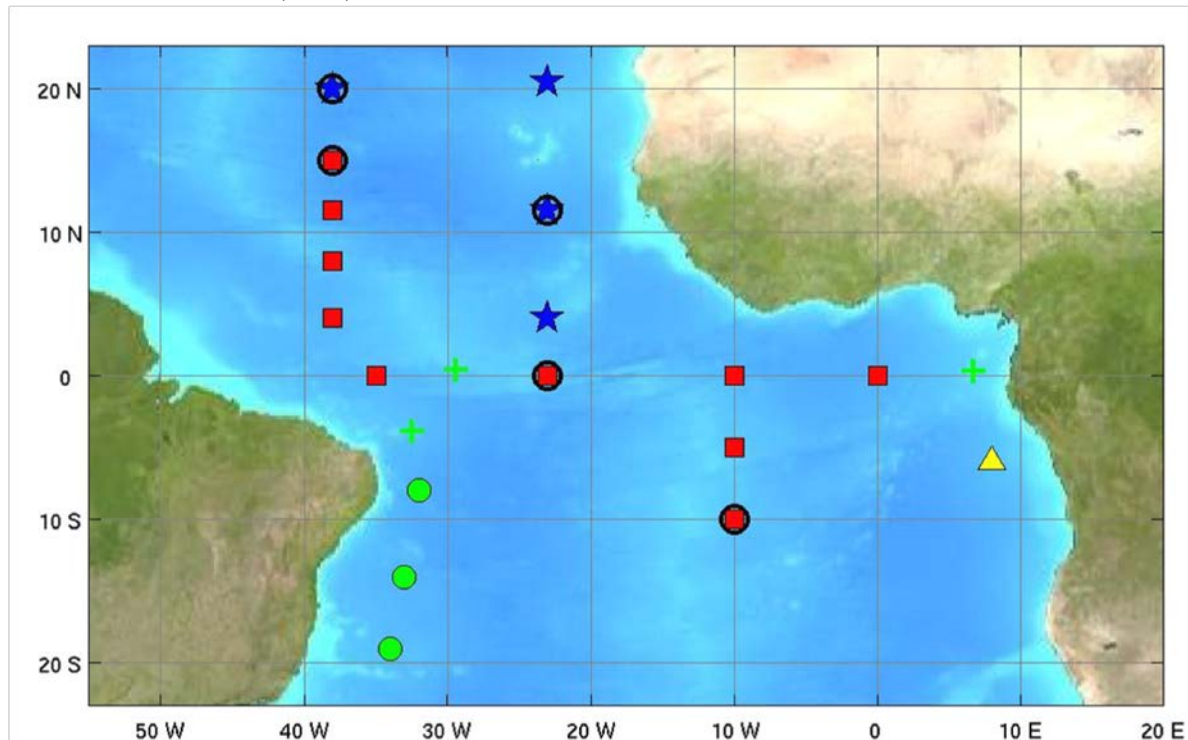


The PIRATA Northeast Extension: Observing Tropical Atlantic Ocean Variability

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The Prediction and Research moored Array in the Tropical Atlantic (PIRATA) is a joint project of Brazil, France, and the United States. PIRATA aims to improve our knowledge and understanding of ocean-atmosphere variability in the tropical Atlantic. Implementation of PIRATA started in 1997 with an array of backbone moored ATLAS buoys, similar to the Tropical Atmosphere-Ocean (TAO) array of the equatorial Pacific. Starting in late 2005, extensions were added to the backbone array in key regions, including the US-led PIRATA Northeast Extension (PNE).



The PIRATA backbone of buoys (red squares), the Northeast Extension (blue stars) led by the United States, the Southwest Extension (green circles) led by Brazil, the Southeast Extension serviced with French ship time (yellow triangle), and island-based observation sites (green crosses). Buoys with barometers and longwave radiometers, capable of estimating net ocean/atmosphere heat fluxes, are indicated with black circles.

PNE is a joint AOML and PMEL effort that has extended the array into the tropical North Atlantic, a region of strong climate variations with impacts upon rainfall rates and storm landfalls for the surrounding regions of Africa and the Americas. Important processes in this region include the formation of Cape-Verde type hurricanes, seasonal migration of the Intertropical Convergence Zone (ITCZ) and the Guinea Dome, interannual to decadal variations of the ITCZ migration associated with rainfall anomalies in Africa and the Americas, off-equatorial heat advection by Tropical Instability Waves, and overturning-related ventilation of the oxygen minimum zone. AOML organizes and leads the annual cruises to maintain the buoy and collect a suite of meteorological and oceanographic observations in the region, while PMEL provides the equipment and technicians for the mooring operations.