



CARICOOS

The Yabucoa Port Metocean Observation and Prediction System

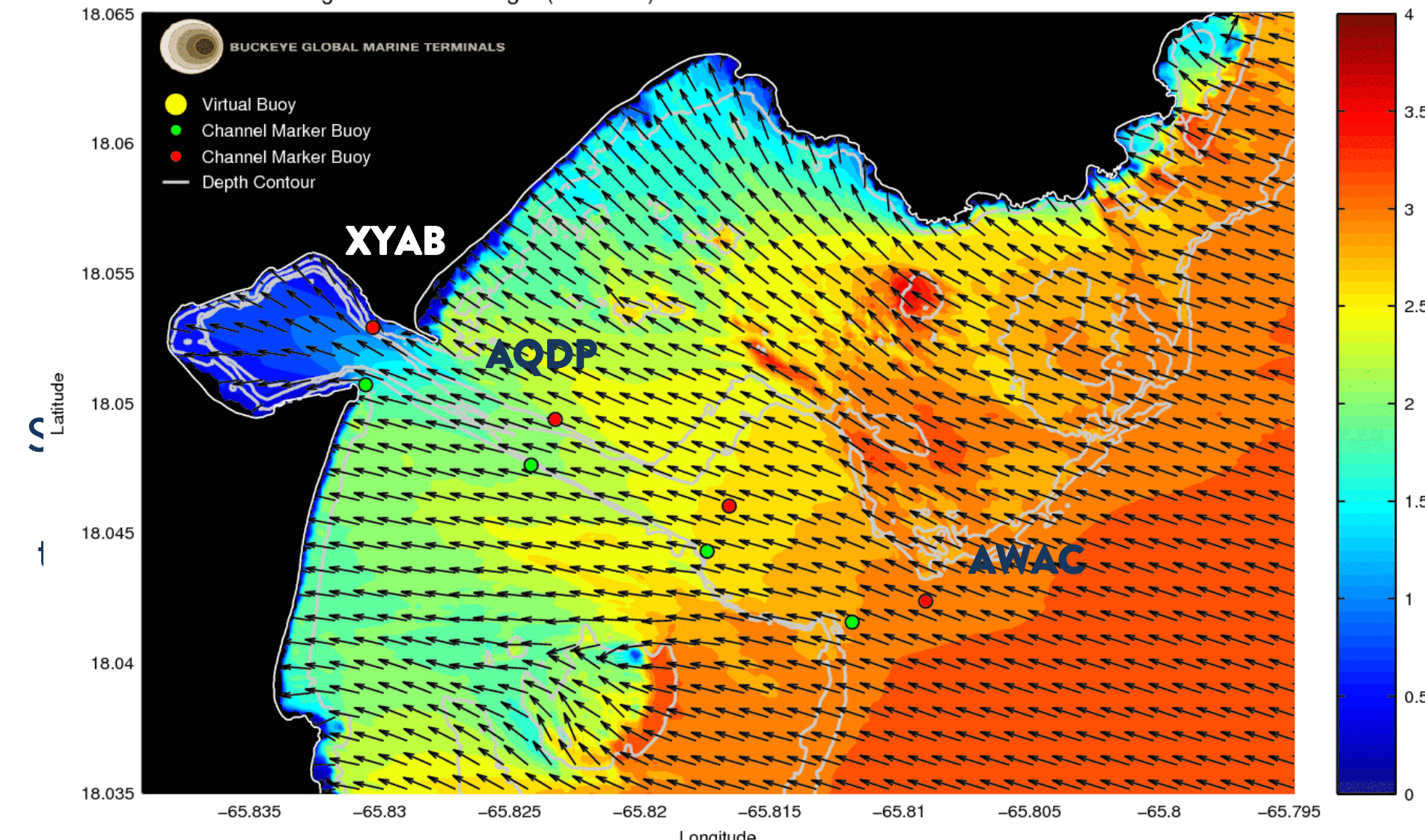
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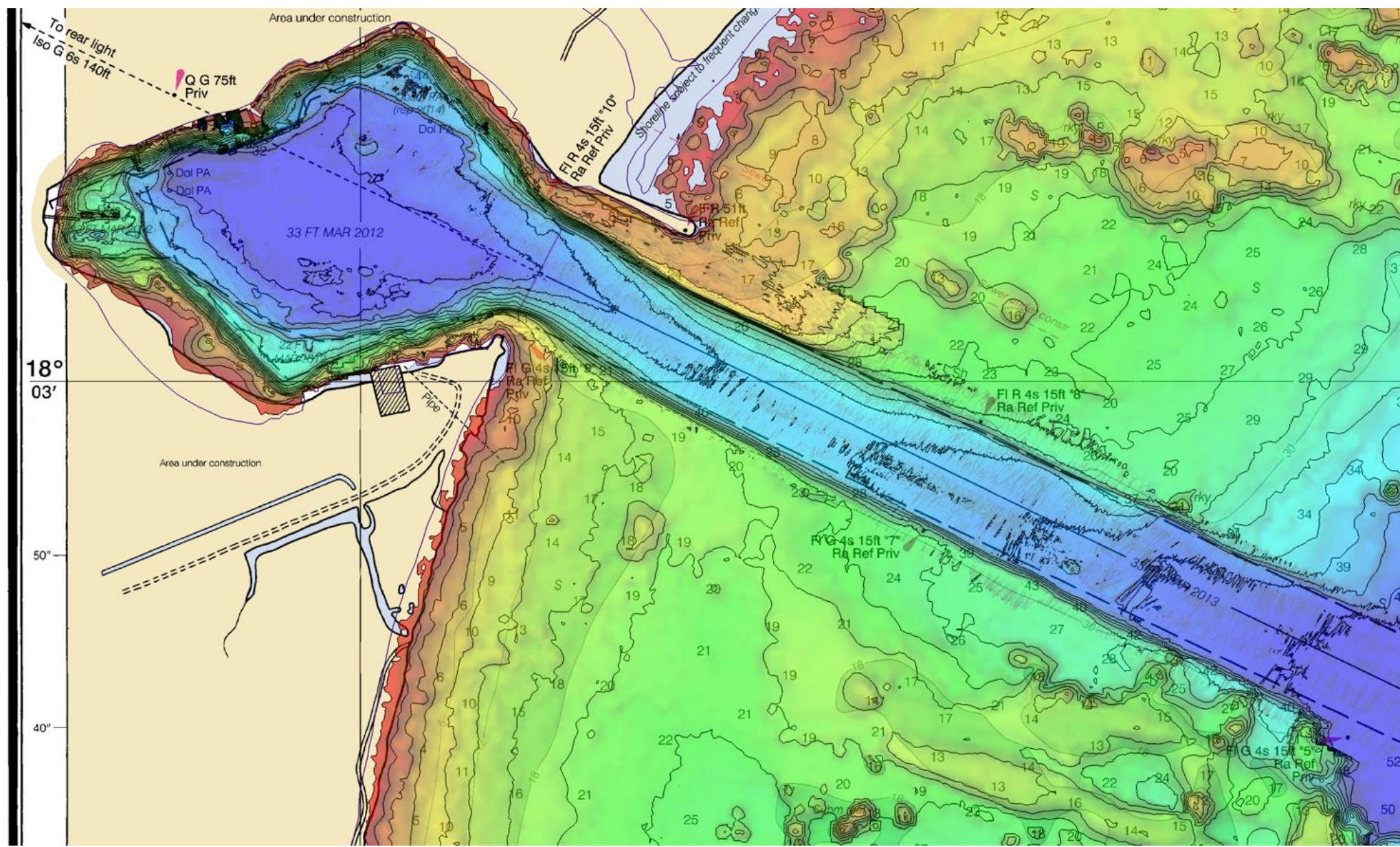
The Yabucoa Port Metocean Observation and Prediction System is an operational system that provides real-time data and forecasts in support of navigational safety at the Port of Yabucoa, operated by Buckeye Global LLC. The system is composed of a high resolution wind model, a high-resolution wave model, a wind sensor (XYAB) and a water level sensor. This data is presented in a user-friendly web interface designed based on the needs of the area's harbor captains.



