

Details of OSI Webinar Series

1) Topic: Challenges in Ocean Wave Modeling in context to the North Indian Ocean - the way ahead

Speaker: Prof. Prasad K. Bhaskaran, Department of Ocean Engineering & Naval Architecture, IIT Kharagpur



Date & Time: 07 August, 2020; 11:00 AM – 12:00 PM IST

Friday, 07th August 2020
1100-1200 IST

▶ Live Talk
OSI Webinar Series

▶ Speaker
Dr Prasad K. Bhaskaran, *Professor, IIT, Kharagpur*

▶ Title of Talk
Challenges in Ocean Wave Modeling in context to the North Indian Ocean - the way ahead



Prof. Prasad K. Bhaskaran is a Professor & former Head of Department, Ocean Engineering & Naval Architecture at IIT Kharagpur. Primary research interest of Prof. Prasad K. Bhaskaran is in Ocean Wave Modeling that includes development of model physics and parameterizations of source/sink mechanisms in ocean wave models having practical relevance in Ocean Engineering problems and Operational Oceanography. He published 205 research articles in peer-reviewed National/International Journals, Conferences, and Books/Book Chapters. He has four patents/copyrights to his credit. Prof. Prasad K. Bhaskaran was a lead member in the preparation of tsunami travel time atlas for the Indian Ocean. He has guided 12 Ph.D., students and 2 Post-Doctoral Scholars and currently guiding 5 Ph.D., students. He is a recipient of the James Renell Fellow awarded by the Ministry of Earth Sciences, Government of India. He is an active Life member of OSI.

About the Talk:

In the recent past, there has been significant research on the study of wind-waves due to increasing marine and offshore activities, and operational centres are involved in ocean state forecasts. Precise knowledge on ocean state conditions and its prediction are very important for various ocean related activities such as efficient ship routing, strategic naval operations, marine activities, port and harbour operations, coastal zone management etc. The scientific and engineering community has immense interest to understand the associated kinematics and dynamics of surface gravity waves for routine forecast and location-specific studies. There are many other issues that are also important and requires attention of the scientific community for regional scale wave modeling. Especially for tropical regions like India that experiences torrential rainfall over the oceans, the interaction of rain with water waves leading to the modification of resultant energy balance is an important parameter that also requires attention for operational purpose. For the Indian coast, regions in the near vicinity of river drainage systems also receive fine sediments such as silt and clay. The head Bay of Bengal has numerous river drainage systems that supply exceptional high loads of sediments to the nearshore areas. Fine heterogeneous sediment deposits over the seabed such as mud and clay can considerably attenuate wave energy as compared to wave propagation over sandy bottoms. Hence, there is a need to develop appropriate parameterization in numerical wave models that accounts for wave dissipation in seabed comprising of clay and mud deposits. Coastal and nearshore wave hydrodynamics on wave scattering effects due to vegetation such as mangroves that thrive in selected pockets along the Indian coast is another area that requires attention by the wave modeling community. The talk specifically focused on the challenges and future directions of ocean wave research in context to the North Indian Ocean region.

2) Topic: Role of Atmospheric Boundary Layer in Air-Sea Interaction Processes

Speaker: Dr. D Bala Subrahmanyam, Scientist, SPL/VSSC.

Date & Time: 23 January, 2021; 11:00 AM – 12:00 PM IST

The banner features a circular profile picture of Dr. D. Bala Subrahmanyam on the left. To its right, a blue arrow-shaped box contains the text: "Saturday, 23rd January, 2021" and "1100 – 1200 IST". Below this, a red text box provides a YouTube link: "YouTube link: <https://youtu.be/IH-BCa68xqA>". Further right, another blue arrow-shaped box displays "Live Talk" and "OSI Webinar Series". Below that, a white box with a blue border lists the "Speaker" as "Dr D Bala Subrahmanyam, Scientist, SPL/VSSC" and the "Title of Talk" as "Role of Atmospheric Boundary Layer in Air-Sea Interaction Processes". Logos for "OSI OCEAN SOCIETY OF INDIA" and "इसरो" are also present. A detailed biographical text is provided at the bottom of the banner.

Dr. D. Bala Subrahmanyam is a Scientist 'SF' at Space Physics Laboratory, Vikram Sarabhai Space Centre, Indian Space Research Organisation, Thiruvananthapuram. Primary research interest of Dr. Bala Subrahmanyam is in Boundary Layer Meteorology, Regional Atmospheric Modelling, Tropical Cyclones, Large Eddy Simulations, Nowcasting and Short-range Weather Predictions, and Air-Sea Interaction Processes having practical relevance in Atmospheric & Oceanic Sciences. He has contributed extensively on weather predictions in support of PSLV and GSLV missions as a core member of the Inter-Center Weather Forecast Expert Team. He was actively involved in research supervision of Ph.D scholars and Post-Graduate academic projects and also a review committee member for data processing in Chandrayaan-2 payloads. Dr. Bala Subrahmanyam was also a guest faculty at Indian Institute of Space Science & Technology, Thiruvananthapuram. He has published more than 50 research articles in peer-reviewed National/International Journals, Conferences, and Books/Book Chapters.

