International Conference

"Marine Geology: Marginal Seas - Past and Future"

November 27 - December 1, 2023

1st Conference Announcement

Guangzhou Marine Geological Survey,

China Geological Survey,

Guangzhou, P.R. China

Preface

Marginal seas as zones of transition between continents and oceans are increasingly becoming the focus of international marine research. The reason lies in their importance as buffer zones for the natural transfer of matter and energy between the mainland and the marine areas and thus as a source of marine raw materials, for energy production, as trade routes and the socio-economic networking of society. In addition, the coastal zones and the people living there are increasingly threatened by sea level rise and extreme weather phenomena, so that effective coastal zone management is of vital importance.

To contribute to the demands of the society on marine geosciences, and to foster international cooperation we established a network of marine scientists and launched a scientific research initiative focused on marginal seas research. Our special research approach consists in the integration of the new possibilities of big data analysis and modeling techniques including AI and machine learning. On 28th November, 2019, the 1st Marginal Seas Expert Meeting took place at Guangzhou, China titled "Eurasian Marginal Seas: Past and Future", hosted by the Guangzhou Marine Geological Survey (GMGS), China Geology Survey (CGS), and attended by 18 overseas experts from seven countries, together with 50 Chinese colleagues. During the COVID-19 pandemic, the conference "Marginal seas: Past and Future", was held on-line as 2nd Marginal Seas Expert Meeting hosted by the University of Szczecin (USZ), Poland and the Baltic Earth scientific network, on 16-17th December, 2020. In 2021 the Marginal Seas Task Group has been established in the frame of the Deep-Time Digital Earth (DDE) Big Sciences Program of the International Union of Geological Sciences (IUGS) and co-organized later scientific events such as the GMGS/CGS hosted a hybrid online / onsite 3rd Expert Meeting "Marine Geology: Marginal Seas - Past and Future" on 14-17th December, 2021, at Guangzhou, China. The 4th Marginal Seas Expert Meeting: hybrid online / face-to-face Conference Session "Comparing Marginal Seas", was integrated into the 4th Baltic Earth Conference, May 31-June 2, 2022 in Jastarnia, Poland, hosted by the DDE Marginal Seas Task Group, University of Szczecin, Poland and Baltic Earth scientific network. The 5th Marginal Seas Expert Meeting was an on-line event hosted by USZ, Poland and Baltic Earth on 5-7th December, 2022, with a major theme of "River Mouth Systems - Natural Drivers and Human Impacts".

The chain of events was continued via the 6th Marginal Seas Expert Meeting, which was integrated into the hybrid online/onsite IAMG2023 Conference in Trondheim, Norway, August 5-12, 2023, with a topical Session of "Marginal Seas - Dynamics and Modeling". This meeting was specifically undertaken to strengthen young scientists' participation in the DDE Marginal Seas activities.

The IUGS and International Association for Mathematical Geosciences (IAMG) provided support for the Marginal Seas initiative network, not only for the organization of scientific meetings, but also for research, in particular by supporting the R&D Project "Morphological Evolution of Coastal Seas - Past and Future" undertaken from 2021 to 2024.

To continue pushing the Marginal Seas initiative forward, the International Conference "Marine Geology: Marginal Seas - Past and Future" will be held in Guangzhou, November 27 to December 1, 2023. As the 7th Marginal Seas Expert Meeting, it shall support communication in marine geoscience and technology between Chinese scientists and their international partners that are active in marine geosciences, including the coastal and marine environmental research, fundamental geology, mathematical geosciences, marginal sea future projections, and management for the upcoming decades.

The conference is organized and hosted by the GMGS/CGS, Guangzhou, China who have carried out numerous successful marine geological surveys and scientific research work in the marginal sea areas of the South China Sea, as well as the deep sea and polar sea areas in the past 60 years. In this field of science, the GMGS has successfully cooperated during the last 40 years with colleagues and organizations from the American and European Continents, as well as from East and South Asia.

This hybrid online / onsite international conference is one of the important scientific activities to celebrate the 60th anniversary of GMGS in 2023. The conference will be structured into an opening ceremony, four topical sessions, discussion and conclusion parts covering three days with English language speech and presentations.

Outline

1. Timetable

Time span: 27th November to 1st December 2023.

We arranged timing of presentations in consideration the international time zones, mainly organizing the meeting time in GMT+2 (day time), GMT+8 (afternoon and evening).

27th November, Monday, Registration at conference venue

28th November, 2023, Tuesday, Opening ceremony and keynote speeches

29th November, 2023, Wednesday, Scientific sessions

30th November, 2023, Thursday, Scientific sessions, discussion, conclusion

1st December, 2023, Friday, Departure

2. Conference Venue

This is a hybrid conference of in-person and on-line remote scientific presentations. We would like to set the conference's main meeting place at No. 101 meeting room in Nansha Base of Guangzhou Marine Geological Survey, CGS, China.

