

SIBER News – Winter 2008



Sustained Indian Ocean Biogeochemical and Ecological Research

February 26, 2008 Volume 1

Greetings Everyone

Since the first SIBER workshop that was held in October of 2006, there have been a number of developments and activities that have occurred as part of the continuing effort to address and publicize the critical needs of the Indian Ocean research community. These activities include the appearance of a number of publications documenting research reported at the first workshop, research cruises that made use of the R/V *Roger Revelle*'s presence in the Indian Ocean last year and a SIBER writing workshop tasked with developing a comprehensive plan for Indian Ocean research.

SIBER Writing Workshop

SIBER science plan writing workshop (November 27-30, Goa India)

As a follow-up to the 2006 SIBER conference, a SIBER science-plan writing workshop was convened November 27-30, 2007 in Goa, India. The international group of participants in this writing workshop (30 Scientists from 12 countries) was tasked with developing a draft science plan for a new international research program in the Indian Ocean. This document will distill and articulate the scientific background and key questions that need to be addressed (drawn largely from the presentations and posters presented at the [2006 SIBER conference](#)), specifically as they relate to the overarching scientific themes of IMBER and GOOS. It will also include a research implementation plan designed to answer these questions. The goal is to provide a comprehensive plan for Indian Ocean research that encompasses the entire basin, but that can also be partitioned into tractable scientific themes or regional studies. This plan will not only provide the basis and motivation for a new research

program under IMBER/GOOS, but also a roadmap for scientific research in the Indian Ocean for decades to come. The SIBER science plan is currently being developed and revised by the 2007 workshop participants. It will be distributed broadly in draft form in the spring of 2008.



Workshop funding was provided by:

IMBER, IOC (Perth Office), French Science Consulate (New Delhi, India), CSIR (Council of Scientific and Industrial Research, India), Indo-US Science and Technology Forum, NOAA/CPO (Climate Program Office) and NASA.

Recent Research Cruises and Sampling Activities

If interested in more detail, please contact the lead scientist(s) using the provided email link.

CIRENE Cruises

Jan - Feb 2007

Region: Southern Tropical Indian Ocean, Seychelles-Chagos Thermocline Ridge

Scientific Questions: Characterize SST Variability at Synoptic, Intraseasonal and Interannual time scales resulting from air-sea interactions, Impact of Indian Ocean Dipole

Brief Sampling Inventory: Air-Sea Fluxes; Underway XBT sections; High frequency CTD casts w/ PAR & Chl-Fluorescence; Nutrient and pigment data from bottle samples.

Lead Scientist: [Jérôme Vialard](#)

1st R/V Revelle Cruise

Aug - Sep 2007

Region: Upwelling Areas of the Western Arabian Sea during the

latter stages of the Southwest Monsoon

Scientific Questions: Potential for Iron Limitation in Upwelled Waters, Mechanism of Formation of the Intermediate Nepheloid Layer in Oceanic Oxygen Minimum Zones, Iron Speciation and Cycling in Suboxic Waters

Brief Sampling Inventory: 24 stations within the Central Arabian Sea outside of the region's EEZs. Hydrocasts taken with ship's CTD and a trace metal rosette. Primary production rate, dissolved iron and iron (II), dimethyl sulfide, nutrients and chlorophyll were measured. Iron addition growout experiments and fast repetition rate fluorometry were performed, and sediment cores were obtained at select stations.

Lead Scientists: [Wajih Naqvi](#) and [Jim Moffett](#)

2nd R/V Revelle Cruise

Sep - Oct 2007

Region: Central Arabian Sea

Scientific Questions: Relative Importance of Heterotrophic Denitrification and Anaerobic Ammonium Oxidation (ANAMMOX), Natural Isotope Abundance in Dissolved Inorganic Nitrogen Species, Molecular Characterization of Microbial Community

Brief Sampling Inventory: 3 major stations, several days in length, for incubation and sediment trap experiments. Samples include isotope and DNA/RNA for rate and function analysis. Nutrients, oxygen, nitrous oxide and bacterial cell number were also collected.

Lead Scientists: [Bess Ward](#) and [Al Devol](#)

Recent Publication/Preprint of SIBER-related Research

If interested in obtaining paper(s), please contact the lead author using the provided email link.