About the Talk:

The Earth Climate is a coupled system involving the ocean, land and atmosphere, and its maintenance largely depends on a balance between the absorption of heat from the Sun and the loss of heat through Radiative cooling to space. On a global scale, the Earth's Climate can be described as a mechanism of how the heat is transported from the tropics to the poles. The atmosphere–ocean coupled system exhibits natural variability on time scales ranging from minutes to millennia. Given the larger density and heat capacity of the ocean, the system can be thought of as a slowly varying system, the ocean, coupled to a rapidly varying system, the atmosphere. The response of the MABL to a significant change in the underlying sea surface temperature remains a problem of interest to both meteorology and oceanography. Feedback is possible through changes in surface wind stress and heat fluxes, with resultant ocean mixing and energy transfer that change the SST. The talk specifically focused on the atmospheric boundary layer, the theories developed and its role in air-sea interaction processes.

3) Topic: Dredging and Coastlines

Speaker: Prof. Dr. G Y V Victor, Managing Director & CEO, Dredging Corporation of India

Date & Time: 20 February, 2021; 11:00 AM – 12:00 PM IST

OSI Webinar Series

20th FEBRUARY, 2021, Time: 11.00-12.00 IST

Topic: Dredging and Coastlines

About the Talk

Over the years, dredging emerged as a distinct industry due to development of green and brown field ports, creation of small islands, reclamation projects to create land, coastal protection and flood management, inland waterways for last mile connectivity of seaborne cargo, amongst others. Dredging Contractors organically diversified their business to explore renewable and clean energy, blue and green energy, deep sea mining to harvest minerals and explore development of recreational marine activities, and many are successful in their growth.

About the Speaker

Commissioned officer of All India Dredging Cadre, is a charismatic maritime leader committed to success and focus on development preserving environment. He holds a Doctorate Degree, Chartered Engineer [UK], Chartered Physicist [UK], Certified Dredge Master and Mariner, Qualified in Finance Management, Port Development and Management, Containerization and Logistics Management, Fellow in Arbitration, International Arbitrator, Mediator, qualified Admiralty and Contracts Lawyer.

Live Talk



Speaker: Prof. Dr. G Y V Victor
Managing Director & CEO - Designate
Dredging Corporation of India

<https://youtu.be/AuBCxG6-xK4>

About the Talk:

Maintenance dredging activity is periodically conducted to maintain optimum depth of the navigation channel for shipping activities in port & harbor locations. The talk specifically covered aspects on dredging activities covering creation and maintenance of navigation channel, beach nourishment, reclamation works, sand mining, environmental dredging, and creation of recreational facilities. Some of the action pertaining to development of ports and harbors, damming of rivers, dredging of tidal inlets, control protection by groins, revetments, control erosion and construction of structures, man-made structures to prevent siltation was covered in the talk. Different types of dredging equipment's used and developments were also discussed. Further, the environmental aspects mandatory for environmental clearance, dredging and disposal permits, drilling and blasting, protection of mangroves, freshwater bodies, and beneficial uses of dredged material are covered in this talk.

4) Topic: SMAP Sea Surface Salinity variability at intra-seasonal and synoptic scales in the North Indian Ocean and their impact on the Southwest Monsoon
Speaker: Dr. V.S.N. Murty, CSIR-Emeritus Scientist and Chief Scientist (Retd.),
CSIR-National Institute of Oceanography
Date & Time: 22 April, 2021; 04:00 PM – 05:00 PM IST

OSI Webinar Series

22nd April, 2021, Time: 16.00-17.00 IST

Live Talk



Topic: SMAP Sea Surface Salinity variability at intra-seasonal and synoptic scales in the North Indian Ocean and their impact on the Southwest Monsoon

About the Talk

Analysis of Soil Moisture Active Passive (SMAP) mission derived SSS during April 2015 to December 2017 in the Bay of Bengal (BoB) and its further analysis with other data sets during the Southwest Monsoon (SWM) period of 2020 (1 June - 17 August) in the Southeastern Arabian Sea (SEAS) reveals the i) existence of 30- to 90-day and 10- to 20-day period Intraseasonal Oscillations (ISO) and 3-7- day Synoptic Oscillations (SO) in SSS during the SWM and Fall seasons, and ii) occurrence of peak SO in moisture flux and upper layer Ocean Heat Content in the SEAS, 1-2 days prior to the monsoon onset over Kerala. The seasonal SMAP SSS anomaly (SSSA) minimum (-0.5 to -1.0) occurs in October in the northern BoB, wherein the 30- to 90-day ISO has larger amplitude (-0.2 to 0.35 psu). This ISO leads SST and then follows precipitation augmenting (suppressing) precipitation as part of active (break) phase of SWM.



