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# SENSORS: Collaborative Research: ALOHA Mooring Sensor Network and Adaptive Sampling

Emmanuel S. Boss

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**Final Report for Period:** 10/2005 - 07/2006**Submitted on:** 06/04/2007**Principal Investigator:** Boss, Emmanuel S.**Award ID:** 0329581**Organization:** University of Maine**Title:**

SENSORS: Collaborative Research: ALOHA Mooring Sensor Network and Adaptive Sampling

### Project Participants

#### Senior Personnel

**Name:** Boss, Emmanuel**Worked for more than 160 Hours:** Yes**Contribution to Project:**

The PI E. Boss received a total of one month of salary from this grant. Boss roles in this collaborative proposal were:

1. Provide advice on optical sensors to deploy on the mooring and their relation to in-water biogeochemical properties.
2. Assist in technical question associated with optical sensors (e.g. calibration, deployment location on platform, anti-biofouling strategies).
3. Assist in the analysis and interpretation of optical data collected in-situ.
4. Assist with development of adaptive sampling technique and strategy.

To date the mooring has not been deployed. Optical sensors have been purchased in consultation with Boss. Boss has had many (>100) email exchange and phone conversation with PI's Howe and Lukas. We met in person twice during the proposal period (in HI once in Seattle) to discuss the details associated with the mooring. Boss visited the APL facility in Seattle, has seen the mooring components and provided advice on optimal location for sensors, data integration, and biofouling strategies.

Boss has advised a graduate student (Wang) who is partially funded by this project to develop a method for uncertainty estimation in inverted in-water properties. The method developed will assist in providing uncertainty estimates to biogeochemical variables derived from the optical measurements once the mooring will be deployed.

#### Post-doc

#### Graduate Student

**Name:** Wang, Peng**Worked for more than 160 Hours:** Yes**Contribution to Project:**

Peng Wang has been paid 7 months on this grant. Peng worked on the development of an algorithm to invert ocean color to in-water ocean optical properties. A large part of his effort was directed towards obtaining uncertainties in the inverted product. This part of his research is directly applicable to this proposal as it relates to the method by which uncertainties in biogeochemical in-water variable can be computed when inverting the optical measurements done by sensors deployed on the profiler. In addition, the method developed through Peng's work will assist in the adaptive sampling strategies, chosen such as to minimize resulting uncertainties.

**Name:** Russo, Clemantina**Worked for more than 160 Hours:** No**Contribution to Project:**

#### Undergraduate Student

#### Technician, Programmer

**Name:** Loftin, James**Worked for more than 160 Hours:** No**Contribution to Project:**

Boss laboratory and computers are supported by Jim Loftin.

**Other Participant**

**Research Experience for Undergraduates**

**Organizational Partners**

**Other Collaborators or Contacts**

None other the collaborative PIs on the proposal (Howe at APL, U Washington, and Lukas and U Hawaii).

**Activities and Findings**

**Journal Publications**

**Books or Other One-time Publications**

**Web/Internet Site**

**Other Specific Products**

**Contributions**

**Categories for which nothing is reported:**

Organizational Partners

Activities and Findings: Any Research and Education Activities

Activities and Findings: Any Findings

Activities and Findings: Any Training and Development

Activities and Findings: Any Outreach Activities

Any Journal

Any Book

Any Web/Internet Site

Any Product

Any Contribution