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In situ observations from Unmanned Surface Vehicles (USVs) on the GTS: an emerging data set.

The oceans affect the fundamental processes that drive our weather and climate. Saildrone designs and manufactures wind and solar powered unmanned surface vehicles (USVs) which make cost-effective ocean data collection possible at scale. Saildrones are instrumented with a full suite of ocean, meteorological, and fisheries acoustic instruments and have been successfully deployed over the past 5 years in challenging regions of the global oceans.

In situ platforms like ships, buoys, and drifters provide observational data such as mean sea level pressure and sea surface temperature that is assimilated into operational weather forecasts. However, there are gaps in spatial coverage and not all of those platforms are deployed with pressure sensors or other instruments relevant to observational data assimilation. Since July 2017, a subset of data collected from Saildrone USVs has been ingested into the World Meteorological Organization's Global Telecommunication System (WMO GTS) through the US National Oceanic and Atmospheric Administration's (NOAA) data management system, ERDDAP in near realtime.

Capable of missions lasting up to 12 months, Saildrone USVs can maintain a permanent presence, enabling immediate response in an area that needs constant monitoring, or follow a set trajectory designed to measure specific processes or regions, with strict data quality control provided by NOAA and others. This presents a novel opportunity to compliment existing observational data platforms with coverage in remote oceanic areas that contribute to global weather and climate patterns.

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Track Classification: Workshop: Observational campaigns for better weather forecasts