

**YEAR:** 2023  
**REGION:** Gulf of Mexico  
**DEPLOYMENT LOCATION:** Gulfport, MS, USA  
**WATER DEPTH:** 6m

**MISSION**

Ocean temperature and salinity incorporated into hurricane models can increase the accuracy of intensity forecasts, particularly when gathered from the upper hundred meters. Tropical cyclones moving over warm ocean features can rapidly intensify and understanding these features can allow modelers to better predict how damaging an oncoming storm might be and avoid property damage, risking lives, or unnecessary evacuations. Gliders are suited for these types of measurements as they can be deployed in the upper hundred meters, safely and autonomously collecting the necessary information during a storm, and sending it back to shore for real time assimilation into operational models.

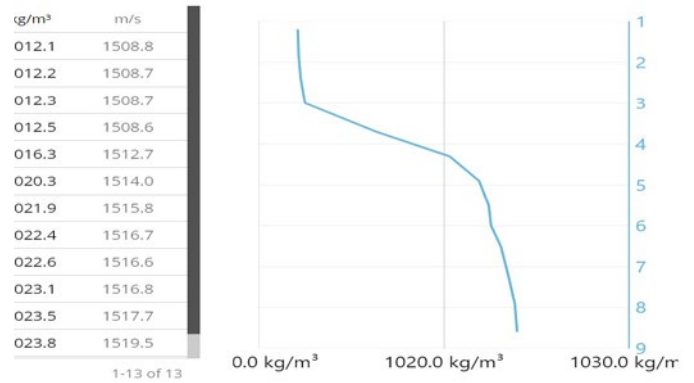
An experienced glider user and prospective OceanScout customer asked the team to demonstrate the system’s capabilities in their waters to assess if it could expand their measurement capabilities. The mission was originally planned for deployment in 50m of water, leaving the glider out overnight with recovery later in the week – a use case close to how they normally deploy gliders. However, due to weather concerns that week, the boat captain did not find the original mission feasible. The team offered to configure a shallow water mission closer to shore, recovering the glider during the same trip.

A shallow water mission, while easier for boat navigation, is quite complex for gliders. To add to the challenge, the environment had been assumed to be well-mixed, but in reality, saw a sharp transition from fresh to salt water at 4m depth.

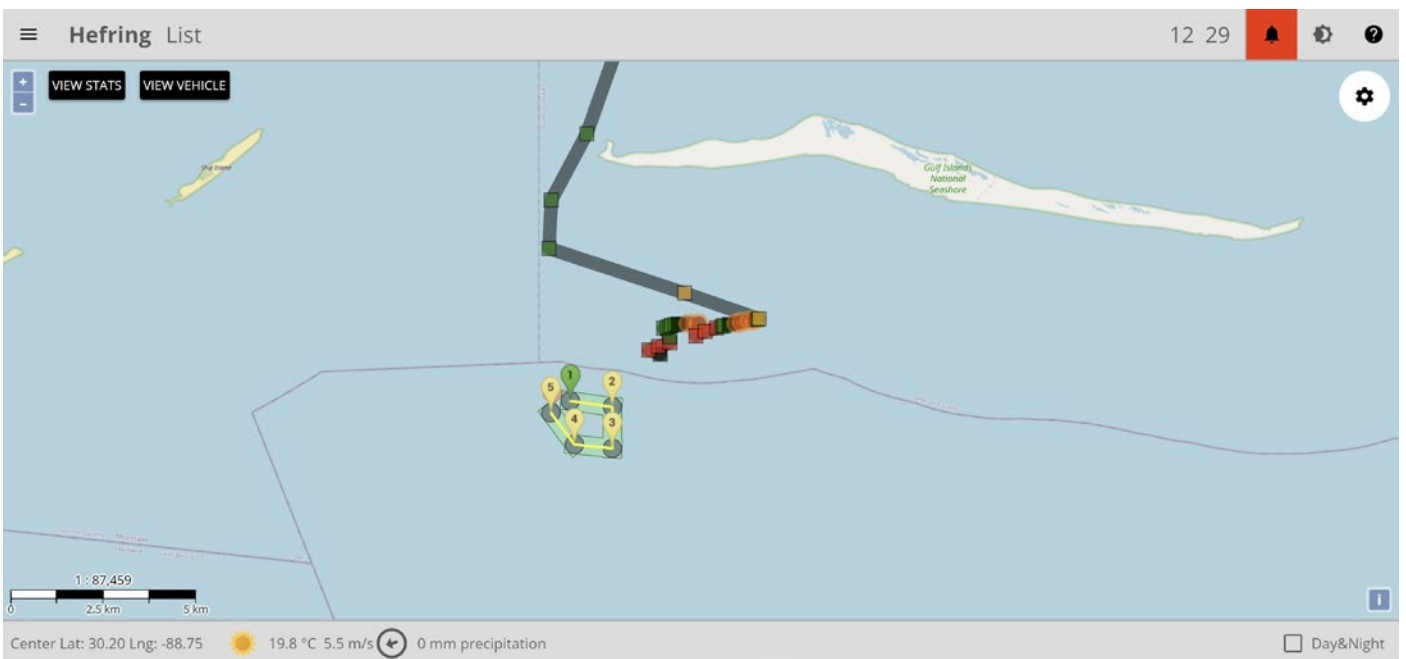


### OUTCOME

OceanScout was able to navigate in just 6m depth and punch through the density gradient with ease, something that these experienced users had not seen from other gliders. Initially, they were interested in OceanScout for the ability to get two units within what was originally a single unit budget and maintain operations consistently through routine maintenance rotations. However, it soon became evident that OceanScout would actually enable new measurements in areas where no other glider could operate.



CT profile in the water column with fresh water at the surface and salt water below 4m. OceanScout was able to punch through this transition with ease.



Due to the boatcaptain's hesitations around weather, the team deviated from the original mission and ran OceanScout in shallow water for demonstration.