International Conference

“Marine Geology: Marginal Seas - Past and Future”

14-18 October, 2025

1st Conference Announcement

Guangzhou Marine Geological Survey,

China Geological Survey,

Guangzhou, P.R. China

Preface

Marginal seas are zones of transition between continents and oceans and are increasingly becoming the focus of international marine research. This is because of an importance as buffer zones for the natural transfer of matter and energy between the mainland and the open ocean. They are also a source of marine raw materials, for energy production, and they act as trade routes and the socio-economic networking. Moreover, some 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 society concerning marine geosciences, and to foster international cooperation we have established a network of marine scientists to launch scientific research initiatives focused on marginal seas sciences.

On 28th November, 2019, the 1st Marginal Seas Expert Meeting took place at Guangzhou, China, entitled "Eurasian Marginal Seas: Past and Future". This meeting was hosted by the Guangzhou Marine Geological Survey (GMGS), China Geology Survey (CGS), and was attended by 18 overseas experts from seven countries, together with 50 Chinese colleagues. In 2020 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), to serve for further scientific events as organizer and co-organizer together with the Baltic Earth (BE) scientific network.

Although, the COVID-19 pandemic interrupted some activities, the conferences on "Marine Geology: Marginal Seas - Past and Future" were held hybrid, on-line and in-person, at the end of 2021 and 2023 at Guangzhou, China. The University of Szczecin (USZ), Poland and the Baltic Earth (BE) scientific network, held conferences entitled "Marginal seas: Past and Future" on 16-17th December, 2020, and 5-7th December, 2022, respectively, co-organized with international partners. Supported by BE, the International Association for Mathematical Geosciences (IAMG), and the IUGS (Internation Union of Geological Sciences), topical sessions on Marginal Seas were held during the 4th Baltic Earth conference, Jastarnia, Poland, 31st May to 2nd June, 2022, the IAMG2023 Conference, Trondheim, Norway, 5-12th August, 2023, the 5th Baltic Earth conference, Jurmala, Latvia, 13-17th May, 2024, and the 37th International Geological Congress, Busan, Korea, 25th-31st August, 2024, respectively. Additionally, a topical session on Marginal Seas was integrated into the EGU General Assembly 2025 in Vena, Austria, and a next one will be performed along with the IAMG2025 Conference, Zhuhai, China, 9-13th October, 2025 as well.

These conferences and meetings have helped to establish a network of researchers in marine geosciences, including supporting young scientists' training and the capability of

enhancing the construction of a joint academic organization as well. Scientific communication and special research are a sensible approach for integrating new big data analysis and modeling techniques, including AI and machine learning, which will promote marine geosciences development.

To continue advancing the Marginal Seas initiative, an International Conference titled "Marine Geology: Marginal Seas - Past and Future" will be held in Guangzhou, 14-18th October, 2025. The theme is **"Marginal Seas - Sustainable Future of the Continent/Ocean Interface"**, benchmarking to the United Nations (UN) 2030 Agenda of Sustainable Development Goals. The scientific topics to be addressed are in marine geosciences, and include updating the Marginal Seas initiative development of a roadmap, discussion the establishment of a joint international academic organization, and potential support to the DDE big science program of IUGS. As the10th Marginal Seas Expert Meeting, it will support communications for geo-marine sciences and technology between Chinese scientists and their international partners active in marine geosciences, including those addressing coastal and marine environmental research, mathematical geosciences, future projections of marginal seas' evolution, and its management for the upcoming decades.

The conference will be held in a hybrid mode online and onsite, free of registration fee, 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 South China Sea, as well as the deep sea and polar sea areas in the past 60 years. The conference will be structured into an opening ceremony, three topical sessions, and discussion and conclusion to take place over three days with oral and poster presentations, and discussions using English language.

Outline

1. Timetable

Time span: 14th to 18th October 2025.

