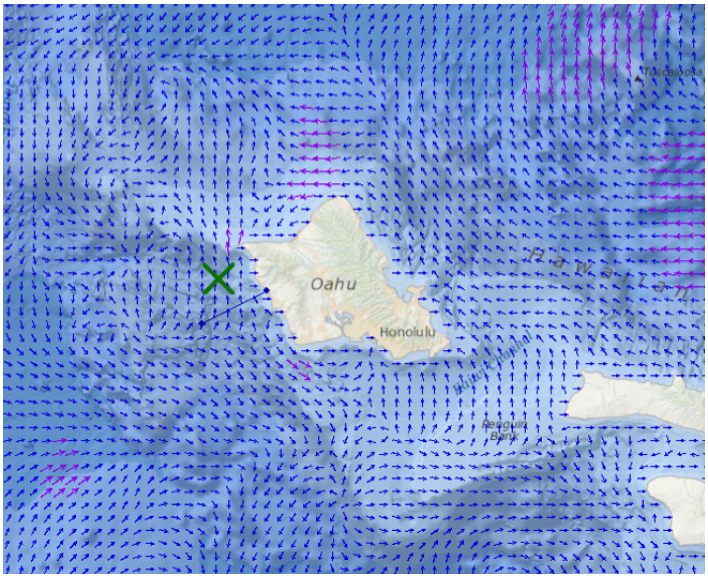
Providing the U.S. Coast Guard with Ocean Data to Save Lives

Bob Marlin Vessel and Crew Lost At Sea

The Pacific Ocean is a vital resource and habitat for marine species and people alike. Many Pacific Islanders heavily depend on the ocean for their livelihoods, while others simply enjoy to recreate in the ocean. At times though, rough seas or other unforeseen conditions can make the ocean a dangerous place. For more than 200 years, the U.S. Coast Guard (USCG) has safeguarded our oceans and has helped those in peril.

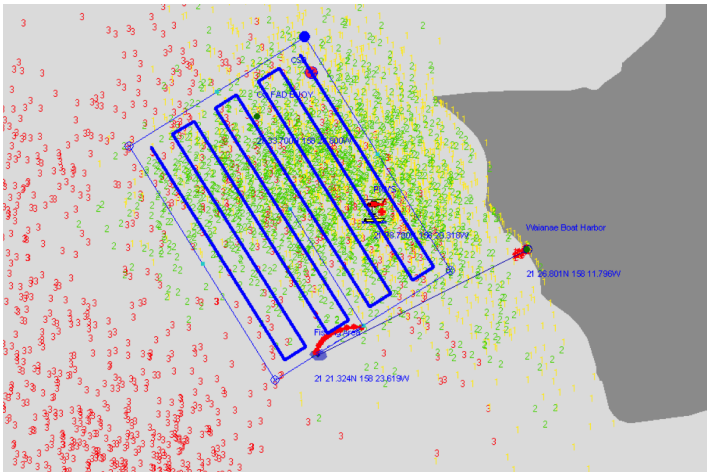
In August 2013, when the USCG Command Center, Sector Honolulu, received notice of the vessel Bob Marlin and three crew members missing off West O'ahu, the responders knew it would be a challenging case due to the many unknown variables. It was unknown when the crew left the harbor or where the boat was heading. It was also unclear how the vessel and crew got in trouble and whether the crew was still onboard or if they had been separated from the vessel.



Forecasted Regional Ocean Modeling System (ROMS) ocean currents at the time of the incident. The green cross indicates the search area.

U. S. Coast Guard and PacIOOS Join Forces

When conducting a search and rescue mission, the controllers need access to the best available ocean data and information for integration into their Search and Rescue Optimal Planning System (SAROPS). Therefore, the USCG works in close partnership with PacIOOS to assure that relevant, local ocean information is available and accessible for use in SAROPS. In this case, the USCG integrated the predicted ocean currents from the PacIOOS Regional Ocean Modeling System (ROMS) into SAROPS, to narrow down the possible location of the missing crew.



Overlying the yellow and green particles, the grid identifies the likely area for the missing crew, as modeled by ROMS.

"With so many unknowns at the outset of the case, it was critical to be able to rely on something being correct. In this case that correct factor was [PacIOOS'] environmental data, putting us in position to assist the distressed mariners."
– USCG, Sector Honolulu

Providing the U.S. Coast Guard with Ocean Data to Save Lives (Continued)

U.S. Coast Guard Search and Rescue saved more than 3,000 lives in 2013. *Photo Credit: U.S. Navy, Keith W. DeVinney*

Help at Hand

The ROMS and SAROPS models were spot on! After 18 hours of intensive search, a USCG helicopter located the three missing mariners in the high probability area that was determined by the models. The vessel was capsized, but luckily all crew members were successfully rescued.

We commend the U.S. Coast Guard for a successful rescue and would also like to congratulate District 14 for receiving the 2013 Search and Rescue Controller of the Year Award. This favorable case stresses the importance of having high quality data readily available to help those in need.

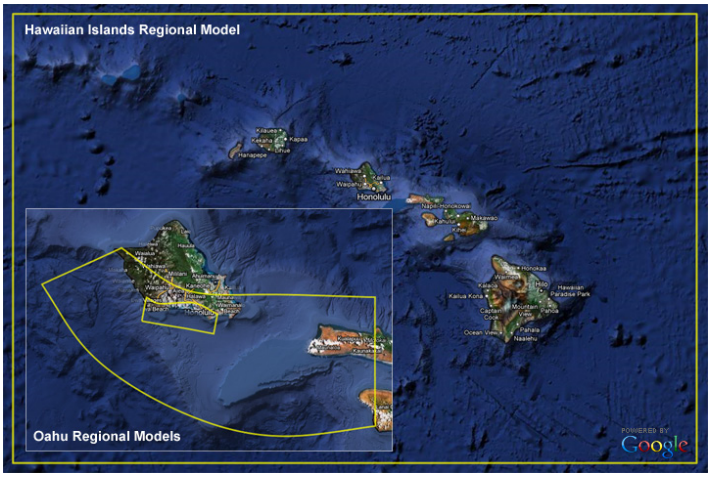
E-mail PacIOOS at info@pacioos.org about your ocean observing needs or if you have any questions.

www.pacioos.org

What is ROMS?

ROMS stands for Regional Ocean Modeling System and is a mechanism to generate forecasts of ocean currents, sea surface height, water temperature, and salinity. Every day, all available observations collected for the past three days are assimilated to provide a "nowcast" for the current ocean conditions. From this nowcast, an ensemble of 7-day forecasts is generated to provide the best ocean circulation estimate with uncertainty for the next week. All data are made available at pacioos.org and can be viewed in the PacIOOS Voyager (pacioos.org/voyager).

PacIOOS hosts three different models for Hawai'i that vary in scale: (i) the Hawaiian Islands regional model covers the populated Hawaiian Islands, (ii) the O'ahu regional model covers the south and west of the island of O'ahu on a refined scale and (iii) the O'ahu south shore regional model covers Māmala Bay and specifically focuses on the most populous beaches of Waikīkī. The finer scale ROMS model describes the predicted currents around Waikīkī for the next few days, to ensure a safe ocean environment for millions of visitors.



Geographic area of PacIOOS Regional ROMS models.

For more information on the U.S. Coast Guard, District 14, please visit:
http://www.uscg.mil/d14/

For more information on PacIOOS modeling, including ROMS, Wave Models, WRF Atmospheric Model and Model Forecasts, please visit:
http://pacioos.org/focus/modeling

For more information on PacIOOS real-time observation, please visit:
http://pacioos.org/data_access/rt_obs.php