

CIOSS Executive Board Meeting
September 4, 2009
Summary

This meeting was intended to summarize CIOSS activities and partnerships for the Board members and ask for guidance that will help CIOSS gain support for activities and partnerships that extend beyond SOCD to other NESDIS and NOAA offices. Attendees included members Mark Abbott (Chair), Mary Kicza, Al Powell, Curt Davis (ex-officio), Ted Strub (ex-officio), Paul DiGiacomo (guest), Ingrid Guch (guest), Rick Spinrad (guest), Otis Brown (guest) and Mike Freilich (guest).

The CIs represent a research capability for NESDIS. CIOSS in particular has a natural role in helping NOAA formulate plans around the areas of climate and marine ecosystems. For example, with the involvement of local OSU/COAS investigators in the *in situ* observing systems under development within NOAA (IOOS) and NSF (OOI), CIOSS is positioned to help plan for the integration of remotely sensed data (and models that assimilate those data) into the evolving observational networks (and forecast systems). Issues such as ocean acidification, carbon fluxes, increasing hypoxic conditions and marine spatial planning are examples of potential opportunities. Some issues can be organized around key components of the observing system: ocean color, surface vector winds, altimetry and SST. In many cases, however, attacking these problems involves using multiple sensors/parameters and multiple methods (observing, modeling). It also involves crossing barriers that are sometimes found between multiple NOAA offices.

Some of the specific points that were made include:

- Acquisition programs for future sensors and satellites, such as for GOES-R, can be major sources for funding. But there are dangers in relying solely on these programs, as CIOSS found out when the HES-CW sensor was decommissioned from GOES-R and the CIOSS “risk-reduction” funds for that sensor (\$1.5M) disappeared.
- CIOSS can help NOAA address “integrated” problems that extend beyond one office. This requires that CIOSS should have the ability to use its resources on these broader problems. As noted above, progress on these issues often requires a combination of remote sensing, *in situ* observations and models (numerical, statistical and theoretical).
- CIOSS can also help with “sustained observation systems,” including the development of longer climate data records (CDR’s) from multiple sensors (similar to the NASA SIMBIOS program). CIOSS can contribute to planning for new sensors, strategic planning to create CDR’s from combinations of U.S. and international satellite sensors, as well as the actual construction of the CDR’s.
- “Research-to-Operations” activities are another potential for CIOSS growth, continuing to develop its interactions with the CoastWatch and Sea Grant programs. Given the more limited range of operational products for marine applications (compared to those for atmospheric applications), CIOSS often needs to help to define and create the needed applications and products, not just to

improve existing operational products (as is often the case for the atmospheric operational products within NESDIS and NCEP).

- CIOSS efforts should be structured along clear, prioritized objectives for NOAA, and not simply chase potential sources of funds, which are often organized around single sensors or missions, or administered by single offices. This again requires the ability to work across existing boundaries within NOAA and between NOAA and other agencies.
- Exchanges of personnel (professors, post-docs, students) should be increased to build and strengthen partnerships.

At the meeting, we did not systematically relate the above points to present CIOSS activities. But it is useful to make that connection here:

- Curt Davis and Ricardo Letelier are engaged in preparations for the ocean color measurements on the future VIIRS sensors. Dudley Chelton and Ted Strub are members of NASA teams planning future altimeter and scatterometer missions.
- Separate projects are working on Harmful Algal Blooms (Peter Strutton, Michelle Wood and Angelicque White), ocean acidification and hypoxia (Yvette Spitz, Hal Batchelder and Alexander Kurapov), examples of problems requiring “integrated” approaches.
- The projects collecting *in situ* bio-optical data in coastal and open ocean regions are designed to help create CDR’s for ocean color variables (Ricardo Letelier and Curt Davis). Work on extending the retrievals of altimeter and scatterometer data closer to the coast will make those CDR’s more useful for coastal applications (Barry Vanhoff and Ted Strub).
- Scatterometer, altimeter and model fields are being transitioned to quasi-operational outlets at CoastWatch, IOOS and JPL web sites (Craig Risien and Ted Strub). NOAA needs to be somewhat more flexible in defining marine operational and quasi-operational products, in comparison to the more mature suite of operational atmospheric products.
- Dudley Chelton’s work on air-sea interaction has shown clear connections between SST and winds/convection in the troposphere. This should be relevant to the goal (stated by NCEP and the JCSDA) to improve mid-range weather forecasts. The use of more realistic SST boundary conditions and improvements in the models’ marine boundary layer dynamics could provide those improvements in forecast skill. On the ocean side, the addition of Lagrangian, particle-tracking capabilities to ocean circulation models addresses aspects of marine spatial planning, a high priority objective of NOAA. The basic circulation fields are also useful in a number of high-priority applications such as fisheries and search and rescue. Ecosystem model components address locations and timing of algal blooms, which may be related to HABs, increasing hypoxic conditions and ocean acidification, further priorities for NOAA (Hal Batchelder, Yvette Spitz, Alexander Kurapov, Ted Strub, Craig Risien).
- Several visits of NOAA personnel to CIOSS occurred early in its existence, resulting in improvements to NOAA products (e.g., Dick Reynolds’ visit to Dudley Chelton led directly to improved OI fields of SST). These types of visit need to be resumed and increased.