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Southern Ocean Studies for Understanding Global-CLIMATE Issues (SOS-Climate)

Dr. Carlos Aberto Eiras Garcia
Fundação Universidade Federal do Rio Grande (FURG), Brazil

This research initiative was formed with the objective to conduct long-term studies in the Southern Ocean (SO) which are associated with many global-climate changes issues. It is well known that the SO connects the major ocean basins permitting a global scale thermohaline circulation, therefore Antarctic bottom water formation and its variability as well as its pathways towards lower latitudes is relevant information. Interocean connection is a route for heat and freshwater (climate) anomalies, as well as anthropogenic tracers. The SO also plays a major role in the global climate change due to its key role in the global geochemical cycle, particularly carbon. The proposed activities during the IPY (2007-2008) are related to the actual work which is actually carried out in the SO (lat>30oS) by the Brazilian High Latitude Oceanography Group (GOAL), sponsored and funded by the Brazilian Antarctic Programme (PROANTAR). The main research topics of GOAL focuses in the understanding of (1) the formation and variability of dense bottom water close to the tip of Antarctic Peninsula; (2) the variability of Bransfield and Gerlache Straits ecosystems. (3) the role played by the SO in the global carbon cycle using in situ and satellite ocean color data; (4) the upper layer circulation and 3D structure eddies shedded by the Brazil-Malvinas Confluence. We also expect to undertake some transects, radiating outwards across the Antarctic tip continental shelf and slope, during austral summer period of January-March 2008, as a contribution to the project Synoptic Antarctic Shelf-Slope Interactions (SASSI), planned by the iAnZone group for the IPY 2007-2008. Furthermore, we hope to participate in an international focused effort to make observations along the three SO chokepoints where the meridional spread of the SO dynamics is constrained and where the transport measurements and interocean exchanges can be accurately monitored. These actions are part of the more general strategy presented by the CLIVAR/CliC/SCAR Southern Ocean Implementation Panel.