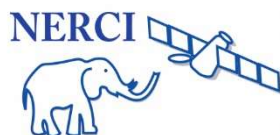


INTERNATIONAL INTERDISCIPLINARY PhD AND POST-DOC WINTER SCHOOL



Nansen
Scientific
Society
Bergen, Norway



The Arctic Ocean: atmosphere, ice and ocean interactions – implications for future climate and human activities

ESSO-National Centre for Antarctic and Ocean Research, Goa, India

October 28-November 2, 2018

PROGRAMME

All lectures have been allocated up to 35- 45 minutes as per the schedule, including 5-10 minutes for questions.

SATURDAY: 27th October 2018	
12:00	Arrival at ESSO-NCAOR, Goa. Accommodation at ESSO-NCAOR campus and nearby Guesthouse.
SUNDAY: 28th October 2018	
9:00	Arrival at ESSO-NCAOR, Goa. Accommodation at ESSO-NCAOR campus and nearby Guesthouse.
11.00 – 12:00	Registration of student participants at ESSO-NCAOR
12:00 - 13:00	<i>Lunch @ ESSO-NCAOR campus</i>
Session-I: Introduction. Chaired by Lasse H. Pettersson, NERSC	
13:00 - 14:00	Welcome to ESSO-NCAOR, by <i>Dr. M. Ravichandran, Director, ESSO-NCAOR</i> Scientific profiles of the organization partner institutions: ESSO-NCAOR, ESSO-IITM, ESSO-NIOT, NIAS, NCMRWF, NERSC, NERCI, NANSI and NIERSC.
14:00 - 18:00	Introduction of all lecturer and student participants at the winter school: Presentation by lecturers (each 2 min) and Student participants - (5 min. & 2-3 slides per student) . Focus on relevant studies and relation to the winter school topics.
16:00 - 16:30	<i>Tea / coffee break (integrated in above session)</i>
18:00 - 18:30	Introduction and establishment of student groups and plan for student work on the report from the winter school. Lecture-1: Introduction of thematic student working groups and study methodology <i>Dr. M. Ravichandran, ESSO-NCAOR and Lasse H. Pettersson, NERSC</i>
19:00	<i>Welcome dinner @ ESSO-NCAOR campus</i>
20:00-20:30	<i>A sense of adventure</i> – The life of the Norwegian scientist and Nobel laureate Fridtjof Nansen (a 30 min. movie).

MONDAY: 29th October**Inaugural Session**

09:30 - 10:30	Welcome address: <i>Dr. M. Ravichandran, Director, ESSO-NCAOR, Goa, India</i> Introduction and background for the Winter School: <i>Prof. Ola M. Johannessen, NANSI and Lasse H. Pettersson, NERSC, Bergen, Norway.</i> Address by Guest of honour:: <i>Dr. Shailesh Nayak, Director, National Institute of Advanced Studies, Bengaluru India</i> Address by Chief Guest: <i>H.E. Nils Ragnar Kamsvåg, Ambassador, Royal Norwegian Embassy, New Delhi, India.</i> Vote of Thanks Mrs. Divya David, <i>ESSO-NCAOR, Goa, India.</i>
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Tea Coffee BREAK 10:30 – 11:00**Winter School participants gather outside for a photograph with HE Nils Ragnar Kamsvag****Session-II: Introduction to Arctic research.
Chaired by Dr. Shailesh Nayak, NIAS**

