Quasi-synoptic collection of oceanographic and meteorological observations from a Research Vessel.

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Objectives:
The objective is to collect atmospheric and oceanic data to improve the understanding of the ocean-atmosphere interaction in the eastern tropical Atlantic. The primary regions of interest are the African Monsoon (in support of AMMA), the structure of the Saharan Aerosol Layer and the stratocumulus cloud layer in the equatorial cold tongue region. The cruise will take place during the onset phase of the African Monsoon, which is also the time when equatorial cold tongue starts to develop. It is thought that the Monsoon, the stratocumulus cloud layer and the equatorial cold tongue build a system of positive feedback that has a large impact on the seasonal cycle of the sea surface temperature and the rainfall over the land and the ocean.

The Saharan Aerosol Layer is of major interest because of its impact on the tropical storm formation and because of its contamination of satellite sea surface temperature observations.

The cruise will also be used to deploy Atlas moorings in coordination with PIRATA (northeast extension), surface drifters and Argo floats.

Measurement program:
The proposed cruise track is shown in Figure 1 (note that the start and end ports may change). Atmospheric measurements collected during the cruise will be: radiosonde, wind profiler and Doppler observations. Measurements important for deriving the surface fluxes will be collected (e.g. humidity). The oceanic data set will consist of CTD/O2, XBT, ADCP, LADCP and microstructure measurements. It can be used for the tracing of water masses, to study changes of the ocean characteristics through comparison with earlier surveys in the same area, and to derive the heat budget terms along the cruise track.
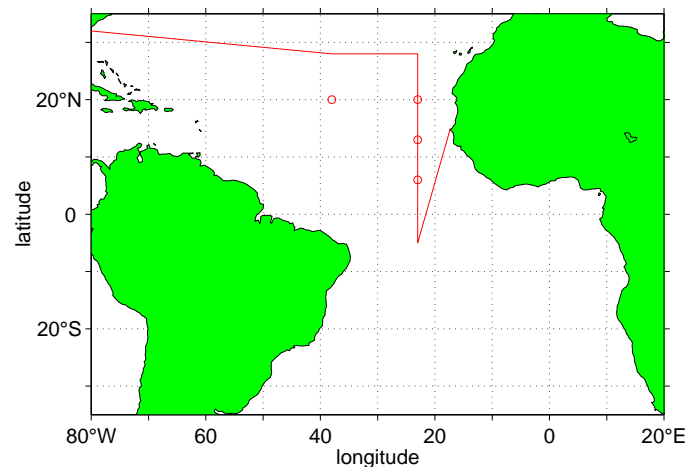

Figure 1: Plan for R/V Ronald H. Brown cruise for May/June 2006. Proposed locations for Atlas moorings are shown as circles. Two of them will be deployed in 2006. The other two are scheduled for deployment in 2007.