About the Speaker

Dr. V.S.N. Murty worked at the Council of Scientific and Industrial Research-National Institute of Oceanography over a period of 38 years since April 1980. Extensively worked and contributed to the observational data analysis that includes the satellite derived ocean observations, reanalysis products and model simulations in the areas of air-sea interaction, ocean circulation and dynamics of the North Indian Ocean. For the past few years, Dr. Murty has been working on the Satellite derived Sea Surface Salinity (SSS) as part of continued collaboration with Prof. Bulusu Subrahmanyam, Univ. South Carolina, and published papers as co-author. At present, Dr. Murty is the CSIR-Emeritus Scientist and is working at CSIR-NIO on the Andaman Sea circulation variability and dynamics at seasonal and intraseasonal time scales.

Speaker: Dr. V. S. N. Murty
CSIR-Emeritus Scientist and Chief
Scientist (Retd.)
National Institute of Oceanography

<https://youtu.be/VZ8W8PAOZps>

About the Talk:

The talk specially covered aspects on the Analysis of Soil Moisture Active Passive (SMAP) mission derived SSS during April 2015 to December 2017 in the Bay of Bengal (BoB) and its further analysis with other data sets during the Southwest Monsoon (SWM) period of 2020 (1 June – 17 August) in the Southeastern Arabian Sea (SEAS) reveals the i) existence of 30- to 90-day and 10- to 20-day period Intra-seasonal Oscillations (ISO) and 3-7- day Synoptic Oscillations (SO) in SSS during the SWM and Fall seasons, and ii) occurrence of peak SO in moisture flux and upper layer Ocean Heat Content in the SEAS, 1-2 days prior to the monsoon onset over Kerala. The seasonal SMAP SSS anomaly (SSSA) minimum (-0.5 to -1.0) occurs in October in the northern BoB, wherein the 30- to 90-day ISO has larger amplitude (-0.2 to 0.35 psu). This ISO leads SST and then follows precipitation augmenting (suppressing) precipitation as part of active (break) phase of SWM.

5) Topic: Tropical Ocean and Atmosphere Interactions

Speaker: Prof. Naresh K. Vissa, Assistant Professor, National Institute of Technology Rourkela

Date & Time: 28 June, 2021; 11:30 AM – 12:30 PM IST

OSI Webinar Series

28th June, 2021, Time: 11.30-12.30 IST

Topic: Tropical Ocean and Atmosphere Interactions

Live Talk



Speaker: Dr. Naresh K. Vissa
Assistant Professor
National Institute of Technology
Rourkela

<https://youtu.be/1NV1b4g3xX8>

About the Talk

In the tropics, oceanic and atmospheric coupled systems occur at various spatial and temporal scales such as interannual (e.g. ENSO, IOD), intraseasonal (e.g. MJO, BSISO), quasi-biweekly (e.g. Equatorial Waves) and synoptic (e.g. Tropical cyclones, depressions). Observed features of the coupled systems are revealed from in-situ and satellite measurements, structure and movement of these systems will be discussed. Various mechanisms have been proposed to understand the genesis, mature and dissipation of these coupled systems. In this talk we will primarily focus on the mechanisms that are related to ENSO and MJO. Role and importance of air-sea interactions for the sustenance of these coupled systems will be presented. Finally, as a case study how these air-sea fluxes are represented in the CMIP models will be discussed for boreal summer intraseasonal oscillations over the North Indian Ocean.

About the Speaker

Dr. Naresh Krishna Vissa is working as Assistant Professor in the Department of Earth and Atmospheric Sciences, National Institute of Technology Rourkela, since December 2014. His research interests include tropical cyclone-ocean interactions, large-scale oceanic and atmospheric interactions, extreme rainfall events and synoptic meteorology. He obtained Ph.D. from Indian Institute of Technology Kharagpur. After completing his Ph.D., he worked as a Senior Research Associate in Lancaster University, U.K. under the NERC-MOES changing water cycle project.

About the Talk:

In the tropics, oceanic and atmospheric coupled systems occur at various spatial and temporal scales such as interannual (e.g. ENSO, IOD), intra-seasonal (e.g. MJO, BSISO), quasi-biweekly (e.g. Equatorial Waves) and synoptic (e.g. Tropical cyclones, depressions). Observed features of the coupled systems are revealed from in-situ and satellite measurements, structure and movement of these systems will be discussed. Various mechanisms have been proposed to understand the genesis, mature and dissipation of these coupled systems. In this talk we will primarily focus on the mechanisms that are related to ENSO and MJO. Role and importance of air-sea interactions for the sustenance of these coupled systems will be presented. Finally, as a case study how these air-sea fluxes are represented in the CMIP models will be discussed for boreal summer intraseasonal oscillations over the North Indian Ocean.