The meeting time zone mainly obeys the GMT+8, but we will sincerely consider accommodating those international participants from Europe, Africa, America, and Australia.

Table. Briefly timetable of conference

Date	Action	Detail content	Note
14th Morning	Registration		
14th Afternoon	Opening ceremony	Welcome speeches Plenary lectures	Welcome dinner
15th Morning	Meeting	Session 1, keynote lecture, oral and poster presentations	
15th Afternoon	Meeting	Session 2, keynote lecture, oral and poster presentations	
16th Morning	Meeting	Session3, keynote lecture, oral and poster presentations	
16th Afternoon	Meeting	Discussion Marginal Seas Initiative Roadmap updating Discussion Co-construction of scientific organization	
17th Morning	Meeting	Discussion potential support to DDE	
17th Afternoon	Meeting	Discussion, conference summary	
	Close ceremony	Some speeches	
18th Morning	Sightseeing	Visiting GMGS harbor in Nansha	
18th Afternoon	Departure		

2. Conference Venue

This is a hybrid in-person and on-line remote scientific conference. We would like to set the conference's main meeting place in Nansha Base of Guangzhou Marine Geological Survey, Nansha District, Guangzhou, China.

3. Topics Description

3.1 Scientific Sessions

Marginal seas span all climate zones, form under various tectonic and geological conditions, and facilitate socio-economic networking. Such seas play crucial roles in providing habitat, food, and trade routes for humanity, as well as facing climate change and anthropogenic impacts on the natural environment. There is a strong demand from society for marine

geoscientists to understand the development of estuary-delta-shelf-deep basin systems within the context of earth sciences systems. To advance cooperative work and research in marine geosciences, three scientific sessions are planned to address the interface between ocean and continent from the Earth Sciences and socio-economic stand-points.

（1）Session 1: Sources-to-Sink models and links to climate development

Using marine sedimentary records to reconstruct the development of environmental conditions and climate over a variety of timescales requires a detailed understanding of how sediment is transported from source areas into the ocean. There are several processes that can affect sediment transport and in turn influence grain size distribution. Suspended sediment that rapidly travels to the open ocean tends to be finer grained than coarser bedload sediments, although clay-rich sediments may be stored in flood plains. Mineralogy also plays a role with denser clasts travelling less rapidly to the open ocean. Changes in climate have an important impact because variations in seasonal climate systems can result in substantial changes in precipitation resulting in incision and reworking of flood plain sediments, similar to what occurs from sea level variations. Presently, considerable disagreement concerning the duration of sediment travel in large fluvial systems exists, yet constraining the transport time is important for reconstructing the response of landscape to climate change based on the sediment preserved in a delta or shelf. A good example of this environment is the Pearl River of the northern South China Sea, where variations in Asian monsoons can result in increased or reduced levels of sediment reworking within the flood plains. Understanding the drivers of recycling and reworking along with quantifying the degree of sediment buffering in flood plains are fundamental scientific question that will be addressed in this session.

***Conveners*:** Peter D. Clift (University College London, UK), Gaowen He (Guangzhou Marine Geological Survey, China), Wojciech Jeglinski (Polish Geological Institute-National Research Institute, Poland), Xinong Xie (China University of Geosciences, China).

（2）Session 2: River Mouth Systems and Urban Seas

This session will address interdisciplinary research of Urban Sea and estuarine systems amid multiple stresses from climate change and human activities. River mouth systems, where rivers meet the sea, are dynamic zones characterized by complex interactions between fluvial and marine processes, which play a crucial role in the dispersal of river sediments into coastal seas, influencing coastal morphology and sediment budgets. We understand the Urban Seas as those parts of the global oceans that are significantly influenced by coastal cities, ports, and industrial developments on adjacent lands. They are susceptible to the impacts of climate change, including increased intense flooding and storm surge events, with some possibly subjected to increased exposure and risk of tsunami amplification from altered coastal

morphology. Additionally, Urban Seas experience the simultaneous anthropogenic effects of eutrophication, deoxygenation, and pollution, as well as oil and gas extraction, transportation, overfishing, and other offshore activities. However, Urban Seas provide tourism value, including aesthetics. It is not surprising, therefore, that the implications for the dynamics and management of Urban Seas extend far beyond classical oceanography. Therefore, we invite contributions with particular emphasis on reconstruction and future scenarios of the coastline changes, morpho- and hydrodynamics, sediment dynamics, as well as the impact of natural, anthropogenic, and other threats.

