Session title: **Artificial Intelligence and Marine Big Data support SDGs(II)**

Session Organizer: **International Research Center of Big Data for Sustainable Development Goals, The Academy of Digital China**

Short Description

The session will focus on the innovative role of AI and marine big data technology in SDG14. Influential experts and academicians in the field will be invited to share their cutting-edge research and practices, present case studies, and engage in discussions with participants. The primary aim is to explore the way to achieve our sustainable and high-quality blue ocean.

Objectives

This session will provide the best practices and share experiences regarding with AI and marine big data technologies in promoting a sustainable and high-quality blue ocean. It will also explore innovative applications of AI technology in addressing challenges related to sustainable marine environments, stimulating deep thinking among experts and scholars, and offering inspiration for future research.

Expected Results

Through the exchange of ideas and discussions in this symposium, we expect to achieve the following outcomes:

1. Providing the best practices and sharing experiences of AI and marine big data in driving a sustainable and high-quality blue ocean.
2. Exploring innovative applications of AI technology in addressing challenges related to a sustainable and high-quality blue ocean.
3. Inspiring participants to engage in deep reflections on a blue ocean and spark new opportunities for collaborative projects.

Agenda

Time 17:00-18:30, September 7th 2023 Room: 305 C

Moderators:

XUE Cunjin

Professor

International Research Center of Big Data for Sustainable Development Goals; Aerospace Information Research Institute, Chinese Academy of Sciences

Dr. XUE Cunjin is a Professor at the Aerospace Information Research Institute, Chinese Academy of Sciences, P.R. China. Dr. XUE's research focuses on marine spatiotemporal data mining and digital twin of the ocean, including process-oriented marine spatiotemporal representing and graph storing model, process-oriented marine abnormal variation extracting technology, and process-oriented marine spatiotemporal clustering and associating methods. He is the author more than 80 articles, and holds 10 patents.

SU Hua

Professor

The Academy of Digital China, Fuzhou University

Dr. SU Hua is now a professor at Fuzhou University and deputy director of the National & Local Joint Engineering Research Center of Satellite Geospatial Information Technology, leading a group dedicated to ocean remote sensing investigation with more than 15 researchers and students. He has had professional experience in ocean remote sensing and AI oceanography for about 14 years. Dr. Su has achieved the honors of IEEE Senior Member, Distinguished Young Scholars of Fujian Province of China, and High-level talents of Fujian Province of China. His research outputs are outstanding, hosting more than 10 projects as PI or Co-PI funded by the National Natural Science Foundation of China and Fujian Province, etc. His study on AI-based subsurface and deeper ocean remote sensing is promising and productivity. He has published high-level papers and datasets, which IPCC adopted and served for climate change studies and Sustainable Development Goals. Dr. Su is also active in the academic community of ocean remote sensing, and serves as a youth editor of The Innovation, a topical advisory panel member

of Remote Sensing, guest editor of Remote Sensing, peer reviewer for more than 20 international journals, and section chair for international conferences, etc.

Participants

Event 1 (17:00-17:15)

An introduction to IAP/CAS global ocean gridded dataset and its application

CHENG Lijing

Professor

Institute of Atmospheric Physics, Chinese Academy of Sciences

CHENG Lijing received his Ph.D from the Institute of Atmospheric Physics, Chinese Academy of Science in 2014. His researches focus on monitoring the ocean changes and understanding the associated mechanisms, including ocean heat content, ocean salinity, and stratification changes. His dataset (IAP ocean observational gridded product) has been widely used and well-recognized in recent years. He has published over 90 papers, with more than 40 first/corresponding author papers. The total citation of is >7000 times (google scholar). His research have been adopted by more than 40 international reports organized by IPCC, WMO, among others, and have been selected as “Top-10 advances in science and technology in Chinese Society for Oceanography and Limnology” three times. Lijing was awarded to “International Data Prize” by WCRP/GCOS, and “XIE Yibing Young Meteorologist Award” in 2020, Fofonoff Early Career Award from the American Meteorological Society and “The Xplorer Prize” in 2023. He was selected as a Lead Author for IPCC Special Report on the Ocean and Cryosphere in a Changing Climate between 2017-2019; Lead Author of United Nations World Ocean Assessment -2 within 2016-2020.