Address: 1133 Haibin Rd., Nansha District, 511458 Guangzhou, China

3. Scientific Sessions

1) River impacted continental shelves - sediments and environment

River-influenced continental shelf sediments, with their architecture and material composition, uniquely reflect as proxies the history of global climate dynamics and continental margin tectonics. This refers to both the material and energy transport as well as the hierarchically structured periodicity of the controlling processes. With the beginning of the industrial age, natural processes are superimposed by anthropogenic influences, which are to be interpreted separately. With the help of geostatistical and functional models, the structure and genesis of the sediment sequences can be represented in an examplary manner. The reconstruction of the paleoenvironment based on proxies of the sedimentary record is carried out as a solution to a reverse task. Forward modeling, which takes into account climate change in particular, enables the generation of future scenarios needed to develop management strategies for the coastal and marine environment.

Conveners: Peter Clift (University College London, UK), Gary Greene (Moss Landing Marine Laboratories, Califronina, USA), Jan Harff (University of Szczecin, Poland), Joanna Waniek (Leibniz Institute for Baltic Sea Research, Warnemünde, Germany)

2) Coastal processes

Coasts around the world are constantly changing as a result of land-sea-atmosphere interaction. The consequence of the ongoing climate change is the observed intensification of extreme phenomena such as storm surges, floods, tsunamis, and heavy rain falls. This superimposed by eustatic sea level rise, changes in the wind and wave direction and a general deficiency of sediments in the coastal zone result in increased coastal erosion and pose a real threat to the safety of the coast in terms of the natural environment and the existing infrastructure crucial for coastal municipalities and society. To mitigate current coastal hazards and prevent future impacts, it is essential to have a comprehensive understanding of the physical, geological, biological, and chemical processes that control the source-to-sink transport of sediments on the Earth's surface, including their anthropogenically driven modifications. The aim of this session is to bring together interdisciplinary, international expertise to provide an overview of the current research status of coastal morphodynamics research and future perspectives. We welcome submissions that are of an analytical or laboratory nature, in the field or involve numerical modeling on a local, regional or global scale, from single events to the scale of decades and millennia.

Conveners: Joanna Dudzińska-Nowak (University of Szczecin, Poland; Section of Marine Geology, Polish Scientific Committee on Oceanic Research, Polish Academy of Sciences), Tarmo Soomere (Estonian Academy of Sciences; Tallinn University of Technology, Estonia), Xinong Xie (China University of Geosciences in Wuhan, China), Abdullah Sulaiman (Institute of Geology Malaysia, Kuala Lumpur, Malaysia)

3) Ecosystem dynamics

Out of the complicated system of Marginal Seas ecology, we decided to include just one, of many, topics as a session subject. Thus, we focus on the important group of primary producers - diatoms. The main topic: "Recent and fossil diatom flora from the Marginal Seas - with particular reference to habitat characteristics and biogeography", to be considered in terms of its geological past and its recent development. Diatom evolution extends back to the Mesozoic era, and through time they became an important group of primary producers in oceanic (plankton) and coastal marine environments (benthic) with a species number estimated to exceed 100,000. With their role in biogenic elements cycles, diatoms greatly influence the global climate, atmospheric carbon dioxide concentration, and marine ecosystem functions. Through the micropaleontological application in environmental and age

dating studies, diatoms have been widely used in coastal and marine systems to reconstruct paleoenvironment and changes in paleoceanographic proxies in multi-dimensions. With technological progress diatoms have become also a target for the marine blue biotechnology as a source of valuable metabolites. However, we are open to considering contributions from other fields in ecosystem dynamics.

Conveners: Yenny Risjani (Brawijaya University, Indonesia), Jinpeng Zhang (Guangzhou Marine Geological Survey, CGS, China), Yahui Gao (Xiamen University, China)

4) Methodological approaches and Geodata management, including Machine Learning and Artificial Intelligence

The comparative studies of marginal seas (from mapping to process modeling), including both historical reconstruction and future projection, requires fast and convenient access to databases containing necessary geological, oceanographic, bathymetric, ecological, and climate data, including Remote Sensing data. For a reflection of geo-processes by models from the global to the regional level, a harmonization of geodata and their international accessibility are required. A basic task is the visualization of maps of both empirical data and model results using geographic information systems (GIS) tools and mapping techniques. Over the past decade GIS has been significantly and positively influenced by Artificial Intelligence (AI) and Machine Learning (ML) techniques, becoming crucial in geoscience research.

