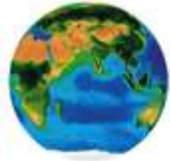




Hermann Bange, Martin Visbeck and Birgit Gaye

**Prospects for an
Integrated German
Indian Ocean Study
(IGIOS)**

a contribution to IIOE-2



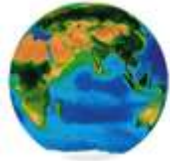
IIOE-2 in Germany



Integrated German Indian Ocean Study (IGIOS)

German activities

- Feb 2013: 1st informal planning meeting
- Jan 2014: *DFG Rundgespräch* in Kiel with 35 participants from several institutions of Germany
- > agreement to write 'Science Prospectus' incl. an implementation strategy IGIOS. Writing almost complete



IIOE-2 in Germany

IGIOS - Science Prospectus

- 1 Executive Summary
- 2 Introduction
- 3 Scientific Themes

Theme 1: Global Change and anthropogenic impacts

Lead author: HW Bange (GEOMAR)

Theme 2: Biogeochemical cycles and atmosphere

Lead authors: E Achterberg (GEOMAR, Kiel), B Gaye (U Hamburg), M Voss (IOW, Warnemünde), J Williams (MPI für Chemie, Mainz), J Lelieveld (MPI für Chemie, Mainz)

Theme 3: Ocean circulation and paleoceanography

Lead authors: M Dengler (GEOMAR, Kiel), M. Mohtadi (MARUM, Bremen), R Schneider (U Kiel)

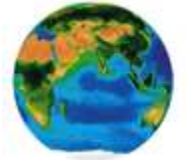
Theme 4: Ocean crust

Lead authors: W Bach (U Bremen), K Haase (U Erlangen), U. Schwarz-Schampera (BGR, Hannover), G. Bohrmann (MARUM, Bremen)