6) Topic: Internal waves in the Bay of Bengal
Speaker: Prof. Mihir K. Dash, CORAL, IIT Kharagpur
Date & Time: 23 July, 2021; 04:00 PM – 05:00 PM IST

OSI Webinar Series

23rd July, 2021, Time: 16.00-17.00 IST

Topic: Internal waves in the Bay of Bengal

About the Talk

First part of the talk will discuss on the importance of the study of internal waves, their fundamentals, surface signatures and observational techniques being used. It is followed by glimpses of internal wave activity over Bay of Bengal region in the Indian perspective. Finally, numerical modeling aspects of internal waves and their generation mechanisms will be explained. The talk concludes with a note on the future scope of the research on internal waves.

About the Speaker

Prof. Mihir K Dash completed his PhD from the Space Applications Centre (ISRO), and Gujarat University Ahmedabad in Physics. For the first time he used the microwave observations from the first Indian Satellite dedicated for Ocean research (Oceansat-1, MSMR) and developed an algorithm to detect sea-ice in the Antarctic. He joined the National Centre for Antarctic and Polar Research as a Scientist, where he established the Remote Sensing Laboratory. He also worked as an observer for the 26th Antarctic expedition. He is a recipient of certificates of merit from Department of Ocean Development in 2005. He has more than 55 publications in peer reviewed journals.

Live Talk



Speaker: Prof. Mihir K Dash
Associate Professor, CORAL
Indian Institute of Technology
Kharagpur

<https://youtu.be/DmIYBlls6C4>

About the Talk:

First part of the talk discussed on the importance of the study of internal waves, their fundamentals, their surface signatures and observational techniques used. It is followed by glimpses of the internal wave activities in the Bay of Bengal in the Indian perspectives. Finally, numerical modelling of Internal waves is proposed and demonstrated and generation mechanisms are explained. The talk ends with a note on the future scope of the research on internal waves.

7) Topic: Tropical cyclones: Impacts, numerical simulation, and challenges
Speaker: Prof. Vimlesh Pant, Associate Professor, Centre for Atmospheric Sciences, IIT Delhi

Date & Time: 25 August, 2021; 04:00 PM – 05:00 PM IST

OSI Webinar Series

25th August, 2021, Time: 16.00-17.00 IST

Topic: Tropical cyclones: Impacts, numerical simulation, and challenges

Live Talk



OSI OCEAN SOCIETY OF INDIA

Speaker: Prof. Vimlesh Pant
Associate Professor
Centre for Atmospheric Sciences
Indian Institute of Technology Delhi

<https://youtu.be/QY35lvGDjA>

About the Talk

Tropical cyclone (TC) is one of the natural disasters which pose threat to infrastructure, biodiversity, and livelihood in the coastal regions. The strong winds associated with TCs lead to storm surge, coastal inundation, and sediment transport. The talk will begin with introductory material on TC and its impact on the upper-ocean. The numerical modelling of TCs and the impact of coupling atmosphere-ocean models on TC simulation and air-sea fluxes of heat and momentum will be discussed. The challenges in the prediction of TC intensity and track will be highlighted with a view on the scope of future research on this topic.

About the Speaker

Dr. Vimlesh Pant is currently working as Associate Professor at Centre for Atmospheric Sciences, IIT Delhi. He completed his Ph.D. in Atmospheric and Space sciences from University of Pune and IITM Pune (as place of research) in year 2009. After PhD, he worked briefly at INCOIS Hyderabad and ARIES, Nainital (DST institute) before joining as a faculty at IIT Delhi in 2012. He participated in various research cruises in the Indian Ocean. He was a member of 24th Indian Scientific expedition to Antarctica (Summer 2004-05). He received INSA medal for Young Scientist in 2014. His current research interests are Physical Oceanography, Ocean modelling, Air-sea interaction, and Coastal ocean processes.

About the Talk:

Tropical cyclone (TC) is one of the natural disasters which pose threat to infrastructure, biodiversity, and livelihood in the coastal regions. The strong winds associated with TCs lead to storm surge, coastal inundation, and sediment transport. The talk will begin with introductory material on TC and its impact on the upper-ocean. The numerical modelling of TCs and the impact of coupling atmosphere-ocean models on TC simulation and air-sea fluxes of heat and momentum will be discussed. The challenges in the prediction of TC intensity and track will be highlighted with a view on the scope of future research on this topic.

