

2010 RiverSonde Equipment Grant Awards

Congratulations are in order for the two RiverSonde equipment grant recipients – David Honegger of Oregon State University (OSU) and Rutgers University pair Danielle Holden & Dakota Goldinger!

Rutgers University undergraduate students Danielle Holden and Dakota Goldinger are deploying the RiverSonde as part of the Department of Homeland Security (DHS) Summer Research Institute program. In June their team installed the RiverSonde unit atop Stevens Institute of Technology's Center for Maritime Systems building at the edge of the Hudson River, directly across from Manhattan. Since the unit is high above land the range of the system is extending beyond the traditional 200-300m limit, reaching across the approx. 1150m wide channel. Data will be integrated into the New York Harbor Observing and Prediction System (NYHOPS) that models spatial and temporal variability of urban waters and microclimate. The team will both assimilate and compare the RiverSonde surface velocity measurements into the NYHOPS Hudson River Model with the goal of improving forecasts. Data from the RiverSonde are plotted in real-time and displayed on the Coastal Ocean Observation Laboratory website at <http://www.rucool.org>

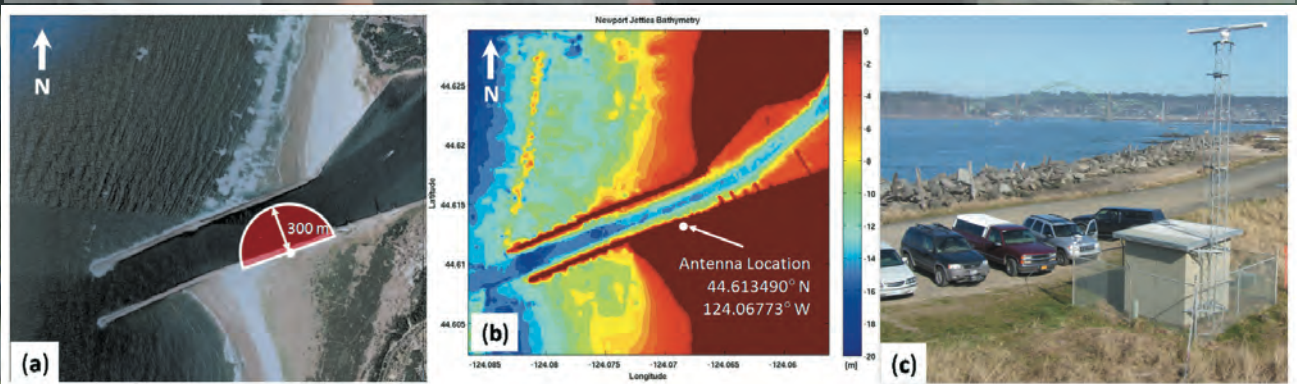


Hudson River RiverSonde radial velocity vector map (green) with cross-channel velocity profile in magenta.

Background Image: Students participating in the DHS Summer Research Institute Program install RiverSonde hardware atop building, with Hudson river and Manhattan skyline as backdrop.

Mr. Honegger is working towards a Ph.D in Civil Engineering with a disciplinary focus in Coastal and Ocean Engineering at Oregon State University. This Fall he will deploy the RiverSonde unit between the Newport, Oregon jetties that form a 300 meter wide channel. The data will be used to approximate the along-stream current magnitude and cross-stream current profile and determine the variability due to tides and precipitation events. The wave direction, wavelength and presence of breaking extracted from X-band marine radar images outside the jetties collected by Dr. Merrick Haller of OSU will be compared against the tidal current information gathered from the RiverSonde data to help characterize the importance of currents with respect to the wave breaking events. The RiverSonde data will also be compared against the modeled currents of a 3-D Yaquina Bay circulation model developed by Dr. James A. Lerczak (College of Oceanic & Atmospheric Sciences, OSU). The outcome of this circulation model validation will help Honegger introduce accurate tidal current time series into the Unstructured-grid Simulating Waves Nearshore (UnSWAN) spectral wave model and appropriately compare modeled wave-current interactions with those observed in the X-band marine radar images.

Grant recipients receive use of RiverSonde for 3 months, CODAR engineer assistance with installation, a training course offered at the recipient institution, and travel funds to present their findings at a scientific conference.



These figures are excerpted from Honegger's grant proposal. Figure 1: (a) Google Earth snapshot and estimated radar footprint near Newport, OR, (b) bathymetry near the antenna location, and (c) photograph of the existing marine radar station and planned RiverSonde installation location.