***Conveners*:** Joanna Dudzińska-Nowak (University of Szczecin, Poland), Junjie Deng (Sun Yat-Sen University, China), Gary Greene (Moss Landing Marine Laboratories, California, USA), Joanna Waniek (Leibniz Institute for Baltic Sea Research, Warnemünde, Germany), Yuanzhi Zhang (The Chinese University of Hong Kong, China)

(3) Session 3: Biogeography - biostratigraphy from Deep-time among marginal seas

Marginal seas, characterized by connectivity of continents and open oceans, serve as critical hotspots for marine biodiversity and biogeographic studies. From deep-time to the present-day ecological dynamics, marginal seas exhibit unique environmental gradients change, complex oceanographic behaviors, and distinct evolutionary histories that shape species distribution, community assembly, and ecosystem functions that are associated with geological and climatic change. Due to regional variations on salinity, temperature, and nutrient input from both land and ocean, the biogeographic features bring a complexly view of universality and individuality among marginal seas in the past and present. Using a longtime scale, along with marginal seas evolution, to correlate organismal evolution in biostratigraphy within marginal seas is a key to understand the change of paleoceanography, to understand and reconstruct paleoclimate. This session will explore the biodiversity patterns, biogeographic processes, and biostratigraphy application in marginal seas, emphasizing the integration of micropalaeontological, ecological, and biological "big-data" in marine geosciences with the goal of aiding sustainable development.

***Conveners*:** Jinpeng Zhang (Guangzhou Marine Geological Survey, CGS, China), Kevin McCartney (University of Maine at Presque Isle, USA), Yenny Risjani (Brawijaya University, Indonesia), Federica Foglini (The Institute of Marine Sciences of the National Research Council, Bologna, Italy), Baohong Chen (The Third Institute of Oceanography, MNR, China).

3.2 Open discussion

(1) Updating Marginal Seas Initiative's Roadmap

The Eurasian Marginal Seas: Past and Future Research Initiative (EMS Initiative) was launched in Guangzhou on 28th November, 2019. Under this EMS initiative frame, general questions to be addressed include:

How did Eurasian marginal seas in different climatic zones evolve, what is the paleogeography? How did oceanographic processes change during the natural climate variation of the Last Glacial Cycle? What are the future expectations of and global marginal seas and their coastal zones facing the challenge of climate change and increasing human activities? What strategies for sustainable development of marine and coastal realms can assist in balancing the protection of the environment and the economic use of marginal seas' resources?

After five years of joint efforts by experts from different subdisciplines, an initiative and update with global vision is needed, especially given the strong demand from international marine geoscience communities. The United Nations demands for Sustainable Development, as detailed in the Decade of Ocean Science for Sustainable Development (2021-2030) and the International Decade of Sciences for Sustainable Development (IDSSD, 2024-2033) are initiating actions in the international geoscience community. The UN provides guidance to mitigate the threats of marginal seas and support the cross-bordering sustainable management. Joint research is becoming a unifying task for the academic community active for global marginal seas. Management strategies need to consider the geo-environmental changes in past and future in order to optimize sustainable anthropogenic driving forces.

