INCOIS-Nansen PhD and Post-doc Winter School 2016 Operational Oceanography: Indian Ocean circulation and sea level variation

Brief introduction to the school – Lectures and Expected student work

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Operational Oceanography: Indian Ocean circulation and sea level variation

Topics to be adressed:

- Monsoon variability at intraseasonal and inter-annual time scale and its impact on Indian Ocean Circulation
- Operational Indian Ocean Circulation and Modelling
- Remote sensing data
- Data Assimilation for ocean forecasting
- The Nansen-TOPAZ ocean modellingsystem
- Physics of sea level variations and Indian Ocean sea level variation.



Faculty Members (20):

- Dr. A. Carrassi, NERSC, Bergen
- Dr. Jan Even Nilsen, NERSC, Bergen
- Prof. O.M. Johannessen, Nansen Scientific Society, Bergen
- Dr. Anton Korosov, NERSC
- Mr. Lasse H. Pettersson, NERSC
- Dr. Yu Wei Dong, Center for Ocean and Climate Research (FIO), Qingdao, PR. China
- Prof. P.V. Joseph, NERCI, Cochin
- Dr. A.K. Joseph, NERCI, Cochin
- Dr. S.S.C. Shenoi, INCOIS, Hyderabad
- Dr. Arya Paul, INCOIS
- Dr. Sivareddy, INCOIS
- Dr. T.M. Balakrishnan Nair, INCOIS
- Dr. P. A. Francis, INCOIS
- Dr. Pattabhi Ramarao, INCOIS
- Dr. R. Harikumar, INCOIS
- Dr. Arnab Mukherjee, INCOIS
- Dr. Amit Apte, ITCS, Bangalore
- Dr. Satish Shetye, NOI, Goa
- Dr. Unnikrishnan, NIO, Goa
- Dr. S Kumar, INCOIS, India



Time line

- An interesting and education week for us all!!
- Prepare & Present a Student report by FRIDAY,
 as a basis for
- a **peer review scientific (overview) article** about the state-of-the-art in operational oceanography for the Indian Ocean.
- Continue e-cooperation after this week.
- Students to submit and publish a scientific article within June 2017?



Research topics and Thematic Groups

- 1. Ocean Modelling
- 2. Data Assimilation
- 3. Sea Level Variation
- 4. Real Time Ocean Observations
- 5. Forecasting, Applications and Market

Is this the ToC + Introduction and Conclusions?





Group Tasks

- Elaborate the s-o-a, constraints, opportunities, roles and importance..... of <u>each</u> given topic wrt. "Operational Oceanography Indian Ocean...."
- Formulate questions and cardinal requirements/conditions to each lecture
- Discussion and clarifications of these questions with the lecturers in plenary and directly
- Use your own experiences, including the posters!!
- Exploit external e-resources if needed
- Collect notes and write synthesis during student sessions on Thursday and Friday
- Prepare and present your report on Friday.



Methodology

- The Process progressives steps;
- Thematically in the 5 groups based on current lectures given (Monday)
- 2. Distribute roles and tasks!
- Thematically in the 5 groups based on additional lectures, exercises and student posters given (Tuesday and Wednesday)
- 4. Merging of "pairs" of groups or exchange expertise <u>cross-disciplinary</u> discussions and formulations
- 5. Inter-disciplinary synthesis of findings from ALL group (initial 5, the "pairs", and more?)
- 6. Presentation and review comments in plenary
- 7. Use your time efficient Friday is very coming soon

Student Group # 1

1. Ocean Modelling & data Assimilation

Mentor: Francis, Alberto & Amit

- 1. Fehmi
- 2. Majambo
- 3. Rupak
- 4. Rakesh
- 5. Manivavnan

- 6. Abishek (Moderator)
- 7. Maxime (Rapportuer)
- 8. Shaju





Student Group # 2 & 3

2. Sea level variation

Mentors: Even & Unikrishnan

- 1. Bernadino (Moderator)
- 2. Maruf
- 3. Anya
- 4. Ballari
- 5. Srinivas
- 6. Dhanalakshmi
- 7. Prerna

3. Real-time ocean observations

Mentors: Pattabhi & Anton

- 1. Ghomsi Franck
- 2. Ramesh
- Radharani (Rapporteur)
- 4. Antoop
- 5. Syam (Moderator)
- 6. Dmitry





Student Group # 4

4. Forecasting, Applications and Users

Mentor: Harikumar

- 1. Daneeja
- 2. Sultan
- 3. Jagottam
- 4. Prathipita
- 5. Malavinge
- 6. Nabir

Sick /absent:

