation and biogeochemistry 2. simulating the global cycle of colored dissolved organic materials 3. impact of changes in iron cycling on global biogeochemical cycling. 4.

representation of the impacts of zooplankton grazing in climate-scale models 5. impacts of changes in ocean color on the large-scale circulation of the atmosphere and ocean. Students would probably work with one of our coarse-resolution ocean-only simulations to prototype changes and evaluate sensitivities to various processes, though some work with our global coupled climates models would be possible as well.

NOAA GFDL: Isopycnal model studies of ocean climate - Princeton, NJ

Primary supervisor: Robert Hallberg

We have a number of on-going ocean modeling activities, any one of which would benefit by the participation of an energetic intern.

Many of these opportunities would stem from the analysis of our recently completed coupled climate model with an isopycnal-coordinate ocean. Given that this appears to have a very different representation of the effects of many oceanic processes than traditional Z-coordinate ocean climate models, sensitivity studies with this model (and its Z-coordinate counterpart) related to the candidate's prior research interests should be highly informative.

Additionally, we are developing high-resolution (1/8-degree and finer) global ocean models for century-scale simulations of such phenomena as ocean / ice-shelf interactions, effects of mesoscale eddies in regulating ocean heat storage, and open ocean / coastal exchanges. These simulations could be used (or modified) to study the long-term evolution of oceanographic phenomena that are of interest to a candidate.

NOAA-GFDL: Atlantic Meridional Overturning Circulation - Princeton, NJ

Primary Supervisor: Rong Zhang

My current research interests are focused on the role of ocean circulation in climate. For example, changes in the Atlantic Meridional Overturning Circulation (AMOC) have a profound impact on global and regional climate. My area of research includes the understanding of AMOC variability using fully coupled climate models, such as identifying AMOC fingerprints that can be used to reconstruct past AMOC variations when no direct observations were available and detect future AMOC variations, and investigating the meridional connectivity of AMOC variations with potential implications for designing the monitor systems for AMOC variations. I also study the impact of AMOC variations on global and regional climate, such as Sahel and Indian summer monsoon rainfall, Atlantic Hurricane activities, and Arctic climate.