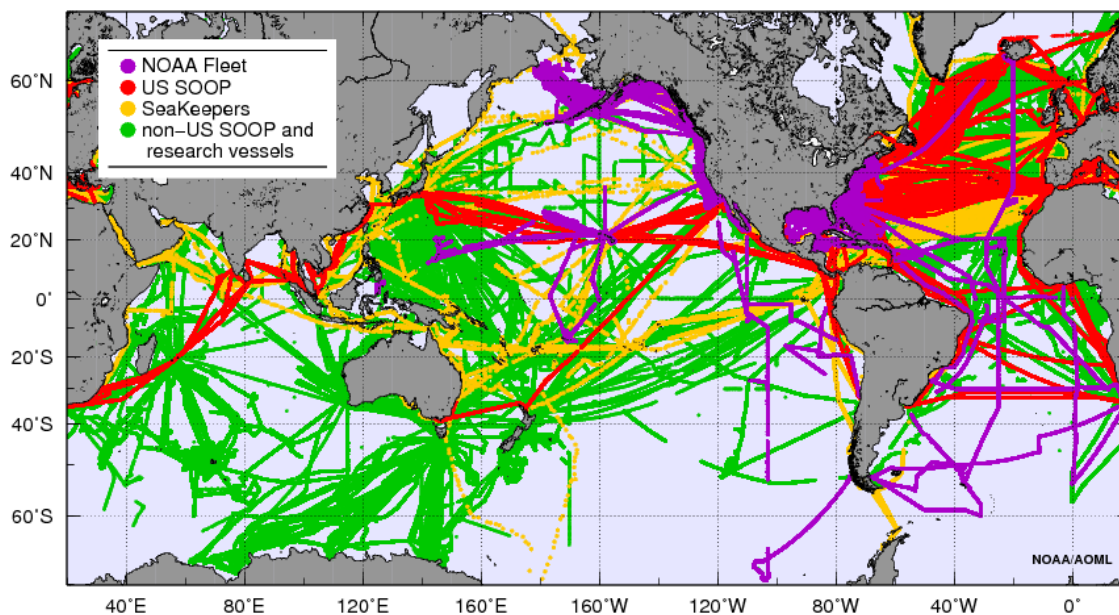


## Thermosalinograph Operations

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The Thermosalinograph (TSG) operation is one of the components of the Ship Of Opportunity Program (SOOP) at AOML. TSGs are instruments that continuously measure the sea surface temperature and sea surface salinity along a ship's track. Research vessels gather TSG observations from various regions of the global ocean, while ships of opportunity – cruise and cargo vessels – obtain long time series of temperature and salinity data for frequently-repeated transects. AOML's TSG operations are based on obtaining data from NOAA's fleet of research vessels, and from ships of opportunity. TSG data have enhanced global data collection efforts for close to 20 years and have been critical to understanding long-term changes in the marine environment. SOOP's TSG observations have many applications, in climate and ocean dynamics research, determination of boundary regions in ocean currents, and as input for climate and weather forecast models. One component of the TSG operation supports efforts of the global inventory of carbon dioxide in the oceans, a project led at AOML by Dr. Rik Wanninkhof. In collaboration with other NOAA laboratories, universities, and the international partners, AOML acquires and distributes TSG data of more than 20 ships.

Data are received in real-time mode, typically one file per day containing 24 hours of data, and are subjected to quality-control procedures. Quality-control approved TSG records are distributed on the Global Telecommunication System (GTS) in real-time. The data are archived at the National Oceanographic Data Center (NODC) and at the French Research Institute for Exploration of the Sea (IFREMER), France.



*Location of TSG observations by AOML and other institutions during 2001-2014. TSG observations obtained from the NOAA fleet are predominantly gathered off U.S. coastal regions and represent more than 5.5 million records, of which more than 35% are located at latitudes above 45°N. TSG observations obtained from ships of opportunity comprise more than 10.5 million records in the Atlantic Ocean, with more than 2 million records obtained at high latitudes*