

BioGEOTRACES/BioGeoSCAPE activities in India

CSIR-National Institute of Oceanography Goa has initiated a project for mapping the genetic diversity of organisms and the effect of the micronutrients and trace metals on them in the Indian Ocean. Scientists from NIO plan to utilise the techniques such as proteomics, and genomics along with macro- and micro-nutrients to reveal the internal working of the vast body of the ocean at the cellular level. Idea is to identify and characterise the genes and proteins in the ocean to understand the cellular level operations of organisms in the ocean. These studies will allow us to understand cellular biochemistry and the response of the ocean to climate change, nutrient stress, and increasing pollution. This study will enable scientists to identify the factors controlling the changes in RNA, and DNA in the oceans and the various stressors impacting them. Further, they will be used as tracers to track the causative factors and suggest possible solutions for their mitigation impacting society. In addition, these large pools of RNA, and DNA library of the oceans will be utilised for future bio-prospecting in the Indian Ocean for human benefit.

In continuation to the GEOTRACES programme, the BioGEOTRACES/BioGeoSCAPE-related activities are being pursued vigorously in India with new sampling and more measurements of trace elements and isotopes in the Indian Ocean along with omics study. Seawaters and marine biota were sampled in the Indian Ocean (Fig.1) and are being analysed for their trace elements and genome mapping onboard Sindhu Sadhana. MacLane pumps were used to collect particulate matter from the water column.

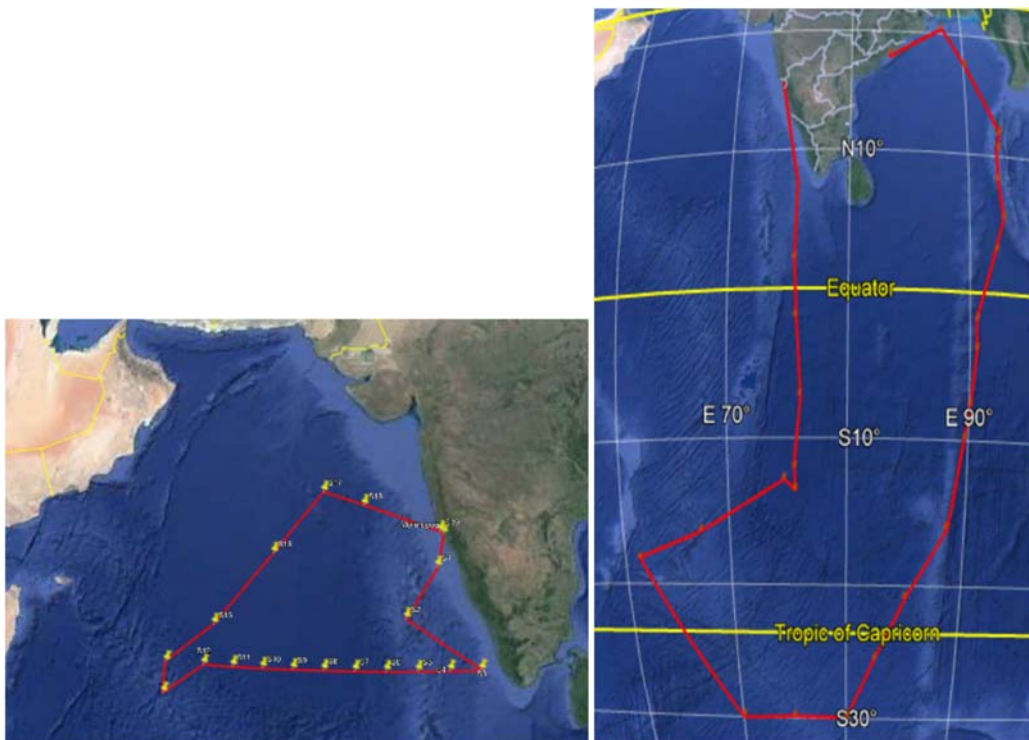


Fig. 1: Cruise tracks in the Indian Ocean for BioGEOTRACES/BioGeoSCAPE sampling.