



INDIAN GEOPHYSICAL UNION

Diamond Jubilee Annual Convention

on

Advances in Geosciences with Special Reference to Coastal Hazards

22-24 NOVEMBER 2023



Jointly Organized By

Indian Geophysical Union (IGU)

&

Department of Marine Geology and Geophysics

School of Marine Sciences

Cochin University of Science and Technology (CUSAT)

Kochi, Kerala



IGU DIAMOND JUBILEE ANNUAL CONVENTION

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OBJECTIVES

A wide range of coastal hazards results from short-term and low-frequency events that have significant/far-reaching impacts along the coastal zones the world over. Much of the world's population lives in low-lying coastal regions that are innately vulnerable to natural hazards such as tropical cyclones and storm surges; hurricanes; earthquakes; and erosion. The saline water intrusion of coastal aquifers is another major challenging issue that significantly affects the drinking water for the coastal population. In addition to the usual occurrence of hydrometeorological disasters in coastal zones, other oceanographic phenomena such as sea-level rise, tsunami occurrences, and rip currents also pose threats to the coastal living community. Geoscientific investigations aided with the numerical models significantly help in the prediction of these extreme events as well as mapping of vulnerable zones, and provide a basis for the coastal protection measures. Further, increased anthropogenic activity due to large-scale urbanization and subsequent industrial development cause degradation of the environment as well as enhance the risk from coastal hazards, particularly for people in the low-lying coastal belts. This calls for adopting proper coastal zone management strategies through a well-designed scientific approach and planning in a sustainable manner.

Kerala has an almost 600 km long coastline with one of the most densely populated coastal regions in the country and is subjected to a variety of coastal hazards. All along the shore, the high, steep monsoonal waves create serious seasonal erosion. The risk of coastal erosion in Kerala extends beyond 300 kilometers. The heavy rainfall during the monsoon, severe floods in 2018, and the 2004 tsunami have affected the majority of the state's coastal districts and gave a new dimension to the state's disaster situation. The region is very challenging for various geoscientific studies due to its unique topographic, physiographic, and diverse socio-economic characteristics, and has attracted the attention of national and international scientists. The increasing population, increasing industrialization, and complexities of the region pose threats to sustainable growth and development. Hence such a convention will provide a suitable platform to discuss various pressing issues and give direction toward sustainable development.

In view of this, several topics related to the minerals, soils, energy resources, fossil fuels, oceans and freshwater, the atmosphere, weather, environmental chemistry and biology, natural hazards, etc. will be deliberated during the three-day Diamond Jubilee Annual Convention of the Indian Geophysical Union (IGU) to be held at the Department of Marine Geology and Geophysics, School of Marine Sciences, Cochin University of Science and Technology (CUSAT), Kochi, Kerala from 22-24 November 2023. The Annual Convention will also address various challenges focused on promoting, developing, and integrating the collection of data archives needed to manage global and regional aspects.

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ABOUT COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY (CUSAT)

Cochin University of Science and Technology (CUSAT) was initially constituted as the University of Cochin through an Act of the Kerala Government on 10th July 1971. The University of Cochin was re-constituted as Cochin University of Science and Technology (CUSAT) in February 1986, redefining its objectives as "promoting Graduate and Post-Graduate studies and Advanced Research in Applied Sciences, Technology, Industry, Commerce, Management and Social Sciences." CUSAT is now a world-ranking university with the specific purpose of developing higher education, emphasizing post-graduate studies and research in applied science, technology, industry, humanities, and commerce. CUSAT has consecutively been figured in the Times Higher Education World Ranking since 2017. The Times ranks around 1500 best universities worldwide annually with around 60 universities from India out of 967. CUSAT has also found a place in the QS World University Ranking and the National Institutional Ranking Framework (NIRF) of the India Government. True to Kerala's legacy of being the friendliest state with an avowed dedication to education, CUSAT is home to students from across the globe. The University takes pride in the fact that it has an envious record in campus recruitment. The pool of its highly successful and talented alumni, who adorn vital positions in several highly acclaimed R&D institutions and corporates in India and abroad, are the living testimony of the academic excellence of CUSAT.