[Anderson, T. R.](#), V. A. Ryabchenko, M. J. R. Fasham, and V. A. Gorchakov (2007), Denitrification in the Arabian Sea: A 3D ecosystem modelling study, Deep-Sea Res. I, 54, 2082-2119.

[Goswami, B. N.](#), V. Venugopal, D. Sengupta, M. S. Madhusoodanan, and P. K. Xavier (2006), Increasing trend of extreme rain events over India in a warming environment, Science, 314, 1442-1445.

[Lévy, M.](#), D. Shankar, J. M. André, S. S. C. Shenoi, F. Durand, and C. D. B. Montégut (2007), Basin-wide

seasonal evolution of the Indian Ocean's phytoplankton blooms, J. Geophys. Res., 112, doi: 10.1029/2007JC004090.

[Meyers, G.](#), P. McIntosh, L. Pigot, and M. Pook (2007), The years of El Niño, La Niña, and interactions with the tropical Indian ocean, J. Climate, 20, 2872-2880.

[Moffett, J. W.](#), T. J. Goeffert, and S. W. A. Naqvi (2007), Reduced iron associated with secondary nitrite maxima in the Arabian Sea, Deep-Sea Res. I, 54, 1341-1349.

SIBER-related Publications contd.

[Vialard, J.](#), J. P. Duvel, M. McPhaden, P. Bouruet-Aubertot, B. Ward, E. Key, et al. (2008), Cirene: Air-sea interactions in the Seychelles-Chagos thermocline ridge region, Bull. Amer. Met. Soc., *submitted*.

[Wiggert, J. D.](#), and R. G. Murtugudde (2007), The sensitivity of the Southwest Monsoon phytoplankton bloom to variations in aeolian iron deposition over the Arabian Sea, J. Geophys. Res., 112, doi: 10.1029/2006JC003514.

Additional Activities, Events & Funding Venues

AGU Monograph

We are in process of developing a monograph, in conjunction with AGU publishing, that will contain chapters based on review and original work that were presented during the oral plenary sessions of the first SIBER workshop in 2006.

The editorial team consists of Jerry Wiggert, Raleigh Hood, Wajih Naqvi, Sharon Smith and Ken Brink. This volume will provide a synthesis of current knowledge on Indian Ocean biogeochemistry and ecology, and an introduction of new concepts and topical paradigm challenges. It will also report on development of the more extensive/frequent observational capacity that is currently being deployed in the Indian Ocean.

2008 POGO-SCOR Visiting Fellowships for Oceanographic Observations

The Partnership for Observation of the Global Oceans (POGO) and the Scientific Committee on Oceanic Research (SCOR) announce the Fellowship Program for 2008. This program is designed to promote training and capacity building leading towards a global observation scheme for the oceans.

The fellowship program is open to scientists, technicians, graduate students (PhD) and Post Doctoral Fellows involved in oceanographic work at centres in developing countries and countries with economies in transition

The fellowship provides airfare and a stipend for living expenses for up to three months. Deadline for application is **April 15, 2008**.

More information and the application form is available on the [POGO](#) website.

Prospective host scientists are asked to contact POGO Secretariat so that we can provide contact information for applicants.

If interested please contact:

[Liz Humphreys](#)

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Fax: +44 (0)1752 633 102

Upcoming Meetings

2-7 March, [2008 Ocean Sciences Meeting: "From the Watershed to the Global Ocean"](#). Orlando, Florida, USA.

3 March, [IMBER](#) Town Hall at Ocean Sciences: 1200-1330, Room W101.

6 March, [OCB](#) Town Hall at Ocean Sciences: 1200-1330, Room W103.

13-18 April, [European Geosciences Union General Assembly 2008](#), Vienna, Austria.

21-24 July, 2008 [Ocean Carbon and Biogeochemistry Science Workshop](#), Woods Hole, Massachusetts, USA.

9-13 November, [First IMBER IMBIZO: "Biogeochemical and ecosystems interactions in a changing ocean"](#). Miami, FL, USA. **Registration is now open.**

Ongoing SIBER Activities

Please submit to me any news on programs, cruises, publications or other Indian Ocean research activities that you would like to publicize and feel are relevant toward promotion of our SIBER goals.

Until next time...

[Jerry](#)