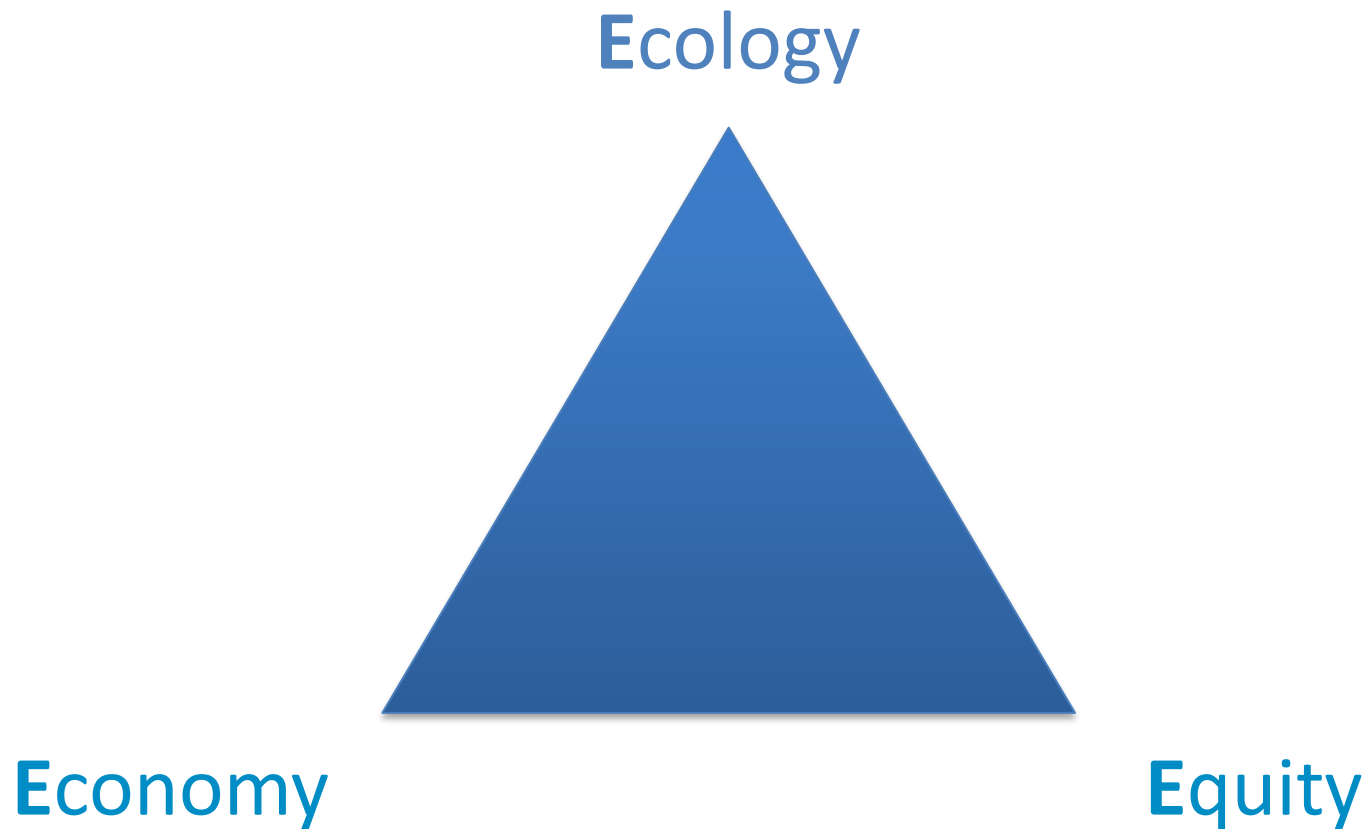
4 Implementation strategy



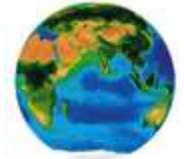
A Vision for an Indian Ocean Study



“Science in Support for Sustainable Development of the Indian Ocean”



A Vision for an Indian Ocean Study



“Science in Support for Sustainable Development of the Indian Ocean”

Ecology

Ocean and Climate

(Monsoons, Circulation, Sea Level, Warming, Acidification, Element Cycling, ...)

Ocean and Ecosystem

(Fisheries, Energy (renewable and non renewable), Materials, Tourism, ...)

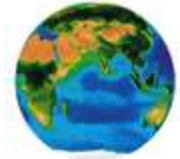
Ocean and Information

(Capacity building, Information sharing, Ocean Literacy, Ocean Governance,...)

Economy

Equity

A Vision for an Indian Ocean Study



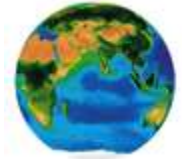
“Science in Support for Sustainable Development of the Indian Ocean”

Ocean Observing
(ships, planes,
satellites, robots)

