Salient findings from the Indian Southern Ocean Expeditions

Each oceanic region has different significance in influencing the global climate change scenario with their potential for drawing-down the atmospheric CO2. In this context, the Southern Ocean (SO), being the world’s largest high-nutrient low-chlorophyll (HNLC) regions, plays a significant role as a sink for atmospheric CO2 via its solubility and prevailing biological pumps. It thus plays a pivotal role in the global carbon cycle and climatic regulations through biogeochemical fluxes of carbon, nutrients etc. from the ocean surface to the deep interior. The efficiency of the biological pump depends on a range of environmental and biological factors (such as type of phytoplankton/zooplankton inhabiting), which in turn are influenced by climate change. It is observed that the productivity in SO regions is closely related to the hydrodynamics across the fronts and convergence zones. Scientific insight gained from physicochemical and biological studies performed during Indian Southern Ocean Expeditions (ISOE) in the last decade highlights some interesting findings and emphasizes India's research activities in the SO Region for better understanding of the oceanographic processes, biogeochemical cycles, marine productivity and global climate change scenario. Under the aegis of Ministry of Earth Sciences, Government of India, concerted efforts are put in place by NCPOR to carryout research in the Indian sector of the SO since 2004, with a primary focus to comprehend the role (response) of the SO in (to) regional and global climate variability. Till date 10 successful cross-disciplinary and multi-institutional (national/international) scientific expeditions have been carried out in the Indian sector of SO. This talk would touch up on some of the salient findings of ISOE.