

Air-sea interactions and autonomous vessels in the Tropical North Atlantic: Combining an AutoNaut and Seaglider for surface flux investigation.

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Air-sea interactions are an important contributor to climate variability and extreme weather events, through the exchanges of heat and momentum at the air-sea interface. Vast improvement in quality and quantity of in-situ ocean measurements has been made through satellites and crewed vessels but cost effective in situ monitoring is necessary throughout the year. To do this, we need continued development of platforms that improve our ability to collect data at the air-sea interface, in both the upper ocean and the marine boundary layer.

The Eurec4a campaign ran from January—March 2020 from Barbados, investigating climate change feedback in the Tropical North Atlantic and the role of cloud systems. A wave-powered autonomous vessel – an AutoNaut named Caravela, was deployed to collect in-situ measurements at the air-sea interface and act as a transport system for a profiling ocean glider (Seaglider).

Caravela successfully completed this deployment, including remote Seaglider release, travelling an estimated 1300 km over a period of 33 days. Preliminary results from Caravela show that the AutoNaut vessel is a viable platform to equip for air-sea interaction measurement. Here we discuss the performance of Caravela and preliminary analysis of its meteorological and ocean data from Eurec4a.