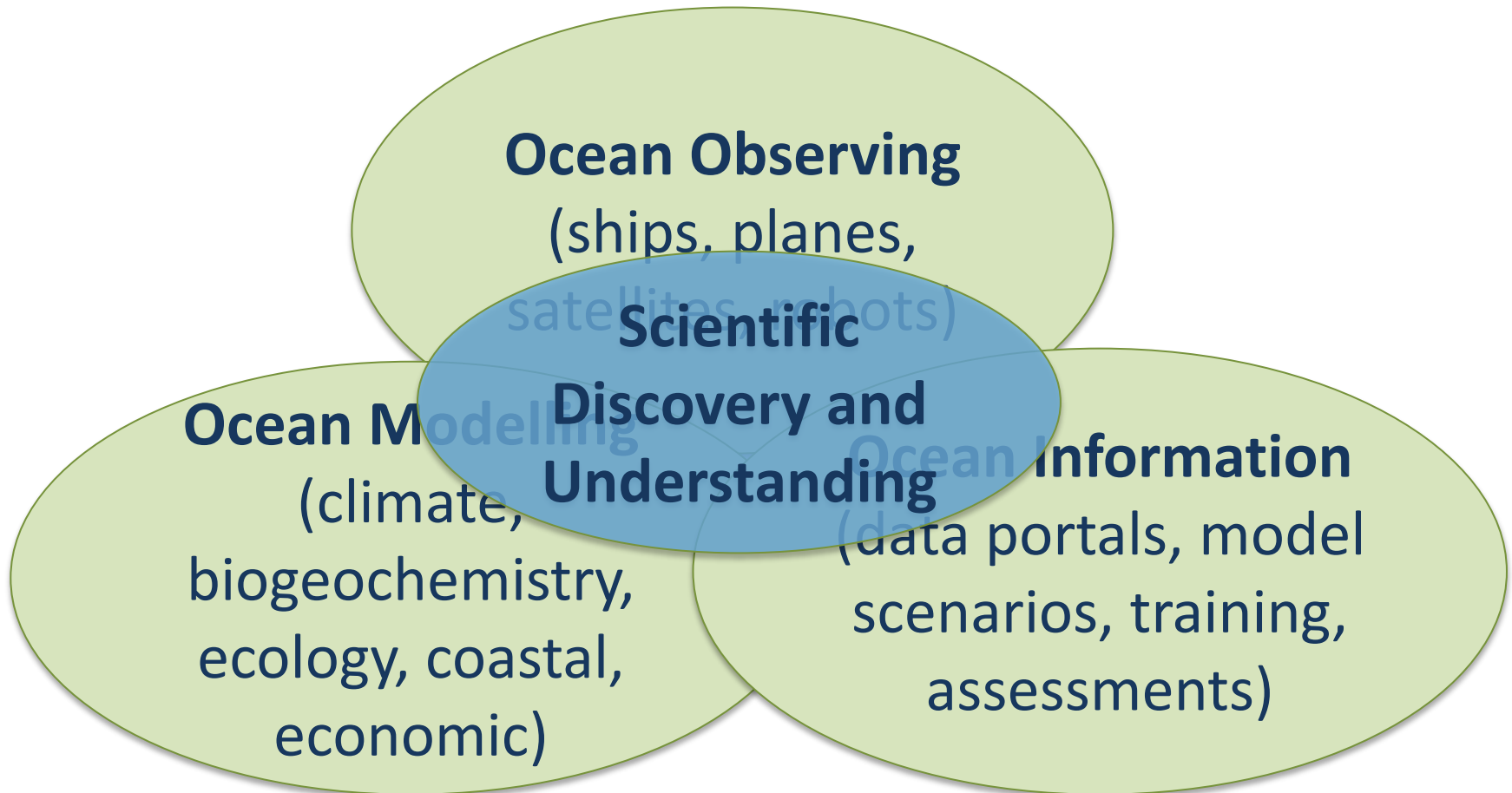
Ocean Modelling
(climate,
biogeochemistry,
ecology, coastal,
economic)

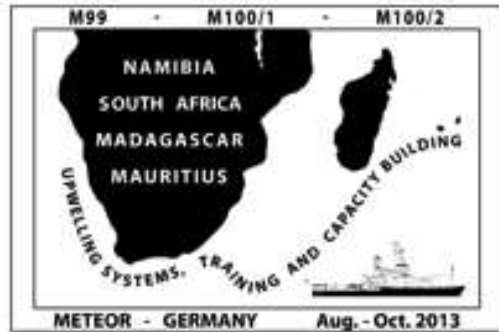
Ocean Information
(data portals, model
scenarios, training,
assessments)

A Vision for an Indian Ocean Study



“Science in Support for Sustainable Development of the Indian Ocean”



