

Due to COVID-19, XMAS-V will be held in person for a local audience only.
For all others the conference will be virtual.



Xiamen University
Centenary Celebration
Events No. 24



XMAS 2021



The Fifth Xiamen Symposium on Marine Environmental Sciences

Jan 11-14, 2021
Xiamen, China

<https://melmeeting.xmu.edu.cn/xmas5>



Theme

Multidisciplinary Sciences Serving a Sustainable and Healthy Ocean

Program

Note: All times listed below are Beijing Time (UTC/GMT +8 hours)

Attend XMAS

Via Zoom (for registered attendees only):

Zoom ID and Password will be sent to registered attendees by emails.

Via Webcast (for unregistered attendees):

<http://melmeeting.xmu.edu.cn/xmas5/webcast.htm>

Time	Speaker	Title or Topic
Jan. 11, Monday		
09:15-09:30 AM	XMAS-V Opening Ceremony	
09:30-10:30 AM	Guibin Jiang	Keynote: Emerging contaminants and marine water quality
Jan. 12, Tuesday		
09:00-10:00 AM	Claudia Benitez-Nelson	Keynote: Using stoichiometry and elemental composition to explore marine biogeochemical cycles
10:00-11:00 AM	Zunli Lu	Keynote: Earth history of oxygen and the iProxy
Jan. 13, Wednesday		
04:00-05:00 PM	Laurent Bopp	Keynote: Ocean acidification, deoxygenation and primary production decline in the 21st century: update with the latest generation of Earth System Models and prospects for reducing uncertainties
05:00-06:00 PM	Alessandro Tagliabue	Keynote: Role of micronutrients in governing upper ocean primary productivity in the context of a changing climate
Jan. 14, Thursday		
Special Forum: UN Decade of Ocean Science for Sustainable Development		
02:30-02:40 PM	Zhanhai Zhang	Welcome Remarks
02:40-02:50 PM	Vladimir Ryabinin	Opening Speech
02:50-03:50 PM	Karen Evans	Keynote: Multi-disciplinary and multi-stakeholder collaborations for designing and delivering ocean solutions
04:10-04:30 PM	Martin Visbeck	General introduction of <i>The Decade</i>
04:30-04:50 PM	Wenxi Zhu	Regional (WESTPAC) planning for <i>The Decade</i>
04:50-05:10 PM	Fangli Qiao	China's planning for <i>The Decade</i>
05:10-05:30 PM	Lixin Wu	Transparent Ocean
05:30-05:50 PM	Fei Chai	BGC-Argo and biogeochemistry monitoring with autonomous platforms
05:50-06:10 PM	Minhan Dai	Coastal zones under intensifying human activities and changing climate: a prospective regional programme integrating science, management and society to support ocean sustainability (Coastal-SOS)
Panel Discussion		
07:30-09:00 PM		Moderator: Minhan Dai Panelists: Brandon J. Bethel, Fei Chai, Karen Evans, Fangli Qiao, Martin Visbeck, Wenxi Zhu
Note: Keynote Speech is for 60 minutes including 20 minutes of QA. Other presentations are for 20 minutes including 5 minutes of QA		

Background

To promote interdisciplinary studies in marine environmental science and to foster the next generation of ocean scientists, the State Key Laboratory of Marine Environmental Science (MEL), Xiamen University initiated the Xiamen Symposium on Marine Environmental Sciences (XMAS) in 2014, with the overarching theme The Changing Ocean Environment: From a Multidisciplinary Perspective. XMAS has grown to be one of Asia's largest conferences in marine sciences and acts as a hot spot to exchange research interests in global and regional oceans. Its fifth iteration, XMAS-V will focus on how Multidisciplinary Sciences Can Serve a Sustainable and Healthy Ocean. It will also be one of the important hallmarks of Xiamen University's centenary celebrations.