8) Topic: The Blue Economy of India - A Legal Perspective (with reference to : Ports, Shipping, Marine Fishing, Marine Tourism and Seabed Mining)
Speaker: Dr. Madhumita Kothari, Advocate & Partner HSA Advocates, New Delhi
Date & Time: 16 September, 2021; 04:00 PM – 05:00 PM IST

OSI Webinar Series

Live Talk

16th September, 2021, Time: 16.00-17.00 IST
Topic: The Blue Economy of India - A Legal Perspective
(with reference to : Ports, Shipping, Marine Fishing, Marine Tourism and Seabed Mining)



About the Talk
The talk provides an overview of the existing International conventions ratified by India in the specific domain, harmonization of Indian laws with the International laws and a gap analyses.

About the Speaker
An award winning International Lawyer and Legal Academician with 23 years experience in International contracts, International commercial arbitration, Maritime arbitration, Environment laws, Risk assessment, Risk management, ISO procedures in Shipping, Aviation, Mining, Artificial Intelligence, Cyber security, Power, Energy & Infrastructure.

Speaker: Dr. Madhumita Kothari
Advocate & Partner HSA Advocates
New Delhi

<https://youtu.be/MbSA-174QKQ>

About the Talk:

The talk covered a comprehensive overview of the existing international conventions ratified by India in the specific domain, harmonization of Indian laws with the international laws and a gap analyses.

9) Topic: The Antarctic Ozone hole and the Montreal Protocol (World Ozone Day 2021)

Speaker: Prof. Jayanarayanan Kuttippurath, CORAL, IIT Kharagpur



Date & Time: 16 September, 2021; 10:00 AM – 11:00 AM IST

World Ozone Day 2021

16th September, 2021, Time: 10.00-11.00 IST

Topic: The Antarctic Ozone hole and the Montreal Protocol

Live Talk



Speaker: Dr. K. Jayanarayanan
Asst. Professor, CORAL
IIT Kharagpur

<https://youtu.be/q9IcNscrMCo>

About the Talk

Absorption of solar radiation by stratospheric ozone sustains life on Earth by preventing harmful radiation from reaching the surface. However, significant decrease in ozone due to increases in the amount of ozone depleting substances (ODSs) was first observed in Antarctica in the 1980s. Losses deepened in subsequent years, but became nearly flat by around 2000, consistent with the decrease in global ODS emissions due to the implementation of the Montreal Protocol and its amendments. Here, we discuss the how the Montreal Protocol saved our ozone layer and helped to reduce the acceleration of global warming.

About the Speaker

Dr. Jayanarayanan Kuttippurath is an Assistant Professor in CORAL, IIT Kharagpur, West Bengal. He has been doing research in the field of Chemistry–Climate interactions for the past 22 years, particularly in the field of stratospheric ozone and the Antarctic ozone hole. He obtained Ph.D. from the University of Bremen, Germany, and Habilitation Degree (D. Sc.) from the University of Pierre and Marie Curie Paris 6, France. He has 15 years of international research and teaching experience. Dr. Kuttippurath has working experience with several chemistry and climate models, and spectrometers and airborne radiometers. He is an editor of the journals Atmospheric Chemistry and Physics and Frontiers in Environmental Science.

About the Talk:

Absorption of solar radiation by stratospheric ozone sustains life on Earth by preventing harmful radiation from reaching the surface. However, significant decrease in ozone due to increases in the amount of ozone depleting substances (ODSs) was first observed in Antarctica in the 1980s. Losses deepened in subsequent years, but became nearly flat by around 2000, consistent with the decrease in global ODS emissions due to the implementation of the Montreal Protocol and its amendments. Here, we discuss the how the Montreal Protocol saved our ozone layer and helped to reduce the acceleration of global warming.

10) Topic: The significance of coastal processes in determining erosion control measures along India's northeast coast

Speaker: Dr. Subbareddy Bonthu, Scientist-'C', National Centre for Sustainable Coastal Management, Chennai


Date & Time: 25 October, 2021; 04:00 PM – 05:00 PM IST

OSI Webinar Series

25th October, 2021, Time: 16.00-17.00 IST


Topic: The significance of coastal processes in determining erosion control measures along India's northeast coast

Live Talk



About the Talk

This talk will provide the fundamental aspects on the coastal processes and their role in the identification of erosion hot spots and causes along the West Bengal coast. The conceptual methods for appropriate shore protection work at eroding hotspot regions in order to maintain coastal stability with minimal consequences will be discussed for the nearby regions using numerical coastal process models. Finally, the talk will address on the preparation of shoreline management plan for implementation of appropriate actions in the coastal areas of West Bengal.



About the Speaker

Dr. Subbareddy Bonthu is working as a Scientist-C at the National Centre for Sustainable Coastal Management (NCSCM), Ministry of Environment, Forest and Climate Change, Govt. of India. He received his doctoral degree from the Indian Institute of Technology, Kharagpur. He started his scientific research career at NCSCM in 2012 and is continuing to this date. His area of interest is in numerical modelling of coastal processes, extreme weather events, and industrial applications.

