NOAA AOML Hurricane Underwater Gliders

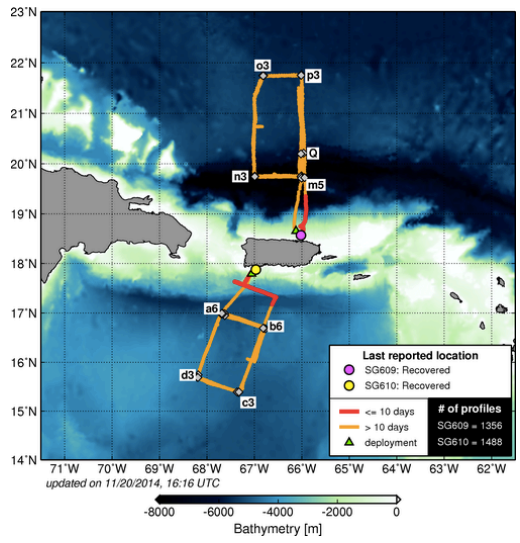
http://www.aoml.noaa.gov/phod/goos/gliders

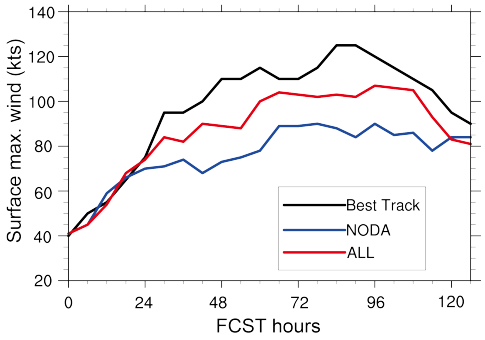
Goal: Improve Atlantic hurricane intensity forecasts.

Objectives: Design, implement, and maintain a network of underwater gliders in the Caribbean Sea and tropical North Atlantic to obtain real-time profiles of temperature and salinity in support of hurricane intensity forecasts.

Key Results:

- AOML is currently operating (in partnership with CariCOOS, CIMAS, UPRM, NOAA/EMC, and NOAA/NDBC) its fourth underwater glider mission. Gliders have provided close to 10,000 profiles in an area where there has been less than 200 profile observations during the last 15 years.
- Underwater glider observations are used to initialize and evaluate numerical hurricane forecast models.
- Underwater glider data improves the representation of the temperature and salinity fields in ocean-atmospheric, which is critical to properly assess ocean mixing and air-sea fluxes, and consequently improve intensity forecasts.





(left) Typical transects with underwater glider observations (top right) carried out using NOAA instrumentation to obtain temperature/salinity data used to reduce the error in intensity forecasts. (bottom right) 120 hour intensity forecast using ocean observations (red line), not using ocean observations (blue line), and actual intensity for Hurricane Gonzalo (2014).

Domingues, R ., G. Goni , F. Bringas , S.-K. Lee , H-S Kim, G. Halliwell , J. Dong , J. Morell, and L. Pomales, 2015: Upper ocean response to Hurricane Gonzalo (2014): Salinity effects revealed by sustained and targeted underwater glider observations. *Geophys. Res. Lett.,* 42(17):7131-7138, (doi:10.1002/*2015GL065378*).

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