Organizers and Sponsors

- ◎ State Key Laboratory of Marine Environmental Science, Xiamen University
- ◎ Department of Earth Sciences, National Natural Science Foundation of China

Co-sponsors

- ◎ China-ASEAN College of Marine Sciences
- ◎ Chinese Society of Oceanography
- ◎ College of Earth, Ocean, and Environment, University of Delaware
- ◎ College of Ocean and Earth Sciences, Xiamen University
- ◎ College of the Environment and Ecology, Xiamen University
- ◎ CSIRO Oceans and Atmosphere
- ◎ Frontiers Science Center for Ocean Carbon Sink and Climate Change, Xiamen University
- ◎ Hokkaido University
- ◎ Hong Kong University of Science and Technology
- ◎ Institute of Ocean and Earth Sciences, University of Malaya
- ◎ IOC Sub-Commission for the Western Pacific
- ◎ National Science Review
- ◎ Program in Ocean Science and Engineering (OSE), Georgia Institute of Technology
- ◎ School of Marine and Atmospheric Sciences (SoMAS), Stony Brook University
- ◎ School of Marine Sciences, University of Maine
- ◎ SCOR China
- ◎ State Key Laboratory in Marine Pollution, City University of Hong Kong
- ◎ State Key Laboratory of Satellite Ocean Environment Dynamics, Second Institute of Oceanography, Ministry of Natural Resources of China
- ◎ Surface Ocean - Lower Atmosphere Study (SOLAS)
- ◎ Swire Institute of Marine Science, The University of Hong Kong
- ◎ Taiwan Ocean University

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Keynote Speakers

Guibin Jiang

Professor, State Key Laboratory of Environmental Chemistry and Ecotoxicology, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, China



Dr. Jiang Guibin is a professor of environmental chemistry and toxicology at Research Center for Eco-Environmental Sciences (RCEES), Chinese Academy of Sciences (CAS). He is the founding director of the State Key Laboratory of Environmental Chemistry and Ecotoxicology, president of China Association for Instrumental Analysis (CAIA), and associate editor of Environmental Science and Technology (ES&T). He is also an academician of the Chinese Academy of Sciences, fellow of the Third World Academy of Sciences (TWAS), and fellow of the Royal Society of Chemistry (FRSC). Prof. Jiang's research is mainly focused on analytical development, environmental fate, toxicology and health effects of persistent organic pollutants (POPs), organometallic compounds and nano-materials. As the pioneer of the fields of emerging contaminants, his research conducted the academic direction of discovering new pollutants in real environment and acted as the irreplaceable role for the implementation of the Stockholm Convention on Persistent Organic Pollutants and the Minamata Convention on Mercury in China. Prof. Jiang has contributed more than 700 papers in peer-reviewed international scientific journals and published 18 monographs. He was honored with the prestigious Chang Jiang Scholars Achievement Award in 2007, National Award of Natural Science of State Council of China in 2003, 2011 and 2018, Agilent Thought Leader Award in 2013, and Outstanding Science and Technology Achievement Prize of Chinese Academy of Sciences in 2013.

Jan. 11, Monday, 09:30-10:30 AM

Emerging contaminants and marine water quality

Abstract: The marine environment is the sink for many contaminants. In recent years, more and more “emerging contaminants” have been identified in the marine environment, which are chemicals that are documented regarding production and use, and have the potential cause known and suspect adverse ecological and (or) human health effects.

In China, with the rapid development of chemical, energy, and manufacturing industries, etc in coastal areas, the problems of chemical pollution have been caused to offshore oceans. Our previous works have done pioneering research on emerging contaminants in the marine environment, including seawater, marine sediment, and organisms. Results indicated that marine ecosystems (especially coastal areas) have been impacted by the inputs and discharge of emerging contaminants through direct runoff, river outflow, and the atmosphere transport, etc. Further, some of the contaminants showed “POPs” properties, such as environment persistence, bioaccumulation, and long-range transport potential. For example, SCCPs have been found to be having increasing trends in the marine sediment record and could be bioaccumulated and biomagnified via to marine food chain, even in polar marine regions. The concentrations of some of the emerging contaminants such as synthetic phenolic antioxidants and emerging polyfluoroalkyl substances have not changed significantly or even showed increasing trend during the past decade in Chinese Bohai Sea.

