

Periodic Report: Activities of CIOSS Fellows at the College of Oceanic and Atmospheric Sciences, Oregon State University

April 13, 2007

*CIOSS Fellows are in bold.

January 30: Dudley Chelton collaborated with Peter Cornillon from the University of Rhode Island on a presentation given in Washington D.C. by Peter to the National Research Council (NRC) Committee on Scientific Accomplishments of Earth Observations from Space. Input from this presentation is presently being incorporated into an NRC report to be presented to NASA.

February 12-16: Dudley Chelton visited the International Pacific Research Center (IPRC) and the University of Hawaii (UH) in Honolulu and gave two seminars:

- “The Impact of SST Specification on Surface Winds in the ECMWF Operational Model, with Possible Evidence for SST Influence on Tropospheric Winds.”
- “Global Observations of Westward Energy Propagation: Rossby Waves or Nonlinear Eddies?”

As a result of numerous discussions with faculty members at the IPRC and UH, collaborative studies were initiated with Nikolai Maximenko, Bo Qiu and Roger Lukas.

February 15: Angel White, a postdoc for **Ricardo Letelier**, presented, “The Case for Regional Coupling of N₂ Fixation and Denitrification in the Sea of Cortez” as part of the Biogeochemical Oceanography Series.

February 24: Several CIOSS fellows and associated students participated in the National Ocean Sciences Bowl 'Salmon Bowl' held at COAS/OSU. A dozen high school groups participated, testing their knowledge of ocean science. The event generated media coverage on local TV and several Oregon newspapers.

March: Update on **Curt Davis'** AOA activity.

The NESDIS Office of Systems Development led an Analysis of Alternatives (AoA) study to address ways to meet NOAA requirements for advanced sounding and coastal waters imaging capabilities. The AoA included participants from all NOAA Goals, University / Cooperative Institutes, contractors, the DoD, and NASA. The AoA team sought to determine the best solution to meet requirements for advanced sounding and coastal waters

imaging in the absence of a Hyperspectral Environmental Suite (HES) capability on GOES-R/S. HES was eliminated from the GOES-R series in October 2006 due to technical risk and cost issues.

The AoA team explored satellite, airborne, and surface based capabilities, including government and commercial alternatives. The study began in November 2006 and was completed in February 2007. Curt Davis was the team leader for Coastal Waters Imaging. For coastal waters imaging, the team recommended the following: (a) continue the risk reduction work of the Coastal Ocean Applications and Science Team; (b) conduct a pre-phase A study to determine the best operational solution (either a multi-spectral sensor in geostationary orbit or 3 or 4-multi-spectral sensors in low-earth, sun-synchronous orbit); and (c) support for a follow-on operational in situ calibration source to the Marine Optical Buoy.

March 1-2: CIOSS provided the financial support for prospective graduate student Peter Gaube from Nova University in Florida to visit OSU and talk with faculty members in Physical and Biological Oceanography. After returning to Florida, Peter informed COAS that he accepts our offer and will enroll in the Physical Oceanography PhD program in COAS in September 2007. **Dudley Chelton** will be Peter's advisor. Peter will arrive at OSU in June and spend the summer analyzing satellite data in the VOCALS region of the eastern tropical South Pacific.

March 9: Maria Kavanaugh, a PhD student in Biological Oceanography for **Ricardo Letelier**, presented "Satellite-derived dynamic biophysical provinces in the North Pacific" as part of the COAS Student Seminar Series.

March 12-15: Several CIOSS Fellows and COAS Faculty attended the NASA Ocean Surface Topography Science Team Meeting in Hobart, Australia. Overview science presentations were given by **Dudley Chelton** (Global observations of westward energy propagation: Rossby waves or nonlinear eddies?) and **Gary Egbert** (Internal tides in shallow seas, and altimetry). Posters were presented by Ricardo Matano (The upwelling of downwelling currents) and **Ted Strub** (Satellite and model study of the circulation in the SE Pacific).

March 15: Undergraduate student Jenny Rolling at the University of Maryland accepted an offer to participate in the Summer REU Program with financial sponsorship from CIOSS. Jenny will arrive in June 2007 to work with **Dudley Chelton** and **Eric Maloney** on analysis of the new high-resolution SST fields

produced by Richard Reynolds as a result of his CIOSS-sponsored visit to COAS in the summer of 2005.

March 16: Nilesh Araligidad, a PhD student in Atmospheric Sciences for **Eric Maloney**, presented “Buoy and satellite observations of wind-evaporation feedback in the intraseasonal oscillation over west Pacific and Indian oceans” as part of the COAS Student Seminar Series.

March 27: **Dave Foley**, **Dudley Chelton** and **Pete Strutton** made presentations to a group of visiting NOAA fisheries scientists and other interested participants as part of a 3-day short course on satellite ocean data analysis. Dave Foley gave a general introduction into ocean remote sensing. Dudley Chelton covered microwave satellite data products and Pete Strutton talked about ocean color. The rest of the course consisted of hands-on training in the use of satellite data and GIS techniques to address specific problems, which the participants brought with them. The short course was a repeat of a similar and very popular course given last August, both hosted at CIOSS in Corvallis.

April: CIOSS Administrative Specialist **Amy Vandehey** began a Master’s degree in Marine Resource Management at OSU. She will be working full-time and taking about one class per term. Her area of interest is the identification and creation of Marine Protected Areas, as well as marine science-based outreach to students and the general public. Her classes will increase her knowledge of the science engaged in by CIOSS Fellows.

April 2-6: **Ricardo Letelier** and **Ted Strub**, along with COAS Faculty Ed Dever, participated in a CLIVAR/VAMOS workshop in Santiago Chile, planning a coastal ocean component of the VOCALS Project (VAMOS Ocean-Cloud-Atmosphere-Land Systems). This is a major CLIVAR project that will examine ocean-atmosphere interactions and their effects on the stratus cloud deck during October-November 2008, using satellites (atmospheric and ocean remote sensing), multiple ships and aircraft, along with measurements on land.

April 3-5: The “Data Assimilation in Support of Coastal Ocean Observing Systems” Workshop was sponsored and hosted by CIOSS at the LaSells Stewart Center in Corvallis. The course was organized by **Alexander Kurapov** and **John Allen**. Logistics were handled by CIOSS Administrative Specialist **Amy Vandehey**. A white paper will be written with recommendations from participants who included top experts in coastal ocean modeling and data assimilation. Those attending felt that the workshop produced worthwhile

discussions of current issues in coastal modeling and DA. Presentations and posters from the workshop will be posted shortly on the workshop web page: http://cioss.coas.oregonstate.edu/CIOSS/modeling_workshop.html

April 12-13: The SMILE High-School Challenge will take place, using an oceanographic and remote sensing theme for the third year. The scenario this year is that a research vessel will lose power at sea and will need to be located and rescued. Students will initially learn about the purpose of ocean research cruises, ocean safety, use of satellite data, and surface currents from models and GPS. When contact is lost with the ship, the teams of students will have to use these skills to find it. CIOSS supports this program and helped to plan it. A number of CIOSS personnel will take part in the activities.

April 24: New postdoc, Jacqueline Tweddle, commences work with CIOSS Fellow **Pete Strutton** on his satellite-based harmful algal blooms project.

Publications

Chase, Z., **Strutton, P.G.** and Hales, B., 2007. River runoff and shelf width determine productivity along north-east Pacific margin. *Geophysical Research Letters*, 34, L04607, doi:10.1029/2006GL028069.