# The SailBuoy Project

*in the Gulf of Mexico*

A Deep-C Consortium Fact Sheet

## New Marine Device Used for Scientific Observations in the Gulf of Mexico

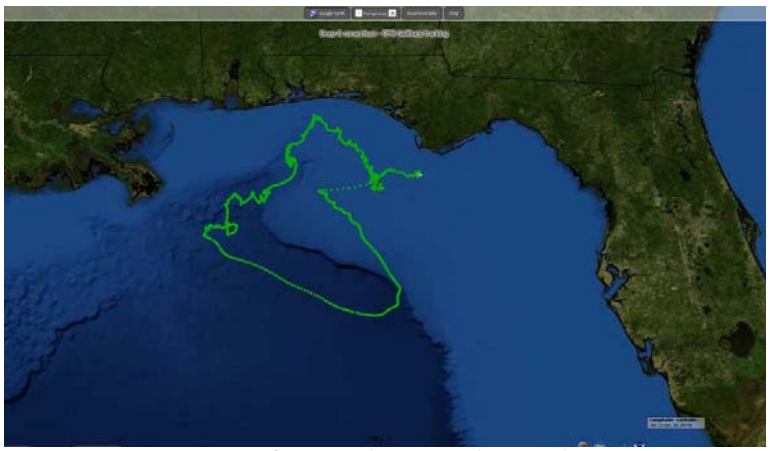

The CMR SailBuoy is an unmanned sailing vessel deployed by Deep-C scientists in the northeastern Gulf of Mexico. It is self-powered, wind-propelled, and it navigates the oceans autonomously.

The SailBuoy is similar to a surfboard in shape and size — two meters in length and has an average speed of 1-2 knots. For the Deep-C mission, it was equipped with two-way satellite communication for real-time data streaming and GPS waypoint updates. While at sea during Spring 2013, it transmitted data to the Deep-C Operations Center at regular intervals along a planned course.

*Pictured at left: Dr. Nico Wienders (FSU) carries the SailBuoy down to the launching platform of the R/V Apalachee during its Deep-C mission. Photo credit: Kris Suchdeve*

## Tracking the SailBuoy

The CMR SailBuoy, dubbed the Argonaut, was launched on March 15, 2013 approximately 11 nautical miles (nm) south of Cape San Blas. She was at sea for approximately two months, and during its mission it sailed approximately 840nm on a cruise track across the Gulf coast, from the Florida Panhandle to West Louisiana. Check out our blog "*Voices from the Field*" (on the Deep-C website: www.deep-c.org) for an account of its journey from the Deep-C scientists, who kept a watch on her as she moved about in the northern Gulf of Mexico.



*Deep-C Consortium/CMR SailBuoy Tracking, Web Map Viewer*

## The SailBuoy's Mission to Gather Scientific Data


*DeSoto Canyon in the Gulf*

Sensors were mounted on the SailBuoy that allowed scientists to monitor seawater parameters, such as temperature, salinity and dissolved oxygen. Collection and analysis of this data will help Deep-C researchers better understand how particles and dissolved substances (such as oil) are transported from the deep Gulf to the shelf waters in the northeastern Gulf across the continental shelf and the DeSoto Canyon – an erosional valley that cuts through the continental shelf in the northern part of the Gulf. Another objective of Deep-C's SailBuoy project is to investigate the "Mississippi River plume" — a plume caused by fresh sediment-rich rainwater runoff entering the Gulf of Mexico via the Mississippi River. This plume is visible, nutrient rich sediment that spreads out from the coastline, forming a kind of cloud in the water.

## Salinity · Temperature · Dissolved Oxygen

"Water temperature and salinity are tied to interactions with the atmosphere (heating, cooling, precipitation, evaporation) and have an effect on the density of water: warmer water is lighter, saltier water is heavier. The existence of these density differences is one of the mechanisms that contribute to movement in the ocean. Other forcing mechanisms include, for instance, the wind, the tides, earthquakes, and tsunamis. The sensor we are using on the SailBuoy to measure temperature and salinity is the new G-CTD, developed by the Neil Brown company." – Dr. Nico Wienders


*Sediment entering the Gulf,*
*Credit: NASA Earth Observatory*

***The Sailbuoy is part of a new generation of vehicles designed for marine observations that are enabling scientists to expand and intensify the study of our seas and oceans. It can keep station or travel from point to point, and is a technology owned by the Norwegian company, Christian Michelsen Research (CMR).***

## Scientist Profiles: Drs. Nico Wienders and Lars R. Hole

Dr. Nico Wienders studies the motions of the ocean as a physical oceanographer at Florida State University. Dr. Wienders collaborated with Dr. Lars Hole, senior research scientist at the Norwegian Meteorological Institute, on the SailBuoy project.

More information about this project can be found at *www.deep-c.org/sailbuoy* and *www.sailbuoy.no.*

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