SAFARI-2 Pre-Symposium Training

Using the latest in satellite data for fisheries and aquaculture applications

This two day training course will introduce participants to the theory behind biological and physical ocean measurements that can be made from satellites in support of fisheries and aquaculture applications. The course will cover the latest satellite data available through the European Commission Copernicus programme including that from the Copernicus Marine Data Stream from EUMETSAT, Copernicus Marine Environmental Monitoring Service, and the ESA Climate Change Initiative. The training will include practical sessions on data access, visualisation and analysis using the Sentinel Application Platform (SNAP). Participants will also have the opportunity for one-on-one discussions with the trainers to develop their individual work flows to use satellite data for their own applications and regions of interest.

Venue: ATIC-ASRB Hall, CMFRI, Kochi

The **ATIC-ASRB Hall at CMFRI, Kochi** provides seating for 100 students, with computer workstations and Internet access. The course will emphasise utilisation of data and products available from the **European Copernicus Sentinel series of satellites using SNAP software**.

Dates: 13-14 January 2018

Program:

The tutorial will focus on Satellite Remote Sensing with special emphasis on Ocean Colour, ocean colour data processing and application of ocean colour remote sensing for resolving Marine Ecology. A series of lectures on the relevant topics and practical classes on ocean-colour data processing and the application of remote sensing data sets for resolving Marine Ecology will be held. The trainees are also expected to carry out a mini project focusing on the topics covered.

Eligibility and Prospects:

- The training program is open only to **the registered participants of the symposium**.
- Young Scientists / Teachers, Post-Graduate Fellows and Doctoral students involved in Oceanographic work with specific reference to Fisheries / Remote Sensing are eligible to apply. Under special circumstances, applications from undergraduate and Masters Students **who have registered for the symposium** will also be considered.
- The training programme is open to 20 participants from India and 10 participants from abroad.
- The trainees are expected to have basic knowledge on ocean Remote Sensing along with basic computer skills. Preference will be given to the candidates already pursuing their research or building a career in the above topics.

How to apply:

Interested aspirants who have registered for the SAFARI2 Symposium need to apply separately for training on or before 20th December 2017. Application form can be downloaded from (http://www.safari2.org.in/tng.docx). The duly completed application form should be forwarded through research supervisor / Head of the Institute / Scientist working in relevant field electronically to Director, CMFRI (email: safari2.secretariat@gmail.com).

Pre-Symposium training Instructors:

Dr. T. V. Sathianandan

Principal Scientist & Head, Fisheries Resource Assessment Division, CMFRI, India

Joined Agricultural Research Service under the Indian Council of Agricultural Research in 1989 as Scientist and is serving as a scientist at CMFRI from 1990 onwards. A Ph. D. in Statistics from University of Calicut, Dr. Sathianandan has worked on time series modeling and forecasting, management of database on marine fish landings, development of computer software, fish stock assessment, design and management of the national level sample survey for estimation of resource wise, gear wise and fishing zone wise marine fish landings and simulation modeling. He is a member of the committee constituted by Government of Kerala to study and report the impact of fishing ban on the fishery in Kerala and a Member of the subcommittee constituted by Govt. of India to revalidate the potential yield and fleet size for the Indian EEZ.

Dr. Marie-Fanny Racault

Earth Observation Scientist, PML, UK

Dr. Racault is an Earth Observation scientist studying climate impact on marine ecosystem resources, fisheries, and the oceanic carbon cycle at global and regional scales, including coastal and upwelling systems. She has key expertise in applications of earth observations (in-situ, remote-sensing, modelling), analyses of year-to-year and long-term changes in oceanic productivity, investigations of biophysical interactions and climate processes such as El Niño extreme events. She has developed phenology algorithms to quantify plankton seasonal cycle in the global oceans, and in regional ecosystems such as the Red Sea coral reefs, the Mediterranean Sea, and the Gulf of Guinea upwelling system. She has a track record of successful delivery as a Principal Investigator in European Space Agency Living Planet Fellowship, Japan Society Fellowship, NERC Advanced Training, and as Work Package leader of ESA Ocean Colour-Climate Change Initiative and EC FP7 GreenSeas. She is dedicated towards capacity building, working with fellows from developing countries, and developing educational and research tools.

Dr. Hayley Evers-King

Marine Earth Observation Scientist, PML, UK

Dr. King's area of expertise are understanding the sensitivity in reflectance that can be attributed to various optically significant constituents, how phytoplankton community characteristics such as the particle size distribution, intracellular properties and functional types influence ocean colour, Development of novel algorithms for application to in situ and satellite ocean colour data, particularly in the coastal zone using the emerging generation of ocean colour sensors. She also works on extending the use of the ocean colour archive for new applications e.g. for the management of Harmful Algal Bloom, for coupling to physical and biogeochemical models and to understand how the light environment can impact ocean physics and ecosystems.

Dr. J. Jayasankar

Principal Scientist, Fisheries Resource Assessment Division, CMFRI, India

Doctor of Philosophy in Agricultural Statistics, Dr. Jayasankar's area of scientific interests include: Statistical modeling of natural resources, Exploratory analysis of climate induced resource upheavals, Modified sampling schemes for marine resource estimation. He is involved in Heuristic analytics of natural resource dispersion; Computer intensive analysis of animal breeding data; and Development of fiducial algorithms for kinky analytic rigors.

