

Metadata Details

Title

Quantitative reconstruction of past Southern Ocean and Southern Indian Ocean climate and its teleconnection with the Indian Monsoon

Science Keywords

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| Category | Climate Indicators |
| Topic | Teleconnections |
| Expedition Year | 2017-2018 |
| ISO Topic | Atmosphere |

Summary

Abstract

The variability of the Indian Summer Monsoon is of great interest to the inhabitants of the South Asian countries due to its direct relationship with the food security of the region. Monsoon manifests itself as a northward migration of the ITCZ from equator to upto 25°N. Although there are a number of meteorological features associated with the ISM, such as the North-South surface pressure and temperature gradient, low level south-westerly jet, upper level easterly flow and the monsoon trough to name a few, the North-South gradient of tropospheric temperature (TTG) is now widely accepted as a primary driver of the ISM (Xavier et al., 2007). Tropospheric heating helps maintain upper level divergence which leads to augmented convergence and uplift of moisture at the lower level.

Purpose

1. To quantitatively estimate the latitudinal variation in the past SST in the Southern Ocean and Southern Indian Ocean and explore its teleconnection with Indian monsoon.
 2. A part of the problem in understanding Polar-Monsoon teleconnection lies in the nonquantitative nature of most the existing records.
 3. Here, our emphasis would be on quantitative estimation, primarily of the SST using Mg/Ca of the foraminifera shells as a direct proxy of temperature.
 4. Past SST data for southern Indian Ocean, southern mid-latitude and southern highlatitude will be generated for this purpose and a comparison would be drawn to investigate the influence of southern latitude SST variability on the Indian Monsoon.
 5. The SST data will be further delineated from the oxygen isotope data of the foraminifera to get precise salinity changes related to the past hydrographic variability.
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