The main focus of this topic is on: 1) formatting, harmonizing, processing, and mapping marginal sea data including AI and ML various application scenarios (such as data cleansing, image interpretation, semantic classification and segmentation, digital mapping), and 2) the presentation of methodological approaches to manage geodata and to make the spatial database FAIR (Findable, Accessible, Interoperable, and Reusable) through the implementation of dedicated Marine Spatial Data Infrastructure at different scales.

Conveners: Federica Foglini (The Institute of Marine Sciences of the National Research Council, Bologna, Italy), Jennifer McKinley (Queen's University Belfast, UK), Minghua Zhang (R&D Center of CGS, Beijing, China), Yuanzhi Zhang (The Chinese University of Hong Kong, China)

4. Conference Organizers

Organizers:

Guangzhou Marine Geological Survey, China Geological Survey, China.

Base for International Science & Technology Cooperation of Deepsea Geoscience, MOST, China.

Key Laboratory of Marine Mineral Resources, Ministry of Natural Resources, China.

Southern Marine Science and Engineering Guangdong Laboratory (Guangzhou), China.

Co-Organizers:

University of Szczecin, Poland

Helmholtz-Zentrum Hereon, Geesthacht, Germany

China University of Geosciences, Wuhan, China

Sun Yat-sen University, Zhuhai, China

DDE Marginal Seas Task Group

Baltic Earth

Section of Marine Geology, Polish Scientific Committee on Oceanic Research, Polish Academy of Sciences, Poland

Host:

Guangzhou Marine Geological Survey, China Geological Survey, China

Scientific Committee

Chairman: Guangsheng Yan

Leadership, China Geological Survey (CGS), China.

Co-chair:

Zhenqiang Xu (Guangzhou Marine Geological Survey, CGS, China)

Jan Harff (University of Szczecin, Poland)

Jennifer McKinley (IAMG Executive Committee councilor, Past President; IUGS Executive Committee councilor; DDE Governing Council President; Queen's University Belfast, UK)

Member *(Alphabetical List)***:**

Ryszard Borówka (University of Szczecin, Poland)

Hayley Cawthra (Council for Geoscience, South Africa)

Peter Clift (University College London, UK; University of Louisiana State University, USA)

Junjie Deng (Sun Yat-Sen University, China)

Joanna Dudzińska-Nowak (University of Szczecin, Poland)

Federica Foglini (ISMAR- Institutes of Marine Research, CNR, Italy)

H. Gary Greene (Moss Landing Marine Laboratories, USA)

Gaowen He (Guangzhou Marine Geological Survey, CGS, China)

Wojciech Jegliński (The Polish Geological Institute - National Research Institute, Poland)

Tao Jiang (China University of Geosciences in Wuhan, China)

Markus Meier (Leibniz Institute for Baltic Sea Research, Warnemünde, Germany)

Andrzej Osadczuk (University of Szczecin, Poland)

Marcus Reckermann (Helmholtz-Zentrum Hereon, Geesthacht, Germany)

Yu Situ (IUGS Secretariat, Beijing, China)

Tarmo Soomere (Estonian Academy of Sciences, Tallinn University of Technology, Estonia)

Hans von Storch (Helmholtz-Zentrum Hereon, Hamburg University, Germany; Ocean University of China, China)

Abdullah Sulaiman (Department of Mineral and Geoscience of Malaysia, Institute of Geology Malaysia, Malaysia)

Szymon Uścinowicz (Institute of Hydro-Engineering, Polish Academy of Sciences, Poland)

Joanna Waniek (Leibniz Institute for Baltic Sea Research, Warnemünde, Germany)

Zhen Xia (Guangzhou Marine Geological Survey, CGS, China)

Xinong Xie (China University of Geosciences in Wuhan, China)

Shengxiong Yang (Guangzhou Marine Geological Survey, CGS, China)

Zhen Yang (Guangzhou Marine Geological Survey, CGS, China)

Jinpeng Zhang (Guangzhou Marine Geological Survey, CGS, China)

Minghua Zhang (Secretary General of IUGS-CGI; CGS, China)

Wenyan Zhang (Helmholtz-Zentrum Hereon, Geesthacht, Germany)

Yuanzhi Zhang (The Chinese University of Hong Kong, China)

Local Organizing Committee:

Jinpeng Zhang (chair), jinpenggmgs@sina.com, zhangjinpeng@mail.cgs.gov.cn;
   +86-020-22199580, 15915729329

Xiao Xiao (foreign affairs), xiaoxiaoiris@163.com, xiaoxiao@mail.cgs.gov.cn;
   +86-020-28020709

Pingyuan Li (registration, abstract compiling), lpy19862006@126.com,
   lipingyuan@mail.cgs.gov.cn; +86-020-82252195, 15221507535

Fengyu Wang (registration, abstract compiling), wangyufeng708@163.com,
   wangyufeng@mail.cgs.gov.cn; +86-020-82061790-2935, 15321968185

Jianmei Hou (registration, abstract compiling), 492134423@qq.com,
   houjianmei@mail.cgs.gov.cn; +86-020-82061790, 15626020367

Lei Jia (registration, abstract compiling), jialei_1990@126.com,
   jialei@mail.cgs.gov.cn; +86-020-22199607, 18620150564

Qiao Xue (registration, abstract compiling), xueqiao@mail.cgs.gov.cn, 13119510571,
   020-2219608

Jiangping Yang (main meeting place affairs), 15011728112.

