



Oceanography of East Madagascar

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During six week survey (August – September 2008) in Southern and Eastern coast of Madagascar, the R/V 'Dr. Fridtjof Nansen' has carried out a study of the pelagic ecosystem. In collaboration with Agulhas & Somali Current Large Marine Ecosystems project (ASCLME) and South West Indian Ocean Fisheries Project (SWIOFP), the aim of the survey was to establish the physical, chemical and biological characteristics of the Western Madagascar shelf region as a whole.

A total of 102 CTD stations were conducted along selected hydrographical transects and ranged to a maximum of 3000 m depth. Water samples were also collected with Niskin bottles at predefined depths. A Seabird 911plus CTD was used to obtain vertical profiles of temperature, salinity and oxygen.

As results, the first section between latitude 25°-26°S showed sea surface temperature values ranging between 25°C to 15°C upper 250m depth. As part of the south-west, the shelf is narrow and widen slightly along the tip south of the Island coast. In contrast of the west coast, in all transects performed along the south and the east coast, in most cases, the isotherms showed non stratified waters from the coast to offshore. The presence of the upwelling system in the south-east coast modifies drastically the patterns of all measured parameters. Fluorescence had a maximum values (0.25 µg/l) at surface near the coast in 2nd to 5th transects. Inversely, low temperature values were observed along the south and south-east with minimum values in the range of 18.5°C-11°C at 50-250 m depth. These conditions were consistent along and between the 2nd to 5th transects, with more variation observed at transect 5.

The salinity values (5 m depth) decreased from 35.7 psu in the south to 34.5 psu in the east. The horizontal distribution of oxygen showed non homogenous conditions with values between 5 ml/l (south) and 2.5 ml/l (south-east). Also starting from the coast to offshore, surface temperatures and surface salinities, surface fluorescence and dissolved oxygen showed non homogenous patterns.