

**September 24-27, 2006:** Kristopher Karnauskas from University of Maryland visited COAS/CIOSS as part of the NESDIS CI Summer Exchange program. On September 25, Kris presented a seminar entitled, "Interannual Variability of SST and Chlorophyll in the Eastern Pacific Warm Pool: High-Resolution Satellite Observations." After visiting CIOSS, he then attended the EPOC meeting at Timberline Lodge and presented a poster with the same title.

**NOAA Cooperative Institutes Student Exchange  
25-30 September 2006  
Summary Report**

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*Visiting:*  
Cooperative Institute for Oceanographic Satellite Studies  
Oregon State University  
Corvallis, OR

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**1. Introduction**

Kris received an invitation to visit the Oregon State University (OSU) Cooperative Institute for Oceanographic Satellite Studies (CIOSS) after giving a brief summary of his research at the Cooperative Institute for Climate Studies (CICS) five-year review and meeting CIOSS director Prof. Ted Strub. The objectives of the visit were to (1) gain exposure to the breadth of research being conducted at one of the NOAA cooperative institutes, (2) make the acquaintances of a number of research scientists, postdocs and students with similar research interests, (3) share knowledge and ideas, and (4) explore the potential for future, more formal, collaborations with CIOSS fellows, postdocs and students. This visit became possible through the support of the NOAA National Environmental Satellite Data and Information Service (NESDIS).

Kris is a Ph.D. Candidate at the University of Maryland (UMD) Department of Atmospheric and Oceanic Sciences (AOSC), and a graduate research assistant at the Earth System Science Interdisciplinary Center (ESSIC)/CICS under the direction of Prof. Tony Busalacchi. Kris received his B.S. in Atmospheric and Oceanic Sciences at the University of Wisconsin-Madison and worked as a student employee at the Cooperative Institute for Meteorological Satellite Studies (CIMSS). Kris' current research interests are air-sea-land interaction in the tropical

Pacific Ocean. Kris' thesis topic is on the physical mechanisms for interannual variability of sea surface temperature (SST) and chlorophyll in the east Pacific warm pool (EPWP), and its impact on regional hydroclimate. Kris attempts to integrate satellite remote sensing and numerical ocean modeling.

## **2. Activities**

Kris' activities at CIOSS were broken into two segments: (1) visiting CIOSS in Corvallis and (2) attending a relevant conference with CIOSS people.

While visiting CIOSS in Corvallis:

- Kris had many one-on-one meetings with CIOSS fellows, postdocs and students, each approximately one hour in length. Over the course of Monday through Wednesday, Kris met with Ed Dever, Ted Strub, Martin Saraceno (postdoc), Larry O'Neill (student), Diego Figueroa (student), Dudley Chelton, Ricardo Letelier, Peter Strutton, Craig Risien, Antonio Fetter (student), Eric Maloney, Clayton Paulson, and Alan Mix.
- Kris gave a seminar in the physical oceanography series entitled *Interannual Variability of SST and Chlorophyll in the East Pacific Warm Pool: High-Resolution Satellite Observations*.
- Kris attended another visiting student's seminar (Melanie Fewings, MIT-Woods Hole joint program) on coastal dynamics from in situ measurements off Martha's Vineyard.
- Kris had informal discussions over meals with both students and fellows.

Thursday through Saturday, Kris attended the 53<sup>rd</sup> annual East Pacific Ocean Conference (EPOC) at the Timberline Lodge on Mount Hood. Activities included:

- Attending an array of talks on the physical and biological aspects of the northeastern Pacific Ocean. Most talks were focused on the California Current system and the dynamics of the U.S. west coast, but many were of more general interest. The use of satellite observations was a common thread throughout nearly every session.
- Kris presented a poster on the same material as was presented in his seminar at OSU.
- Kris had many opportunities for informal discussion and forming friendships with attendees from CIOSS and elsewhere (e.g. hiking during mid-day breaks).

## **3. Specific benefits to the student**

Kris benefited in a number of ways from his visit to CIOSS in Corvallis and attending the EPOC conference. These include:

- Gaining exposure to the breadth of current research at CIOSS. With this knowledge, Kris has a basis for using CIOSS as a future resource of data, collaborations, or employment.

- Making the acquaintances of a number of researchers and students with whom Kris will likely cross paths in the future.
- Kris gained more experience with giving out-of-town seminars.
- During most- if not all- of the one-on-one meetings at CIOSS, knowledge and ideas were exchanged which will come as tangible help to Kris. This includes recommending to Kris various papers he may have missed that others had become aware of during the course of their research (and not just their own papers...), and discussing various techniques and methodology relevant to his research applications. These gains came most particularly from meetings with CIOSS students and postdocs.
- There were some instances where Kris gained an historical and/or alternative perspective on a problem. Specific examples of this include a conversation with Prof. Clayton Paulson, discussing the biology of the Galapagos Islands with student Diego Figueroa (Kris is also interested in the impact of the Galapagos Islands on the Pacific cold tongue), and the paleoceanography perspective on the east Pacific warm pool with Prof. Alan Mix.
- During a few of the one-on-one meetings with CIOSS fellows, research interests were nearly parallel (as was anticipated). As one example, during a meeting with Prof. Eric Maloney, Kris was able to discuss in detail ideas and exchange specific research results on the mechanisms behind intraseasonal variability in the east Pacific warm pool region. Materials were exchanged and future communication is planned. Similar interactions with Profs. Dudley Chelton and Curt Davis occurred.

#### ***4. Closing remarks and suggestions for future CI student exchanges***

I wish to sincerely thank Prof. Ted Strub, and the NOAA (NESDIS) cooperative institutes exchange program (especially Ingrid Guch and her colleagues) for both logistical and financial support for this visit. Also, I thank all of the CIOSS fellows, postdocs and students with whom I met during the course of my visit.

There is little I could suggest for changes in future CI exchanges. I would continue to ensure the student's seminar is given as early as possible during the course of the visit to streamline the one-on-one meetings. I would also encourage extending the visit one extra day. During this final day, mutually interesting connections that were made during the one-hour meetings could be further developed by sitting down in a group of 2-3 and trying to combine experiences and data to plan a short (e.g. GRL) article together. On the other hand, leaving CIOSS to attend a specialized conference *with* the CIOSS people was valuable as well.