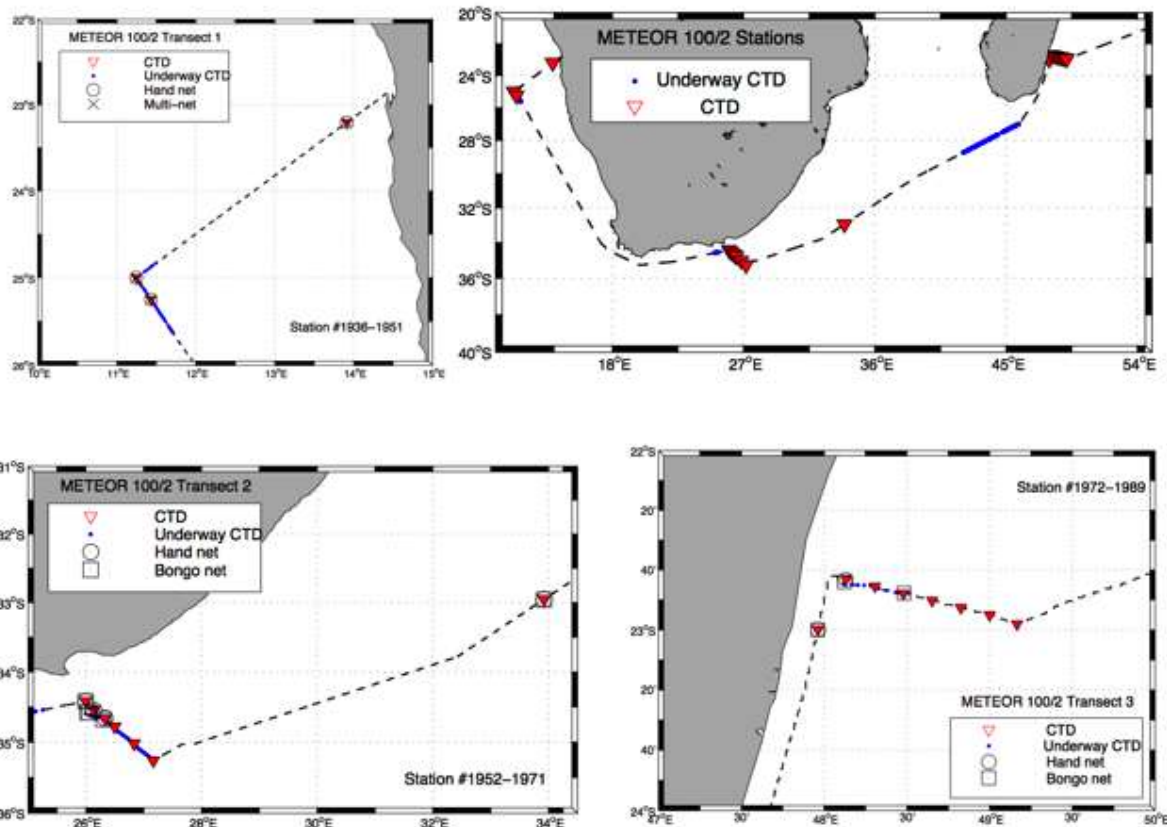


SPACES GATOR Cruise M100/2, 2013

“GATOR - German-African Training & Oceanographic Research”

Martin Visbeck (GEOMAR)

Holger Auel (U. Bremen), Tim Rixen (ZMT, U. Hamburg)



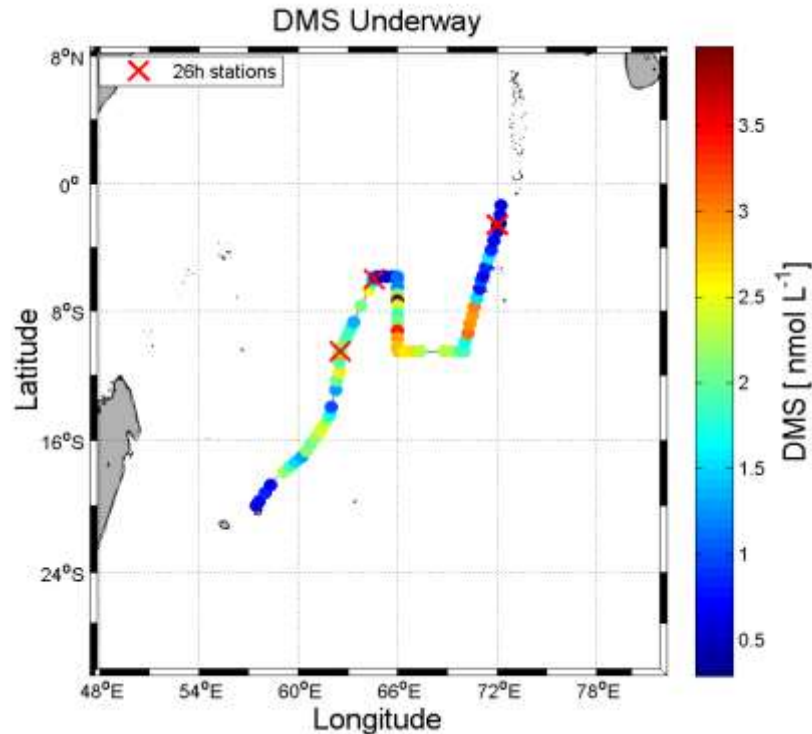


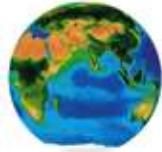
SPACES OASIS Cruise SO235, 2014

“OASIS: Organic very short lived Substances and their air sea exchange from the Indian Ocean to the Stratosphere”