5. Conference Agenda

General: 27/11/2023 to 1/12/2023

First day: In person participants registration

Second day: Opening ceremony, Keynote speech and Session One

   -- Opening words

   -- Keynote speeches

   -- Session one keynote presentation and oral presentations

Third day: Session One and Two

   -- Session one keynote presentation and oral presentation

   -- Session two keynote presentation and oral presentations

   -- Poster presentation

Fourth day: Session Three and Four, and Conclusion

   -- Session three keynote presentation and oral presentations

   -- Session four keynote presentation and oral presentation

   -- open discussion and conclusion

Fifth day: In person participants departure

6. Important Dates

1st announcement: September 28, 2023

Abstracts due: October 31, 2023

2nd announcement: November 3, 2023

Final program: November 20, 2023

Registration of participants: November 27, 2023

Conference: November 28-30, 2023

Participants departure: December 1, 2023

7. Introduction to Guangzhou

Guangzhou is a famous culture city and a splendid tourism city with a history of more

2,200 years and a homeland of overseas Chinese as well. It enjoys the name of "Flower City" as the superb geographic and climatic conditions in the South contributed to the natural beauty here. As a city of heroes, Guangzhou has a reputation of great eminence in the modern history of China. The famous historical sites of Nanyue Kingdom Palace, Maritime Silk Road Museum in the downtown, etc. And Sun Yat-sen Memorial Hall, Huanghuagang 72 Martyr Cemetery, Peaseant Movement Institute and the Former Site of Huangpu Military Academy are the witnesses of the modern history of China, and together with Baiyun Mountain, Yuexiu Park, Liuhuahu Park, Guangzhou Tower, constitute colorful landscape groups. Meanwhile, Guangzhou was the starting point of the "Maritime Silk Road" and is an important port city for the reform and opening of China, making great contribution to the economic and cultural exchange and friendly contacts between China and the rest of the world.

Nansha district, Guangzhou located in the geometric center of the Guangdong-Hong Kong-Macao Greater Bay Area. Nansha, Guangzhou is a hub node connecting the city agglomeration on both sides of the Pearl River Estuary, and areas of Hong Kong and Macao islands, with an area of 803 square kilometers, an actual population of more than 1.2 million, and six towns and three streets. In June 2022, the State Council of P.R.C. issued the "Overall Plan for Guangdong-Hong Kong-Macao Comprehensive Cooperation in Deepening and Presenting Nansha to the World", offering Nansha the important mission of building a major strategic platform based on this Bay Area, cooperating with Hong Kong and Macao and facing the world. Nansha's status in the overall development of the country has been continuously improved.

8. Abstract Template

Session: if your topic is over the session listed above, please mark Others

Title: Conference on Marine Geology: Marginal Seas - Past and

Future Guangzhou, China, 28th-30th November, 2023

Time New Roman, 14; 1.5 lines spacing

Authors: First author[1], Second author[2,]*, corresponding author mark* Time New Roman, 11
Affiliation: Time New Roman, 11
* E-mail: Time New Roman, 11

Abstract:

Please prepare the abstract within one A4 page (Time New Roman, 12; 1.5 lines spacing). Thank you very much for your scientific work and sharing with other

researchers. We are welcome you to visit Guangzhou, China. This conference notice can search at the GMGS official website, on the main page, right side. Website address: http://www.gmgs.cgs.gov.cn/

http://www.hydz.cn/english.html.

Keywords: Time New Roman, 12

Oral presentation or Not: Oral or not

The abstract submission deadline is 31st October, 2023.

In case of Oral presentation: Please prepare 15 minutes PPT with scale of 16:9 to introduce your scientific work. We keep 5 minutes for questions and discussion after your presentation. In order to keep the conference fluency and save time, **on-line participants please prepare video for your presentation** and **send to** Local Organizing Committee (LOC) at one week before the conference start. We will perform the video in your presentation time **via Zoom Software**. You can remote answer the questions in Q&A time on-line.

The conference take care of intellectual property and promise does not public the video and record in internet.

In case of Poster presentation: please prepare 3 minutes PPT with scale of 16:9 to introduce your scientific work.

Please send your abstract to Local Organizing Committee (LOC), and **please contact** with LOC if you have any questions.

Paper Publication: We think about to gather papers as a special issue for publication in higher quality journal.