**Speaker: Dr. Subbareddy B
Scientist – 'C'
National Centre for Sustainable
Coastal Management, Chennai**

https://youtu.be/hp_aen5dEMM

About the Talk:

This talk provided the fundamentals of coastal processes and their role in the identification of erosion hot spots and causes along the West Bengal coast. The second section discusses conceptually appropriate shore protection measures at eroding hotspot regions in order to maintain coastal stability with minimal consequences on nearby regions using numerical coastal process models. Finally, it addresses the preparation of shoreline management plan for the implementation of appropriate actions in West Bengal's coastal areas.

11) Topic: Benchmark worst droughts in India (1901-2020)
Speaker: Dr. Vimal Mishra, Associate Professor, IIT Gandhinagar
Date & Time: 23 November, 2021; 04:00 PM – 05:00 PM IST

OSI Webinar Series

23rd November, 2021, Time: 16.00-17.00 IST

Live Talk



Topic: Benchmark worst droughts in India (1901-2020)

About the Talk

During the summer monsoon (June-September) season, drought poses challenges for agricultural activities and water availability in India. We develop a framework considering the timing, areal coverage, and severity of droughts that can be used for the assessment as the monsoon season progresses. We estimate the benchmark worst droughts within the monsoon season (June, July, August, and September) using the long-term (1901-2020) gridded rainfall. The benchmark worst droughts were identified considering the extent and severity of drought using the Drought Severity Coverage Index (DSCI). The worst meteorological droughts in June, July, August, and September occurred in 1923, 2002, 1937, and 1907 with a return period of 68, 200, 147, 188 years, respectively. The worst drought in the entire summer monsoon season occurred in 1918, which had a return period of 238 years. The benchmark droughts during June 1923, July 2002, and monsoon 1918 were associated with the warm SST over the equatorial Pacific ocean.



About the Speaker

Dr. Vimal Mishra is currently an Associate Professor in Civil Engineering and Earth Sciences at Indian Institute of Technology Gandhinagar. Prior to joining IIT Gandhinagar, he completed his PhD from Purdue University and postdoctoral fellowship from University of Washington, Seattle. Dr. Mishra's research focuses on large scale hydrological modelling, remote sensing, and climate change impacts on water resources. In addition, Dr. Mishra has been working on the understanding of hydrologic extremes (floods and droughts) during the observed and projected future climate. Dr. Mishra's research work has been published in the leading journals including PNAS, Nature Geoscience, Geophysical Research Letters, and Water Resources Research. He is currently serving as an editor of Earth's Future and associate editor of Journal of Hydrology.

Speaker: Dr. Vimal Mishra
Associate Professor
IIT Gandhinagar

<https://youtu.be/Hfbunmg71Jk>

About the Talk:

During the summer monsoon (June-September) season, drought poses challenges for agricultural activities and water availability in India. We develop a framework considering the timing, areal coverage, and severity of droughts that can be used for the assessment as the monsoon season progresses. We estimate the benchmark worst droughts within the monsoon season (June, July, August, and September) using the long-term (1901-2020) gridded rainfall. The benchmark worst droughts were identified considering the extent and severity of drought using the Drought Severity Coverage Index (DSCI). The worst meteorological droughts in June, July, August, and September occurred in 1923, 2002, 1937, and 1907 with a return period of 68, 200, 147, 188 years, respectively. The worst drought in the entire summer monsoon season occurred in 1918, which had a return period of 238 years. The benchmark droughts during June 1923, July 2002, and monsoon 1918 were associated with the warm SST over the equatorial Pacific Ocean.

12) Topic: Understanding Circulation of the Bay of Bengal using Modern Observations and Models

Speaker: Dr. Sourav Sil, Assistant Professor, IIT Bhubaneswar


Date & Time: 16 December, 2021; 04:00 PM – 05:00 PM IST

OSI Webinar Series

16th December, 2021, Time: 16.00-17.00 IST


Topic: Understanding Circulation of the Bay of Bengal using Modern Observations and Models

Live Talk



About the Talk

This talk will introduce the usefulness of the modern observations, and numerical models to study the multi-scale ocean processes in the Bay of Bengal. Argos has been providing valuable high-resolution observations for monitoring the subsurface profiles since 2003. Indian Coastal Radar Network (ICORN), installed and operated by NIOT-MoES, Govt. of India, provides high-resolution and high-frequency coastal surface currents since late 2009. OMNI buoys of NIOT and recent scatterometer ScatSat-1 (ISRO) winds are useful for studying the ocean processes in the basin.



