Coastal Flood Impact GIS Internship-Summer 2015

Assessing and Illustrating the Impacts of Coastal Flooding from coastal storms via NOAA Coastal Service Center GIS Tools and Interfaces

Project Description

NOAA uses computer modeling and tide gauge data to predict tidal water levels and issue warnings for surge events that impact coastal communities along the Chesapeake Bay. NOAA and its partners have identified a critical need for visualization tools of predicted inundations based on forecast water levels. Such inundation forecasts are critical for NOAA Decision Support Services to provide the tools necessary to protect life and property and help ensure a WeatherReady nation. Norfolk, Virginia has been identified by NOAA as one of the Top Ten U.S. areas with an increase in nuisance flooding resulting from sea level rise. NOAA Coastal Services Center's Digital Coast has developed a Sea Level Rise Viewer that provides inundation projections for sea level rise based on water rises above Mean High-High Water (MHHW). By modifying the sea level rise tool, a Storm Based Coastal Flood Impact tool based on forecasts above Mean Low-Low Water or other datums could be created.

In this position, the intern will work with NOAA's Wakefield National Weather Service (NWS) Office, National Ocean Service (NOS), and Office of Hydrology to develop a modified Coastal Flood Impacts viewer focused on Norfolk, VA, building GIS layers based on water levels from the NOS tide gauges at Sewells Point, Money Point and the Chesapeake Bay Bridge Tunnel. Activities will include collaborating among NOAA offices including NOS and NWS as well as with end users defining the necessary viewer requirements, modifications, and enhancements. In addition, the intern will develop a standardized workflow for creating a Coastal Flood Impact Viewer allowing for expansion beyond Norfolk, VA. This project will augment planned NOS COOPS (Center for Operational Oceanographic Products and Services) landmark surveys in the Norfolk area which will provide validation of inundation projections. NOS survey will also provide additional water level references for forecasters and decision makes, all of which should be incorporated into the Coastal Flood Impact Viewer.

This position is offered in partnership with the NOAA Chesapeake Bay Office and the Chesapeake Research Consortium.

Opportunities

This position offers an amazing opportunity to work alongside NOAA scientists and environmental managers. The intern will gain first-hand knowledge of NOAA coastal inundation modeling and mapping systems applying model and forecast data to real-world environment for Decision Support Services. The experiences and skills gained from the internship will be valuable to someone seeking further education or career development in computer modeling, environmental science, hydrology, water resources engineering, or other earth science discipline.

Requirements

- Motivated self-starter with ability to work independently. College level coursework in GIS, physics, mathematics, and basic statistics. Coursework in meteorology, hydrology or oceanography is a plus, but not required.
- Strong computing and GIS mapping skills (e.g., experience with GIS based systems and mapping services). Intermediate level GIS skills or better with ArcMap, ESRI and ESRI online are necessary. Knowledge in the application of ESRI StoryMaps is a plus.
- Must be a U.S. Citizen and willing to undergo a security background check
- Must currently be enrolled in an undergraduate or graduate institution pursuing a degree in science or engineering, or have recently completed (within the last 2 years) an undergraduate degree.

Work Location and Duration

The intern will be stationed at the National Weather Service Office in Wakefield, Virginia, or a partner institution in the surrounding region. Occasional travel to other NOAA offices and partner organizations may be required. *The position will begin in mid-May and conclude in mid-August (12 weeks).* Computer and phone services will be provided.

Compensation

The intern will be reimbursed at the end of each month, for a total of up to $4,500 for the equivalent of 12 weeks of full-time activities (480 hours). Funds are available to compensate interns for occasionally required work-related travel. Candidates should expect to follow a normal weekday work schedule (roughly 9-5, M-F) with occasional variations for possible field work or other activities. No benefits are provided. A small housing stipend is available for those needing it, and we offer assistance in arranging local housing.

Application Instructions

Applicants are instructed to register with the Chesapeake Jobs online application website: http://communitymodeling.org/bayjob/ to apply. You will be instructed to submit a resume and cover letter, along with three references. The deadline for applications is February 20, 2015.

Additional resources

http://slrviewer.rutgers.edu

http://www.erh.noaa.gov/box/inundation/coastalInundation.html#

http://malma.maps.arcgis.com/apps/StorytellingTextLegend/index.html?appid=5e080365ccd54fb29472a898ebbb15c6

http://stanford.maps.arcgis.com/apps/StorytellingTextLegend/index.html?appid=dafe2393fd2e4acc8b0a4e6e71d0b6d5

http://www.arcgis.com/apps/StorytellingSwipe/?appid=d0beccde753d4038a62c7a9b6d15279a#

http://noaa.maps.arcgis.com/apps/StorytellingTextLegend/index.html?appid=b1a20ab5eec149058bafc059635a82ee

Embedding Story Maps in a Webpage
http://www.smithsonianmag.com/history/what-did-chicago-look-great-fire-180947929/?no-ist