Yabucoa Port Operational Wave Model (run: 20160130.0000 machine:swanwrf) Significant wave height (Hs - feet) and direction for 2016-01-31-1700 local time

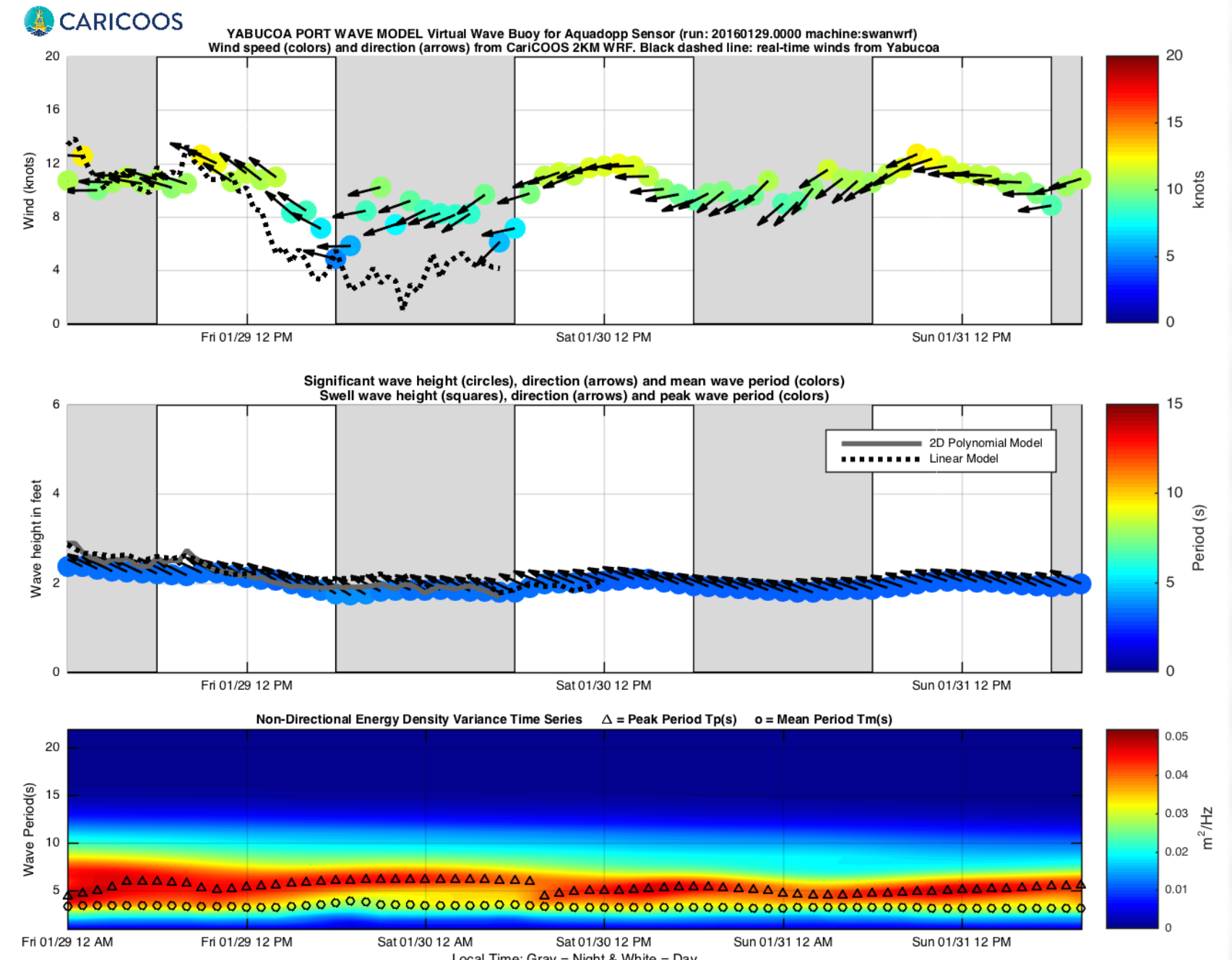
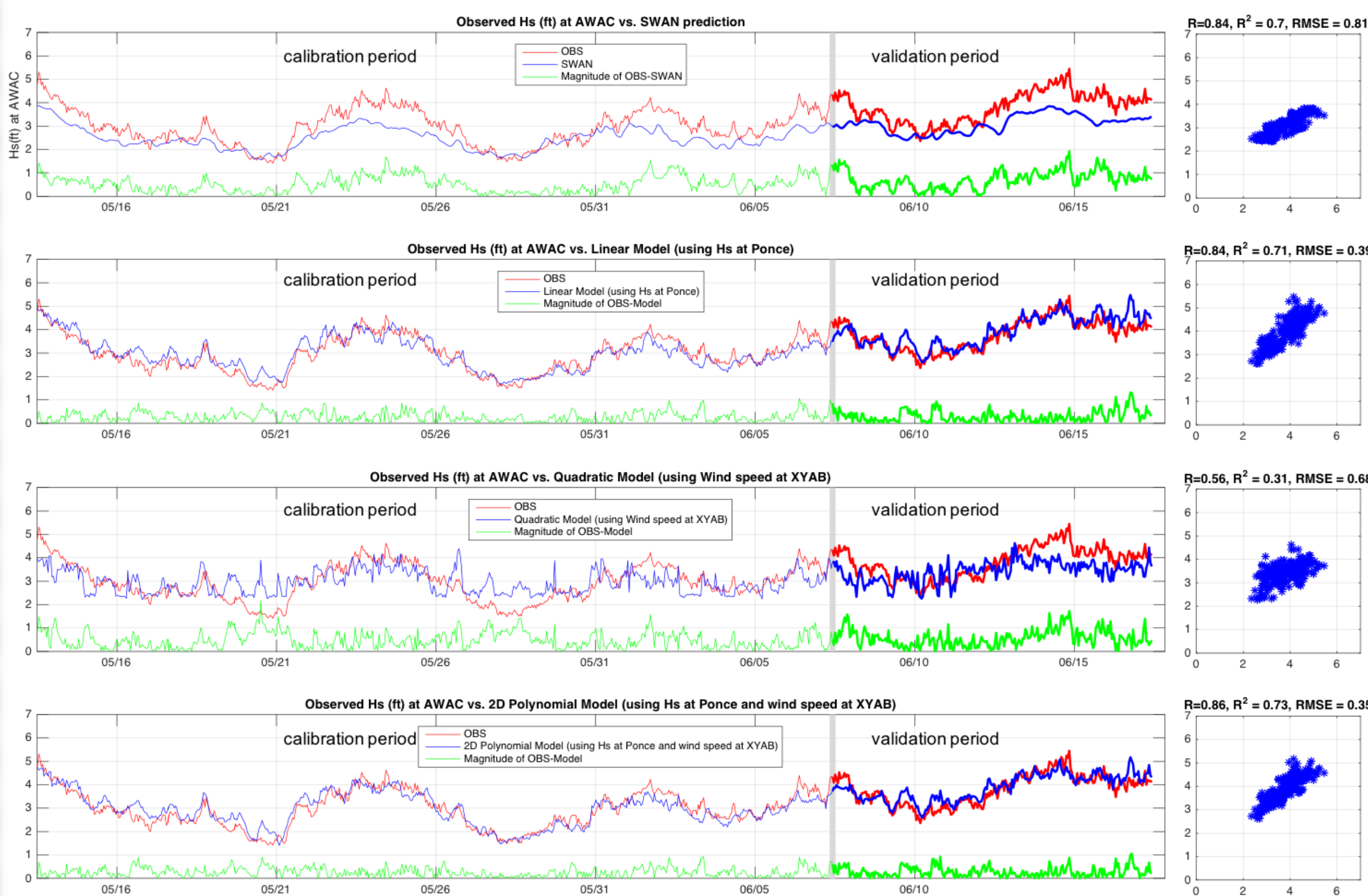


Example of operational wave model output.



Zoom of the Yabucoa Port DEM developed for the present study.

A model validation experiment was conducted from May 13 to June 17, 2015 (35 days) in order to understand in detail the wave characteristics at the study site and validate the Yabucoa Port Operational Wave Model. Using data from the 35 day model validation experiment, a multivariate polynomial regression model was constructed to predict wave conditions at Yabucoa using data from the CARICOOS Ponce buoy and XYAB wind data.



Several models were evaluated, taking into account the potential of multicollinearity. The best model was found to be a third-order 2D polynomial. This model is run every 30 minutes to perform a correction to the SWAN wave model.