About the Speaker

Dr. Sourav Sil is currently an Assistant Professor with the School of Earth, Ocean, and Climate Sciences, IIT Bhubaneswar, Odisha, India. He was awarded Ph.D. degree in Physical Oceanography from IIT Kharagpur, India, in 2012. He has post-doctoral experience from JAMSTEC, Japan and has published more than 25 research papers and completed several projects as a principal investigator in the field of physical oceanography and ocean circulation modelling.

Speaker: Dr. Sourav Sil
Assistant Professor
IIT Bhubaneswar

About the Talk:

This talk introduced the usefulness and importance of modern observations, and numerical models to study and investigate the multi-scale oceanic processes in the Bay of Bengal region. ARGOS observational platform has been providing valuable high-resolution observations for monitoring the sub-surface profiles since 2003. The Indian Coastal Radar Network (ICORN) installed and operated by NIOT, Ministry of Earth Sciences, Government of India provides high-resolution and high-frequency coastal surface currents since late 2009. OMNI buoys of NIOT and recent scatterometer ScatSat-I (ISRO) winds are useful for studying the oceanic processes in the basin.

13) Topic: Indian Coastal Ocean Radar Network (ICORN) and its Application
Speaker: Dr. Basanta Kumar Jena, Scientist-G & Project Director, National
Institute of Ocean Technology, Chennai
Date & Time: 27 January, 2022, 1600-1700 IST

OSI Webinar Series



27th January 2022, Time: 16.00-17.00 IST
Topic: Indian Coastal Ocean Radar Network (ICORN) and its Application
[About the Talk](#)

NIOT operates “Indian Coastal Ocean Radar Network (ICORN)” as a part of Ocean Observation Network (OON) project of MoES. ICORN gives us an edge over conventional single point current measurements by providing two-dimensional surface circulation in near real time. These high-resolution data help in studying the dynamics of the coastal ocean, the interaction between physical and biological parameters in the ocean, transport mechanisms between the estuary and coastal waters. Assimilation of data from HFR systems improves the ocean circulation models and their validation.

[About the Speaker](#)

Dr. Basanta Kumar Jena is working as Scientist-G and Project Director at NIOT, Ministry of Earth Sciences, Govt. of India. He completed his Master's and doctoral degree in Oceanography. His area of expertise is Coastal observation Modeling which includes ICORN, Shoreline management plan including design criteria for coastal infrastructure developments (wave, tide, current, and other parameters). He has published more than 50 papers in scientific journals, 2 books, 5 book chapters, and 180 technical reports and reviewer of various scientific journals.

Live Talk



Speaker: Dr. Basanta Kr. Jena
Scientist – ‘G’ & Project Director
National Institute of Ocean
Technology, Chennai

<https://youtu.be/jkKW4fSCLRY>

About the Talk:

NIOT operates the ‘Indian Coastal Ocean Radar Network (ICORN)’ as a part of Ocean Observational Network (OON) project of Ministry of Earth Sciences, Government of India. ICORN provides an edge over conventional single point current measurements by providing two-dimensional surface circulation in near real time basis. These high-resolution data help in studying the dynamics of the coastal ocean, the interaction between physical and biological parameters in the ocean, transport mechanisms between the estuary and coastal waters. Assimilation of data from High Frequency Radar systems improves the ocean circulation models and their validation.

14) Topic: Assessment of Litter and Microplastic contamination along the Indian coasts - Necessity of National Marine litter policy

Date & Time: 25 February, 2022, 04:00 PM – 05:00 PM IST

OSI Webinar Series

25th February 2022, Time: 16.00-17.00 IST

Live Talk

Topic: Assessment of Litter and Microplastic contamination along the Indian coasts- Necessity of National Marine litter policy

About the Talk

Accumulation of litter and microplastic is a growing marine environmental problem, the solutions to managing plastic pollution require a combination of measures including scientific information, social awareness, and regulations. The National Centre for Coastal Research (NCCR), MoES, has been identified as one of nodal agencies to combat marine litter and plastics through various scientific programs. The present talk will focus on the initiatives undertaken in developing a science strategy for conducting marine litter and microplastic monitoring along the Indian coast (beaches and offshore) to assess the distributions of plastics (micro to mega) in the environment and marine life.

About the Speaker

Dr Mishra is presently heading the "Prediction of coastal water quality" and "Marine Litter and microplastic" programs at NCCR, MoES, Chennai. His research interests include coastal processes, pollution, hazards, coastal zone management and authored about 70 research articles. In the last three years, he has conducted a number of Coastal Clean-up campaign/awareness for Indian beaches and also involved in the quantifications of marine litter and research in microplastics in different matrices. He has represented the 1st and 2nd "Ad Hoc group of Expert committee meeting on Marine Litter and Micro plastics" of UNEP at Nairobi, Kenya and Geneva, Switzerland and 'Regional Action plan for the Arctic Ocean' for Protection of the Arctic Marine Environment (PAME) at Oslo, Norway.