K. Krüger (GEOMAR/U Oslo, Norway)

B. Quack, C.A. Marandino (GEOMAR)





IIOE-2 in Germany



R/V Sonne cruise (PI: B Gaye, U Hamburg)



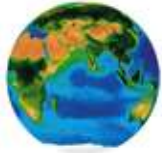
-> Winter Monsoon cruise with R/V Sonne to the Arabian Sea

Themes

- N-cycling in the oxygen minimum zone: processes and quantification
- Dynamics and interaction of dissolved and particulate organic matter
- Benthic processes
- Reconstruction of Holocene climate and element cycling

Participating institutes

- Institute of Geology, University of Hamburg (Gaye, Emeis, Lahajnar, Lüdmann)
- ZMT, Centre for Tropical Marine Ecology, Bremen (Rixen)
- Paleobiology, University of Tübingen (Schulz)
- Helmholtz Centre Geesthacht (Dähnke)
- GEOMAR, Kiel (Bange, Wallmann)



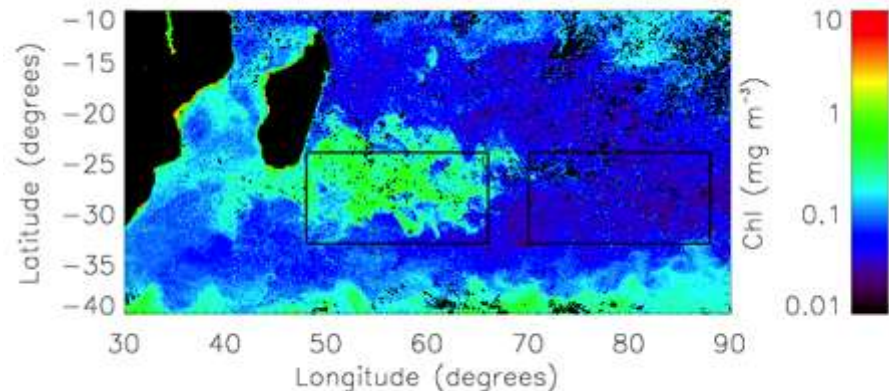
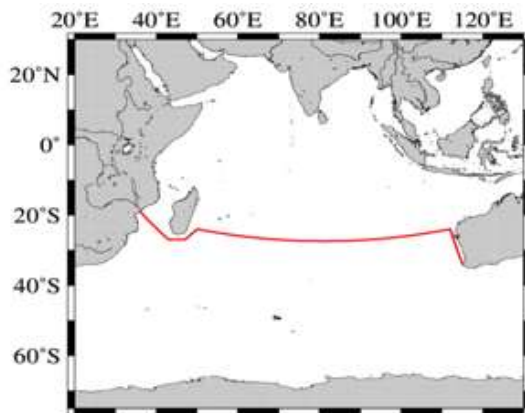
IIOE-2 in Germany

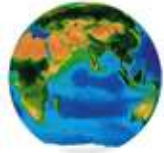


Zonal section as part of the Internat. **GEOTRACES** in S Indian Ocean: Re-run WOCE I03 and I04

PIs: E Achterberg and M Frank, GEOMAR

- > *What are the fluxes of trace elements and isotopes (TEIs) in the SIO, and what are the dominant processes that control these fluxes?*
- > *Which processes control the concentration and distribution of TEIs in deep waters in the SIO*
- > *How are micronutrients (e.g. Fe) and nitrogen supplied to support the diazotrophy and productivity off NW Australia and in the SW Indian Ocean (off Madagascar and in Mozambique Channel)?*





IIOE-2 in Germany



Nest steps for German activities

- We are entering into a phase of debate with German funding agencies (BMBF, DFG) to explore the possibility of a joint source of funding
- Start of Integrated German Indian Ocean Study (IGIOS) in 2017?