Despite the ubiquitous existence of many contaminants in the global aquatic environment, the mechanisms of long-range transport of the emerging contaminants and their precursors in the marine environment and on global scales remain unclear. Intensive study of the marine environmental behavior of emerging contaminants and control measures is still needed, which can contribute to decrease the emerging contaminants in the marine environment.

Claudia Benitez-Nelson

Professor, University of South Carolina, United States

Dr. Claudia Benitez-Nelson is an Associate Dean in the College of Arts & Sciences and Carolina Distinguished Professor and Endowed Chair in Marine Studies at the University of South Carolina. Her research focuses on the biogeochemical cycling of carbon and phosphorus and how these elements are influenced by both natural and anthropogenic processes. She is a diverse scientist, with expertise ranging from radiochemistry to harmful algal bloom toxins and is highly regarded for her cross-disciplinary research. Over the past two decades, Dr. Benitez-Nelson has authored or co-authored more than 120 articles. She has been continuously supported by substantial, multi-year research and education grants from the National Science Foundation and the National Aeronautics and Space Administration, among others. Her many research honors include the Early Career Award in Oceanography from AGU and Fulbright and Marie Curie Fellowships. In 2015 she was named an AAAS Fellow, and in 2017, was named an ASLO Sustaining Fellow. Dr. Benitez-Nelson is also highly regarded as a teacher and mentor, having received the National Faculty of the Year Award from the National Society of Collegiate Scholars and the University of South Carolina's Distinguished Professor of the Year Award, SEC Faculty Achievement Award, and Outstanding Faculty Advisor of the Year. She also received the Sulzman Award for Excellence in Education and Mentoring from the Biogeosciences Section of AGU.



Jan. 12, Tuesday, 09:00-10:00 AM

Using stoichiometry and elemental composition to explore marine biogeochemical cycles

Abstract: The marine biogeochemical cycling of most elements is influenced by a complex array of interdependent reactions that vary with the surrounding environment. As such, focusing on a single element's biogeochemistry precludes a global understanding of processes that range from toxin production to climate change. The goal of this talk is to discuss how element stoichiometry, namely nitrogen to phosphorus ratios, and phosphorus composition may be used in tandem to better understand regional to global scale processes involving the formation of marine organic matter in the surface ocean and export to the deep sea.



Zunli Lu

Associate Professor, Syracuse University, United States

Dr. Zunli Lu received his Ph.D. from University of Rochester and worked as a post-doctoral researcher at University of Oxford. He is currently associate professor at Syracuse University. His core interests and experiences center around how things (e.g. water, methane, carbon, other elements) move at regional to global scales; how these movements are intertwined with changes in tectonics, atmosphere, ocean, and climate; and how the biosphere evolved with these changes through Earth history. His recent efforts focus on developing an oceanographic proxy to track dissolved oxygen at a range of time scales.

Jan. 12, Tuesday, 10:00-11:00 AM

Earth history of oxygen and the iProxy

Abstract: How oxygen levels in Earth's atmosphere and oceans evolved has always been a central question in Earth System Science. Researchers have developed numerous tracers to tackle this question, utilizing geochemical characteristics of different elements. Iodine incorporated in calcium carbonate (including biogenic) minerals, reported as I/Ca, is a proxy for dissolved oxygen in seawater. Here we review the rationale behind this proxy, its recent applications, and some potential future research directions.



Laurent Bopp

CNRS Senior Scientist, Institut Pierre-Simon Laplace, CNRS, France

Dr. Laurent Bopp is a CNRS Senior Scientist at the Institut Pierre-Simon Laplace, and Adjunct Professor at the Ecole Normale Supérieure, in Paris. He is currently the head of the Geosciences Department at the Ecole Normale Supérieure. He received his Ph.D. from the University of Paris in 2001. His research focuses on the links between climate, climate change and marine biogeochemistry. In particular, he has been among the first to use global climate models to explore how anthropogenic climate change might affect marine productivity & ecosystems as well as ocean air-sea fluxes. He has been involved in the last IPCC assessment report as a lead author for the chapter on Biogeochemical Cycles. He has received the Medaille de la Societe d'Océanographie de France in 2011, and the AGU Ocean Section Voyager Award in 2016.

