

## Field survey in Eastern Samar, The Philippines (May 23-29, 2014)

Theme: Topographic and bathymetric survey of towns inundated by waves from Typhoon Haiyan  
 Location: Hernani and Guiuan, Eastern Samar, The Philippines

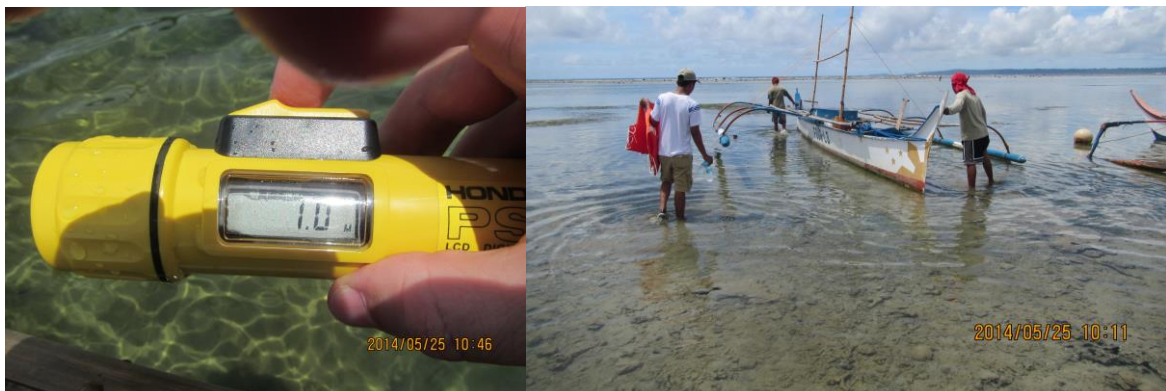
To gather the data needed for modeling the inundation of Eastern Samar towns by storm waves during Typhoon Haiyan, Volker Roeber and Jeremy Bricker of the Hazard Risk Evaluation and Research Division carried out topographic and bathymetric surveys in Hernani and Guiuan. The land surveys were run with a Differential GPS setup (base and rover), extending from the coral reef fronting each town (walking over the reefs at low tide) to the hills upland from each town (driving to cover more ground). The bathymetric survey was carried out in each town using a handheld sonar device to measure depth around and offshore the coral reef in Hernani, then using a GPS camera to photograph the depth measurements, giving a quick and accurate record of location and depth.

Assistant Professor Jibiki from the International Regional Cooperation Office and 3 graduate students from the Leading Graduate School program assisted with much of the land survey. They also interviewed local residents and officials to learn about the effectiveness of evacuation during Typhoon Haiyan.

During post-processing, the topographic and bathymetric data were referenced to mean sea level based on the TPXO global tidal inverse solution. The Digital Elevation Model (DEM) created for each town is being used as the domain for 1-dimensional and 2-dimensional wave models to understand how waves caused such devastation in these towns. Results of these simulations can be seen on the laboratory's website at [http://hydraulic.lab.irides.tohoku.ac.jp/app-def/S-102/2014/?page\\_id=54](http://hydraulic.lab.irides.tohoku.ac.jp/app-def/S-102/2014/?page_id=54) and [http://hydraulic.lab.irides.tohoku.ac.jp/app-def/S-102/2014/?page\\_id=268](http://hydraulic.lab.irides.tohoku.ac.jp/app-def/S-102/2014/?page_id=268).



Differential GPS base station at Hernani town hall (left) and rover surveying the coral reef in Guiuan (right).



Handheld sonar used to measure water depth in Hernani (left) and the boat and crew who carried out the survey (right).