ABOUT DEPARTMENT OF MARINE GEOLOGY & GEOPHYSICS, CUSAT

In 1976, Marine Geology was founded as a division under the School of Marine Sciences, CUSAT with a Master's programme in Marine Geology. In 1992, a three-year M.Sc. (Tech.) programme in Marine Geophysics was created as a logical extension of the existing Marine Geology programme, which has been later reformed into a two-year M.Sc. course. In 1996, the Marine Geology Division was elevated to the department level and became the Department of Marine Geology and Geophysics. The Department is one of the few in India to impart advanced study and research opportunities in Marine Geology and Geophysics. The full-fledged two-year postgraduate programme in Marine Geology was established in response to worldwide advancements in general and national demands in particular in the area of Marine Geoscience. Since the commencement of the Marine Geophysics course in 1992, the Department's major strength has been the synergy between Marine Geology and Marine Geophysics. Both programmes are designed to meet the needs of various research institutions and survey organisations, as well as multinational companies engaged in oil, natural gas, mineral exploration, seabed surveys, remote sensing, and groundwater prospecting, and helped to develop manpower in the fields of Geology and Geophysics, with an additional emphasis on marine areas. In addition to postgraduate academic programmes, the Department is actively involved in Ph.D. research in all key frontier areas of Earth Science research. For creative teaching and research in Geoscience, the Department is fully equipped with infrastructure, experimental and computational facilities.

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ABSTRACT VOLUME

The 60th Annual Convention of IGU will bring out a volume (Printed and Digital) containing abstracts, messages from luminaries, geoscientific work of eminent scientists/researchers, and advertisements from Sponsors (Institutes, Industries, and Instrument Manufacturers, etc.). The tariffs for the publication of Advertisements are listed below:

Back Cover (Color) : ₹ 60,000/- Inside

Front Cover (Color) : ₹ 50,000/- Inside

Back Cover (Color) : ₹ 40,000/-

Inside Full Page (Color) : ₹ 30,000/-

Inside Full Page (BW) : ₹ 20,000/-

Those interested in publishing their products/details of their organizations need to send the necessary information to igu123@gmail.com by 1st October 2023. The tariff has to be paid in favor of Treasurer, Indian Geophysical Union, payable at Hyderabad.

Bank Details:

Account name : Indian Geophysical Union

Bank name : State Bank of India

Branch : SBI, Habsiguda, Hyderabad

Account No : 52191021424

Account Type : Saving Account

IFSC Code : SBIN0020087

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CALL FOR ABSTRACTS

Format of Abstract: 1st Line: Title; 2nd Line: Author/Authors Affiliation; 3rd Line: Presenting Author e-mail ID and Abstract of about 300 words should be submitted online (<http://iguonline.in/>) by **1 October, 2023**. The author(s) should indicate his/her/their preference for oral or poster presentation. However, the technical committee shall decide the Final Scientific Program, as abstracts will be accepted based on merit and contents. Acceptance will be communicated to the potential speakers by 8th October 2023.

The main theme of the 60th IGU Convention is:

"Advances in Geosciences with Special Reference to Coastal Hazards "

Sub Themes are:

Coastal Processes and Hazards

- Coastal Erosion
- Coastal Vulnerability
- Harmful Algal Blooms
- Coastal Hazards Observing System
- Coastal Processes and Shoreline Management
- Designing Coastal Adaptation Strategies

Solid Earth Geosciences

- Earthquakes and Geo-hazards
- Hydrocarbon, Groundwater and Mineral Exploration
- Crustal and Lithospheric Studies
- Near Surface Investigations
- Geochronology and Geochemistry

Marine Geo-Sciences

- Ocean Energy
- Marine Sediment Dynamics
- Coastal, Shelf and Estuarine Processes
- Marine Pollution
- Exploration and Exploitation of Ocean Resources

Atmospheric, Planetary and Space Sciences

- Weather and Climate Change
- Drought and Floods
- Atmospheric Observation Systems
- Forecasting System and Regional Climate Modelling
- Aerosols and Monsoon Studies
- Coupling of Ionosphere and Atmospheric System
- Remote Sensing and Glacier Dynamics

In addition to the above, a half-day session will be devoted to the **"Young Researcher Program"** by those who are pursuing quality research for Ph.D. in Earth Sciences, certified by their supervisor. The **"Best Oral Presenter Award"** will be announced by a jury.