Dr. Shovonlal Roy

Lecturer in Remote Sensing, University of Reading, UK

A Ph. D. in ecological modelling using non-linear dynamics, Dr. Roy's research topics are related to marine ecosystems as well as other biological systems. By combining empirical data with theoretical models his research aims to provide better understanding of how the ecosystems function under various scenarios in a changing environment and how the ecosystems stability and species diversity are maintained over ecological time scales. Presently, he is developing mathematical models that couples biological and physical properties of the marine system to understand how light absorption properties of different species of phytoplankton contribute to oceanic primary productivity, formation phytoplankton blooms and also towards regulation of biologically-mediated carbon cycle in the changing oceans. His current research aims to extract useful information related marine ecosystem from satellite data on a global scale, tackling pressing issues such as ocean carbon uptake, acidification, and quantifying the effectiveness and consequences of proposed geo-engineering schemes.

Dr. Aneesh Lotlikar

Scientist D, Advisory Services and Satellite Oceanography Group (ASG), Indian National Centre for Ocean Information Services, India

Ph. D. Marine Sciences from Goa University, Dr. Lotlikar works on Hydro-optics modeling, Ocean Colour Remote Sensing, Oceanic bio-physical interactions, Marine primary productivity, Ecological indicators, Phytoplankton optical properties and functional types. He is a member of the IOCCG working group on Bio-optical Sensors on Argo Floats.

Mr. James Dingle

Earth Observation Data Analyst, PML, UK

Bsc. (Hons) Computer Science. He is involved in the European Space Agency funded Project 'Pools of Carbon in the Ocean'. Earth observation data analyst working in the UK at Plymouth Marine Laboratory for 4 years. Education and background in Computer Science and specialising in programming in Python/C but also proficient in bash/java among others to some extent. Through my work I have gained expertise using SNAP and its processing tools; most notably writing processing chains using the snap-python interface, snappy.

Dr. Grinson George

Senior Scientist, Fisheries Resource Assessment Division, CMFRI, India

Dr. Grinson George after his Ph. D. in Marine Science from NIO, Goa University, India, joined CIARI, Port Blair as Scientist in June 2005. After joining CMFRI as Senior Scientist, he has been working on Marine fisheries productivity and climate based changes in marine resources. His areas of scientifc interest include: Fisheries Oceanography, Marine Ecosystem studies, Climate change issues in marine science.

Tentative Time Table

Day & time	Programe	Resource person
Day 1 - 13th January 2018		
9.00 - 9.15	**Welcome address**	**Grinson George**
9:15 – 10.00	**Icebreaker introduction**	**Hayley Evers King**
10.00 – 10.30	**Indian Marine Fishery resources- present status.**	**T.V Sathianandhan**
10:30 – 11:30	**Brainstorming – what data do we need for fisheries and aquaculture?**	**Hayley Evers King**
11:30 – 11:45 – Tea break		
11:45 – 12:30	**Biological data from satellites: Ocean colour**	**Marie-Fanny Racault**
12:30 – 13:00	**Fisheries Oceanography-established links in the Eastern Arabian sea.**	**Grinson George**

13:00 - 14:00 – Lunch		
14:00 – 14:45	**Physical data from satellites: Altimetry and SST**	**Hayley Evers King**
14:45 – 15:15	**Data access**	**James Dingle**
15:15 – 16:45	**Practical session on data access**	**Hayley Evers King** **James Dingle**
16:45 – 17:45	**Project scoping session**	**Hayley Evers King** **Marie-Fanny Racault** **Shovonlal Roy**
<u>Day 2 - 14th January 2018</u>		
9:00 – 9:30	**Fisheries applications**	**Marie-Fanny Racault (lecture based on work by Trevor Platt)**
9:30 - 10:00	**Modelling the pelagic ecosystems of the Arabian sea and Bay of Bengal**	**Jayasankar J**
10:00 - 10:30	**Aquaculture applications**	**Hayley Evers King**
10:30 – 11:30	**Modelling and other applications**	**Shovonlal Roy**
11:30 – 11:45 – Tea break		
11:45 – 12:30	**Tools for working with satellite data**	**James Dingle**
12:30 – 13:30	**SNAP session 1**	**Hayley Evers King**
13:30 – 14:30 – Lunch		
14:30 – 15:30	**SNAP session 2**	**Hayley Evers King**
15:30 – 17:30	**Open session**	**Hayley Evers King** **James Dingle**

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January 13-14, 2018 | Kochi, Kerala, India

Application Form

To be filled by all applicants*

1. Name:
2. Gender: Male / Female
3. Academic qualification:
4. Designation:
5. Affiliation:
6. Corresponding Address:
7. Email:
8. Telephone: Fax:
9. Description of the present research activities (Not to exceed 200 words):
10. Current experience relevant to training topic (Not to exceed 200 words):
11. How will the training course be helpful to career of the candidate / parent institution / project in which candidate is working? (Not to exceed 200 words):

_____

[Signature of the applicant]

Date:
Place:
Forwarded through:

_____

Signature with office seal
[Research supervisor / Head of the Institute / Other (Pls. specify)]

The duly completed application form and a brief CV should be forwarded through research supervisor / Head of the Institute / Scientist working in relevant field electronically to Director, CMFRI (email: safarisecretariat@gmail.com) before 20th Dec 2017.

***Applicant should be a registered participants of the symposium**