Speaker: Dr. Pravakar Mishra
Scientist – 'F'
National Centre for Coastal Research,
NIOT Campus, Chennai

<https://youtu.be/gW4JDR5Z7Rc>



About the Talk:

Accumulation of litter and microplastic is a growing marine environmental problem, the solutions to managing plastic pollution require a combination of measures including scientific information, social awareness, and regulations. The National Centre for Coastal Research (NCCR), MoES, has been identified as one of nodal agencies to combat marine litter and plastics through various scientific programs. The present talk will focus on the initiatives undertaken in developing a science strategy for conducting marine litter and microplastic monitoring along the Indian coast (beaches and offshore) to assess the distributions of plastics (micro to mega) in the environment and marine life.

15) Topic: Progress and Prospects of Hydrographic Surveying Technology in Research & Development

Speaker: Dr. Basanta Kumar Jena, Scientist-G & Project Director, National Institute of Ocean Technology, Chennai


Date & Time: 25 March, 2022; 04:00 PM – 05:00 PM IST

OSI Webinar Series


25th March 2022, Time: 16.00-17.00 IST

Topic: Progress and Prospects of Hydrographic Surveying Technology in Research & Development

Live Talk



Speaker: Dr. Basanta Kr. Jena
Scientist – ‘G’ & Project Director
National Institute of Ocean Technology, Chennai



About the Talk

The bathymetric data is a primary source for any basic oceanographic study. Shallow water bathymetry shall improve our understanding of the seabed morphology mainly nearshore including surf zone. At present, scientific communities are depending on earlier surveyed charts and freely available coarse datasets. This talk includes recent technology available for carrying out shallow water bathymetry for research and development works along the Indian coast. The shallow water bathymetric dataset along Indian Ocean shall provide better understanding of seabed, coastal processes, and numerical model studies.

About the Speaker

Dr. Basanta Kumar Jena is working as Scientist-G and Project Director at NIOT, Ministry of Earth Sciences, Govt. of India. He completed his Master's and doctoral degree in Oceanography. His area of expertise is Coastal observation Modeling which includes ICORN, Shoreline management plan including design criteria for coastal infrastructure developments (wave, tide, current, and other parameters). He has published more than 50 papers in scientific journals, 2 books, 5 book chapters, and 180 technical reports and reviewer of various scientific journals.

About the Talk:

The bathymetric data is a primary source for any basic oceanographic study. Shallow water bathymetry shall improve our understanding of the seabed morphology mainly nearshore including surf zone. At present, scientific communities are depending on earlier surveyed charts and freely available coarse datasets. This talk includes recent technology available for carrying out shallow water bathymetry for research and development works along the Indian coast. The shallow water bathymetric dataset along Indian Ocean shall provide better understanding of seabed, coastal processes, and numerical model studies.

16) Topic: Future Perspective on Coastal Vulnerability and Resilient Infrastructure
Speaker: Dr. Manasa Ranjan Behera, Associate Professor, IIT Bombay
Date & Time: 20 April, 2022; 04:00 PM – 05:00 PM IST

OSI Webinar Series

20th April 2022, Time: 16.00-17.00 IST

Topic: Future Perspective on Coastal Vulnerability and Resilient Infrastructure



About the Talk

Coasts across the globe encounter various types of ocean disasters affecting the dense coastal community. IPCC has already established the fact that ocean heat content, sea level, wave height, and ocean extreme events are on the rise. The intensity and frequency of cyclonic events are increasing, emphasizing the need for better preparedness for such events. Overall, the coastal resilient infrastructure needs a wholistic approach starting from assessing the coastal disasters, their impact/loads, and suitable design of coastal infrastructure considering the future scenarios.

About the Speaker

Prof. Manasa Ranjan Behera works in the research areas on coastal hydro-morphodynamics, extreme wave modelling, climate change impacts. He has published over 125 research articles, supervised 9 post-doctoral fellows, 7 Ph.D students and 15 masters' students. He has also served as Editorial Board Member and Guest Editor for refereed journals. He received the prestigious "Prof. R J Garde Research Award 2018" by the Indian Society for Hydraulics.

Live Talk



Speaker: Prof. Manasa Ranjan Behera
Associate Professor
Indian Institute of Technology
Bombay

<https://youtu.be/mucG3fwCOM8>

About the Talk:

Coasts across the globe encounter various types of ocean disasters affecting the dense coastal community. IPCC has already established the fact that ocean heat content, sea level, wave height, and ocean extreme events are on the rise. The intensity and frequency of cyclonic events are increasing, emphasizing the need for better preparedness for such events. Overall, the coastal resilient infrastructure needs a wholistic approach starting from assessing the coastal disasters, their impact/loads, and suitable design of coastal infrastructure considering the future scenarios.