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SSIO 2015 Internship Opportunity Position

Internship Information

Project title:	Finding Harmful Algae with High Resolution Satellite
NOAA mission goal:	Resilient Coastal Communities and Economies
Hypothesis or objectives:	We are trying to identify cyanobacteria blooms in freshwater estuaries and the Great Lakes. These blooms produce toxins, for example a bloom in Lake Erie in August forced the City of Toledo to shutdown the water supply for 500,000 people. We are using 300 m and coarser satellite data. While this is useful, state public health and environmental managers would like higher resolution for small water bodies or near water intakes. Can higher resolution data from Landsat, RapidEye, or Sentinel-2 provide a routine capability for monitoring and assessment of harmful algal blooms?
Academic status:	Undergraduate
Area(s) of discipline:	Remote Sensing Technology
Internship location:	Silver Spring, MD
Duties and responsibilities:	The data from one or more of these satellites--Landsat, Rapid-Eye, Sentinel-2--would be evaluated to determine if blooms we have seen (like in Lake Erie and in Florida) can be consistently and reliably detected and quantified. The intern will process the satellite data with several algorithms, compare the data to MERIS and other measurements we have, and evaluate the consistency and accuracy of the algorithms. The intern will also help conduct local measurements on water reflectance (Potomac River and Chesapeake Bay) in order to understand how the data sets are simulated from radiometer measurements
Special skills/training required:	The intern needs experience with satellite imagery, either in GIS or remote sensing software. Some experience with any sort of programming or scripting would be helpful.
Expected outcomes:	The intern will learn about characteristics of different satellites, understand more about satellite processing, water color, and the types of data that are of concern for management (biomass, how species are identified, etc.). This is an opportunity to work with lots of satellite imagery showing water quality, and to help with a public health and environmental management problem. (Also, the student will also learn some use of linux.)
Guidance and supervision:	The intern will work in a team. Mentoring will cover explaining concepts and methods, instruction in software, making sure that data sets are available in usable forms, and that methods are well within the abilities of the intern.
Posted or modified date/time:	Friday, October 03, 2014 - 12:46:00 PM

Internship Travel Information

Purpose (student's role): **Local travel to collect samples and at least one day trip on a boat in the Chesapeake.**

Mode of transportation: **govt vehicle**

Date(s): **weekly**

Destination: **local water bodies**

Estimated cost: **none**

Source of funding: **internal**

Mentors Contact Information

Name: **Richard**

Organization: **National Ocean Service (NOS)**

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Co-Mentor name: **Shelly Tomlinson**

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Agency or organization: **NOAA/NOS/NCCOS**



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