- Rohith
- Deep Sankar





Student poster presentations (6 min each)

1 Ghomsi Franck

12 Dmit

23 Anoop

2 Bernardino

13 Dmitry

11 Frnada

24 Prithipati

3 Daneeja

14 Ramesh

25 Ballari

4 Fehmi

15 Rakesh

26 Prerna

5 Majambo

Coffee

27 Srinivas

6 Nabir

16 Anya

7 Rupak

17 Radhranisan

8 Marufa

18 & 19 Agrawal

9 Sultan

Manivanan

10 Abishek

20 Syam

12 Maxime

21 Dhanalakshmi

22 Shaju





Report writing groups (TOC)

- * Moderators, Rapporteurs
- 1. Introduction

2. Ocean modelling & Data assimilation

XX

XX

Students to complete

- 3. Sea level variation
- XX

- 4. Real-time observations
 - XX

- 5. Forecasts and Market
- XX

- 6. Conclusions
- XX







The Nansen-Bangladesh International Centre for Coastal, Ocean and Climate Studies NARIC International Winter School 2014

Coastal and ocean processes in the Bay of Bengal in a changing climate and their impacts on society

Scientific Student Report

Ahu Hena Muhammad Yousuf, Ahmed Tahmid Raihan, Md. Ahsanul Islam, Faiz Ahmad, Md. Fazlay Arafat, Gazi Azizul Islam, Jabir Thajudeen, Jannatul Feerdaus, Kishwar Jahan Chowdhury, Muhammad Golam Mustafa, Mahedi Hassan, Mahfjur Rahman, Md. Mostafa Monwar, Md. Sohel Parvez, Md. Syful Islam, Md. Tarikul Islam, Md. Wahidul Alam, Md. Zakaria, Muhammad Shafeeque, Nabir Mamnun, Nayan Mallick, Sabrina Nur, Sachin Pavithran A.P., Sarwar Jahan Chowdhury, Mohammad Saydul Islam Sarkar, Sayeda Umme Habiba, Shanta Soheli Moyna, Mir Shariful Islam, Zakia Sultana

Editors:

Lasse H. Pettersson, Md Abu Syed

Dhaka/Bergen, 21 January 2015

for Advanced Studies, Dhaka

Nansen-Bangladesh International Centre for Coastal, Ocean and Climate Studies, Dhaka







Bergen, Norway

Expected Outcome

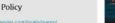
A joint report (draft publication) addressing the role of each topic and the cross- and interdisciplinary linkages and dependencies.

Marin: 70kg/66 (2016) 50-57



Contents lists available at ScienceDirect

Marine Policy



Assessing the added value of the recent declaration on unregulated fishing for sustainable governance of the central Arctic Ocean



Grace Elizabeth Shephard .* Kari Dalen . Regina Peldszus . Sara Aparicio Larissa Beumer^e, Roger Birkeland^f, Nikolaos Gkikas^e, Melina Kourantidou^f Panagiotis Ktenas^f, Peter Wilhelm Linde^f, Francesco Marazzi^f, Ruth Beatriz Mezzalira Pincinato¹, Jaziar Radianti¹¹¹, Bernhard Schartmüller¹¹,

Eike Ingrid Stübner. Alix Varnajot. Magali Vullierme ... Irina Zhilina

- are for Forth Deckton and Gymraics, Department of Geosciences, University of Urla, Orla (UM), Neeway IEE Energy Research, Postiola 4751 Shappen NO-7483, Touddeirn, Nervery

The The dazation concerning the precention of amoguloud high son fishing in the central Arctic Decard signed by the Arctic Strations, firmin smegalated high son fishing in the central part of the Arctic Decard and holds potential social, recomment, and political impacts for unamous stathednesh, in this paper for four for the four bateries Measures in the Declaration are discussed and what value these measures bring beyond the









Meals

- Breakfast @ INCOIS dormitory
- Joint lunch @ INCOIS canteen
- Dinners @ INCOIS canteen not on Thursday





Obvious, but to remember

- We start every day @ 09:00 better 5 min. early than 1 min. late!
- All students should attend all lectures and sessions
- Switch off your cell phone!
- Bring with you:
 - Laptop, paper,
 - Drinking water/soft drinks we will serve tea & coffee
 - Your own poster (today or tomorrow AM!)
 - Other personal needs for a whole day of work
- Thursday PM we will have a trip to "see" Hyderabad



enjoy your stay @ INCOIS!!!