Jan. 13, Wednesday, 04:00-05:00 PM

Ocean acidification, deoxygenation and primary production decline in the 21st century: update with the latest generation of Earth System Models and prospects for reducing uncertainties

Abstract: To Be Updated



Alessandro Tagliabue

Professor, University of Liverpool, United Kingdom

Dr. Alessandro Tagliabue is a Professor at the University of Liverpool and an ocean biogeochemist, interested in how the cycling of resources in the sea affects biological activity and vice-versa. He is particularly interested in trace micronutrients and how they interact together to shape primary production, ecosystem structure and the global carbon cycle. Dr. Tagliabue's science links numerical models, at both global and idealised scales, with both fieldwork and synthesis of datasets. He is heavily involved in the international GEOTRACES programme, was a lead author on the IPCC Special Report on Oceans and Cryosphere in a Changing Climate, is UK Chair for SCOR and is a member of the governing council of the UK Challenger Society for Marine Science and sits on the Royal Society Global Environment Research Committee.

Jan. 13, Wednesday, 05:00-06:00 PM

Role of micronutrients in governing upper ocean primary productivity in the context of a changing climate

Abstract: To Be Updated



Karen Evans

Senior Research Scientist, CSIRO Oceans and Atmosphere, Tasmania, Australia

Dr. Karen Evans is a Team Leader and principal research scientist with CSIRO Oceans and Atmosphere based in Hobart, Tasmania. She is involved in research focused on improving scientific understanding and developing options for sustainable marine resource management, particularly in relation to national and international fisheries. She also leads research aimed at improving reporting of biodiversity assessments at national, regional and global scales and providing baseline information for assessing the impacts of oil and gas activities on the marine environment. Karen's expertise and international reputation has seen her contribute to UN regular processes such as the Integrated Global Assessment of the Marine Environment, including Socio-economic Aspects and the World Meteorological Organisation Joint CAgM/JCOMM Task Team on Weather, Climate and Fisheries. She is co-chair of the Integrated Marine Biosphere Research project's regional programme 'Climate Impacts on Top Predators' (CLIOTOP), an associate editor of the Proceeding of the Royal Society B: Biological Sciences and a member of the Executive Planning Group for the UN Decade of Ocean Science for Sustainable Development.

Jan. 14, Thursday, 02:50-03:50 PM

Multi-disciplinary and multi-stakeholder collaborations for designing and delivering ocean solutions

Abstract: Marine biodiversity, including top predators, and the trophic systems that they interact with and support them are increasingly being impacted by human activities and the cumulative nature of pressures produced in association. This ongoing overall declining state of the ocean is jeopardising the oceans ability to continue to provide life supporting ecosystem services such as carbon storage, moderation of climate, production of oxygen and food resources, and maintenance of the cultural and recreational services it provides. This will have far reaching impacts on the current ocean economy and any future ocean economies without intervention. As a call to action to turn around this degradation, the United Nations has declared 2021-2030 to be the Decade of Ocean Science for Sustainable Development (see www.oceandecade.org) and the Decade of Ecosystem Restoration (see www.decadeonrestoration.org). The aim of these calls to action is to transform human use of planetary ecosystems and turn the tide on current declining trends. Over the next ten years, each of these calls to action will be focused on generating solutions that result in the preservation and restoration of ocean ecosystems, ensure the continuing functioning of the ocean and maintain the many life-giving, economic and cultural benefits humans derive from the ocean. This presentation will outline the partnerships and collaborations between science disciplines and between science, business, policy makers and society that are needed to develop and deliver solutions for a healthy, productive and accessible future ocean for all.

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