Event 2 (17:15-17:30)

Spatiotemporal intelligent methods for exploring fine-scale environmental processes in coastal seas

WU Sensen

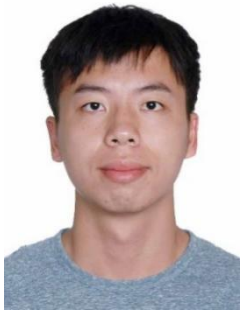
Associate Professor

School of Earth Sciences, Zhejiang University

Dr. WU Sensen is an associate professor at the School of Earth Sciences, Zhejiang University. He currently serves as deputy secretary-general and deputy director of the Youth Work Committee of the Zhejiang Geographical Society. His research mainly focuses on the theories and methods of spatiotemporal modeling and prediction in geoscience big data. He has published more than 30 papers in domestic and foreign journals, such as the International Journal of Geographical Information Science. He also obtained more than 20 national invention patents and software copyrights. Dr. Wu presided over and participated in more than 10 scientific research projects, such as the National Natural Science Foundation of China, the National Key Research and Development Program of China, and the Deep-time Digital Earth (DDE) Big Science Program.

Event 3 (17:30-17:45)

Time-series satellite images reveal the dynamic equilibrium of tidal wetlands under extensive coastal reclamation



WU Wenting

Associate Professor

Academy of Digital China (Fujian), Fuzhou University

Dr. WU Wenting is an Associate Professor at Fuzhou University. He received his Ph.D. degree from the State Key Laboratory of Estuarine and Coastal Research, East China Normal University in 2019. His research interests include topics related to disturbances detection, the evolution of coastal wetlands, and risk assessment under the impacts of land reclamation in the coastal zone. He currently focus on the impacts of land reclamation on coastal wetland, and has published more than 20 papers, which made contributions to the existing knowledge by detecting the evolution in landscape and geomorphology of coastal wetlands under extensive land reclamation using an integrated method with remote sensing and numerical modeling.

Event 4 (17:45-18:00)

Retrieval and prediction of oceanic primary production based on machine learning

PING Bo

Lecturer

School of Earth System Science, Tianjin University

PING Bo obtained a bachelor's degree from the School of Remote Sensing and Information Engineering at Wuhan University in 2009 and obtained a doctoral degree from the same school in 2015. The primary research areas include multisource satellite data fusion, marine data retrieval and reconstruction, marine feature extraction, and more. As the first author, I have published over 20 papers in relevant fields and have led a total of 6 research projects, including those at the national and provincial levels.

Event 5 (18:00-18:15)

Remote sensing mapping of coastal aquaculture

WANG Zhihua

Associate Professor

State Key Lab. of Resources and Environmental Information System, Institute of Geographic Science and Natural Resources Research, Chinese Academy of Sciences

WANG Zhihua received his Ph. D from the Institute of Geographic Science and Natural Resources Research, Chinese Academy of Science in 2018. His researches focus on remote sensing image intelligent interpretation, and the coastal resources and environment monitoring. His team mapped the first global aquaculture ponds region distribution and the first Chinese coastal offshore marine aquaculture distribution by remote sensing big data. The offshore aquaculture dataset has attracted >40 000 times views and downloads, and are widely used in marine resource management and research. He has published over 50 papers, with more than 20 first/corresponding author papers, authorized 10 invention patents, and won 3 awards, including the first prize of Geographic Information Technology Progress and the first prize of Marine Science and Technology.

Event 6 (18:15-18:30)

3D ocean heat content estimation using remote sensing and deep learning

SU Hua

Professor

The Academy of Digital China, Fuzhou University