11:00 - 11:35	Lecture-2: The Indian Arctic research program. <i>Dr. M. Ravichandran, ESSO-NCAOR, Goa, India</i>
11:35 - 12:10	Lecture-3: The Arctic and monsoon variability. <i>Dr. A. Prabhu, ESSO- IITM, Pune, India</i>
12:10 - 12:45	Lecture-4: Arctic sea ice processes and climate. <i>Prof. Ola M. Johannessen, NANSI, Bergen, Norway</i>
12:45 - 13:20	Lecture-5: Large scale climate variability associated with Arctic-Midlatitude-Tropics teleconnections <i>Dr. R. Krishnan, ESSO-IITM, Pune, India</i>
13:30 - 14:30	<i>Lunch break</i>
	Session-III: Observing the Arctic environment Chaired by Dr. Ashis Mitra, ESSO-NCMRWF
14:30 - 15:15	Lecture-6: Integrated Arctic observation system - INTAROS <i>Dr. Lasse Pettersson, NERSC, Bergen, Norway</i>
15:15 - 16:00	Lecture-7: Time series measurements in Kongsfjorden from the IndARC mooring. <i>Mrs. Divya David, ESSO-NCAOR, Goa, India & Mr. Kesav Kumar, ESSO-NIOT, Chennai, India</i>
16:00 - 16:30	<i>Tea / coffee break</i>
16:30 - 17:15	Lecture-8: Monitoring and Forecasting the Arctic Ocean – an overview <i>Dr. Anton Koroson, NERSC, Bergen, Norway</i>
17:15 - 19:00	Group preparations of questions (30 min). Plenary questions from students and discussion with today's lecturers.
19:30	Dinner @ ESSO-NCAOR campus <i>Film on Indian Polar Research Program</i>

TUESDAY: 30th October

08:30 - 09:30	<i>Interactive student group work: Structure and group contributions to the student report.</i>
Session-IV: The Arctic Atmosphere. Chaired by Dr. Richard Davy, NERSC, Bergen, Norway	
09:30 - 10:15	Lecture-9: Arctic amplification and surface air temperature.. <i>Dr. Leonid P. Bobylev, NIERSC, Russia</i>
10:15 – 11:00	Lecture-10: Arctic Sea-Ice Simulations with global Coupled Model <i>Dr. Ashish Mitra, NCMRWF, Delhi</i>
11:00 - 11:30	<i>Tea / coffee break</i>
11:30 - 12:15	Lecture 11: Sea ice properties from satellite data <i>Dr. Lena Shalina, NIERSC, St. Petersburg, Russia</i>
12:15 - 13:00	Lecture-12: Air-sea-ice interactions in the Arctic. <i>Dr. Richard Davy, NERSC, Bergen, Norway</i>
13:00 - 14:00	<i>Lunch break</i>
Session-V: Monitoring and forecasting the Arctic ocean and ice. Part 1. Chaired by Dr. R. Krishnan, ESSO-IITM, Pune, India	
14:00 - 15:00	Lecture-13: Remote sensing of polar cryosphere with special emphasis on Arctic region. <i>Dr. Sandip Oza, SAC-ISRO, Ahmedabad, India.</i>
15:00 - 16:00	Lecture-14: Geo-Scientific Platform as a Service for retrieval of sea ice information from satellite Earth observation data. <i>Dr. Anton Korosov, NERSC, Bergen, Norway</i>
16:00 - 16:30	<i>Tea / coffee break</i>
16:30 - 18:30	Group preparations of questions (30 min). Plenary questions from students and discussion with the lecturers (60 min). <i>Interactive student group work: Preparation of group contributions to winter school report for use in peer review article by the students (30 min).</i>
19:00	Dinner and cultural program @ ESSO-NCAOR campus.