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IGU AWARDS

IGU-ONGC-IGU Best Poster Awards

ONGC-IGU cash prizes will be awarded to two students and two research scholars below 30 years (as of 1st January 2023) for pursuing quality research in the field of Geosciences.

IGU-Prof. Jagdeo Singh & Dr. S. Balakrishna Memorial Grant

Meritorious students of Geophysics/Applied Geophysics will be provided the second sleeper class fare, local hospitality, accommodation, and registration fee waiver to participate in the IGU Annual Convention. Names of the first and second-rank holders of the pre-final examination (PG) are to be forwarded to IGU by the Head of the Department of Geophysics/Applied Geophysics of recognized universities.

IGU-Anni Talwani Memorial Grant for Women Researcher

Indian women researchers/students around 28 years (as of 1st January 2023) are encouraged to participate in the Annual Convention through this grant. The selection of grantees will be based on the merit of a full paper submitted to the Annual Convention by an applicant, certified by the Head of the Department/Organization. The 3rd AC class fare, accommodation, and registration fee waiver will be provided to four grantees.

Accommodation

The participants will be accommodated mostly in the Govt. guest houses or city hotels on a payment basis. Delegates are requested to send their accommodation requirements well in advance to the Local Organising Convener (igucusat2023@gmail.com) with a copy to igu123@gmail.com by **20th October 2023**.

REGISTRATION

Registration Fee as Follows:

IGU Non Member Delegate	: INR 6000/-
IGU Member Delegate	: INR 5000/-
IGU Member Delegate (Senior Citizen)	: INR 3000/-
Research Scholars	: INR 3000/-
Students	: INR 2000/-
Associated Members of IGU	: INR 1000/-
Spouse / Accompanying Person	: INR 2000/-

All delegates must register in advance for participating in this 60th Annual Convention of IGU. The enclosed/attached Registration Form (also available at www.iguonline.in) may be filled in and sent by email igucusat2023@gmail.com copy to igu123@gmail.com to **Dr. Abhey Ram Bansal, Hon. Secretary, IGU, CSIR-NGRI Campus, Uppal Road, Hyderabad-500007, PH:040-2702810**. A soft copy of the abstract volume will be provided by the IGU. However, the registration form is mandatory to attend the conference. One form for one delegate.

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ABOUT KOCHI

Kochi represents different things to different people. To many, it is an emerging cosmopolitan city with bustling life in the streets, the cinema halls, the shopping malls, and the skyscrapers; the commercial capital of the state, with a style statement different from rest of the State - whether in clothes or lifestyle. To some others, Kochi is a place with deep roots in history and its streets exude an old-world charm; a place with beautiful monuments and a variety of linguistic and ethnic communities including Jews, Konkis, Gujaratis and so on. Yet another group looks at Kochi as a thriving, expanding market, providing opportunities for growth and prosperity to all who knock at her doors. In short, Kochi offers a cocktail of modernity, old-world charm and a global outlook that, at the same time, facilitates continuity and change. For centuries, Kochi had been a main port city, not only of Kerala, but also of the Indian Peninsula. Since the 14th century, Kochi, known as the Queen of the Arabian Sea, has had ships from Asian and European countries visiting her port. The traders and travellers from across the globe were welcomed with open arms and minds. This greatly helped in its growth into a cosmopolitan city. Kochi's growth owes a lot to its strategic position along the coastal India that has proximity to the Arabian Sea on the west, and the estuaries and the Western Ghats on the east. As for its geography, it is an indiscriminate mix of hilly areas, estuaries and backwaters, small islands, coastal cities like Fort Kochi and Mattancherry and plain terrain like that of the city of Ernakulam. With its interesting monuments, geographic peculiarities, and emerging cosmopolitan nature, Kochi can keep a tourist engrossed for days.

Kochi, one of the most beautiful spots in Kerala, is one of the most popular getaways for Indians and international tourists alike. Places to visit near Kochi are a perfect amalgamation of hill stations, trekking spots, backwaters, and wildlife sanctuaries. Tourist places near Kochi provide a perfect weekend getaway for laid-back vacationers or adrenaline-fuelled adventurers alike.



Fort Kochi



Marine Drive & Cruise



Backwater & Cruise



Athirappilly Falls



Munnar, Western Ghats



Varkala Beach

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