WEDNESDAY: 31th October	
08:30 - 10:30	<i>Interactive student group work:</i> Preparation of group contributions to winter school report for use in peer review article by the students.
10:30 - 11:00	<i>Tea / coffee break</i>
Session-VI: The Marine Ecosystem of the Arctic Ocean Chaired by Dr. Anton Korosov, NERSC, Bergen, Norway	
11:00 - 11:45	Lecture-15: Next generation sea ice modelling. <i>Dr. Einar Olsson, NERSC, Bergen, Norway</i>
11:45 - 12:30	Lecture-16: Microbial diversity in Arctic fjords with special reference to Kongsfjorden-Krossfjorden system in Svalbard <i>Dr. K.P. Krishnan, ESSO-NCAOR, Goa, India</i>
12:30 –13:15	Lecture-17: Whether the warming Arctic has become more hospitable environment for mesophilic health significant bacteria? <i>Prof. Hatha, CUSAT, Kochi, India.</i>
13:15-14:00	<i>Lunch break</i>
14:00-17:00	Practical exercises in parallel groups Tools for analysis of sea ice information from satellite Earth observations (A. Korosov, NERSC, Dr. Nuncio, Dr. Babula Jena, ESSO-NCAOR) <ul style="list-style-type: none"> • Tools to analysis sea ice information from sea ice modelling and re-analysis (E. Olsson, NERSC, Dr. Nuncio, ESSO-NCAOR) • Tools to analysis climate information from model analysis (S. Stephenson, UConn, L. Shalina, NIERSC) • Tools to analysis climate information from model analysis (R. Krishnan, ESSO- IITM, Mr. Subeesh ESSO-NCAOR, Richard Davy, NERSC)
15:30 - 16:00	<i>Tea / coffee break included</i>
17:00 - 18:30	<i>Interactive student group work:</i> Preparation of group contributions to winter school report for use in peer review article by the students.
19:00	Dinner @ ESSO-NCAOR campus
20:00 - 20:50	<i>Secrets of a Frozen Ocean</i> (movie from a 1-year hovercraft expedition to the Arctic Ocean)

THURSDAY: 1st November

08:30 - 10:00	<i>Interactive student group work:</i> Preparation of group contributions to winter school report for use in peer review article by the students.
10:00 – 11:00	Extreme Meteorological Events in the Antarctic, Open Lecture Prof John Turner, BAS
10:30 - 11:00	<i>Tea / coffee break</i>
Session-VII: Monitoring and forecasting the Arctic ocean and ice. Part 2. Chaired by Dr. Nuncio Murkesh, ESSO-NCOAR, Goa, India	
11.00-11:30	Lecture-18: Biology of the Arctic Ocean – a brief overview. <i>Dr. Lasse Pettersson, NERSC, Bergen, Norway</i>
11:30-12:15	Lecture-19: Navigating the Arctic and a changing MIZ. <i>Prof. Scott Stephenson, UConn, USA</i>
12:30 – 13:30	Lunch break
13:30-16:00	Group preparations of questions and plenary questions from students and discussion with the lecturers.
16:30-21:00	Excursion/boat cruise, cultural program and dinner – outside ESSO-NCAOR campus.

FRIDAY: 2nd November	
08:30 - 10:00	<i>Interactive student group work: Synthesis of winter school student report and prepare for presentation of the group work.</i>
10:00 - 10:15	<i>Tea / coffee break</i>
Session-VIII: Arctic ocean circulation. Chaired by Dr. K. P. Krishnan, ESSO-NCAOR, Goa, India	
10:15 - 11:00	Lecture-20: The role of Nordic Seas circulation on variability of Atlantic water temperature in the Fram Strait. <i>Mr. Sourav Chatterjee, ESSO-NCAOR, Goa, India</i>
11:15 - 12:00	Lecture-21: The Indian observation and modelling program in the Kongsfjorden, Svalbard. <i>Mr. M. P. Subeesh, ESSO-NCAOR, Goa, India</i>
12:00-12:45	Lecture-22: Simulation of AMOC in the IITM-ESM <i>Dr. R. Krishnan, ESSO-IITM, Pune, India</i>
12:45 -13:45	<i>Lunch break</i>
Session-IX: Closing session. Chaired by Dr. M. Ravichandran, ESSO-NCAOR, Goa, India and Lasse H. Pettersson, NERSC, Bergen, Norway	
13:45 - 15:30	<i>Interactive student group work: Continue synthesis of winter school student report and prepare for presentation of the group work.</i>
15:30 - 16:00	<i>Tea / coffee break</i>
16:00 - 17:00	Presentation and discussing of the integrated winter school student report.
17:00 - 17:30	<i>Valedictory Function</i>