To advance collaboration, we aim to gather researchers from different countries to present and discuss three topics:

-- Globalization of the EMS research initiative to Marginal Seas Research Initiative

-- Institutions' action plans for development of a Marginal Sea initiative

-- Potential integration of Marginal Sea activities into UN programs

（2）Co-construction of International Organization on Marginal Seas Science

During the previous international conference on "Marine Geology: Marginal Seas- Past and Future" in 2023, participants initiated a discussion to establish an International Scientific Organization on Marginal Seas, to build a platform for basic and applied sciences of the transition zone between continents and oceans active in the marine geosciences. GMGS/CGS moved to obtain a principal agreement from local administrations and the China Association for Science and Technology. To advance this initiative, domestic and foreign partners are needed as founding members of the institution or experts/persons on behalf of the institution to build cooperation in the coming years. We plan to initiate an open discussion with participants to create an international organization, an "International Association for Marginal Seas

Sciences (IAMSS)" and to detail its Mission, Structure, Charters/Regulations, Actions, Founding members and their obligations and rights.

(3) Potential Support to DDE program

The Marginal Seas Task Group in the DDE structure have been involved with, and advanced as a flagship for the DDE big science program in IUGS development in 2021-2024. In line with the current DDE program development, the Marginal Seas Task Group is adjusting its perspective and striving to further advance DDE development, particularly with the strong support of the founding members, i.e., the China Geological Survey, China, and potential support from the Chinese Ministry of Science and Technology. Utilizing this conference, we will organize a discussion for Marginal Seas Task Group updating and routines to empower the partners and their linkage with other groups.

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

Co-Organizers:

University of Szczecin, Poland

Polish Geological Institute-National Research Institute, Poland

The Chinese University of Hongkong, Hongkong, China

Baltic Earth

Coordinating Committee for Geoscience Programmes in East and Southeast Asia (CCOP)

DDE Marginal Seas Task Group

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

Guangzhou Association for Science and Technology, China

Host:

Guangzhou Marine Geological Survey, China Geological Survey, China

Scientific Committee

Chairman:

Leadership, China Geological Survey (CGS), China

Co-chair:

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

Krzysztof Szamałek (Polish Geological Institute-National Research Institute, Poland)

Jan Harff (University of Szczecin, Poland)

Guangsheng Yan (member of GC in IUGS-DDE; member of DDE-Chinese GEG; CGS, China)

Member *(Alphabetical List)*:

Peter Clift (University College London, UK)

Junjie Deng (Sun Yat-Sen University, China)

Joanna Dudzińska-Nowak (University of Szczecin, Poland)

Federica Foglini (The Institute of Marine Sciences of the National Research Council, Italy)

Yahui Gao (Xiamen University, China)

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

Matthias Gröger (Baltic Earth)

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

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

Tao Jiang (China University of Geosciences, China)

Kevin McCartney (Northern Maine Museum of Science; University of Maine at Presque Isle, USA)

H. E. Markus Meier (Baltic Earth)

Yenny Risjani (Brawijaya University, Indonesia)

Yu Situ (IUGS Secretariat)

Michal Tomczak (Polish Geological Institute-National Research Institute, Poland)

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

Xinong Xie (China University of Geosciences, China)

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

Minghua Zhang (Geoscience Data Center of CGS, China; DDE Standards Task Group)

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

Local Organizing Committee:

Jinpeng Zhang (chair), jinpenggmgs@sina.com; +86-020-22199580, 15915729329

Xiao Xiao (foreign affairs), xiaoxiaoiris@163.com; +86-020-28020709

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

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

Jianmei Hou (registration, abstract compiling), houjianmeiwork@163.com; +86-020-82061790, 15626020367

Huayang Gan (main meeting place affairs), 13631376929

Qiao Xue (main meeting place affairs), 13119510571

Keheng Chen (main meeting place affairs), 19926051515

Jinwei Zhang (main meeting place affairs), 13822142994

Lei Jia (main meeting place affairs), 18620150564

Xueping Yang (main meeting place affairs), 15152119108

Yingzhi Ren (media affairs), 13794357440

In Updating

5. Important Dates

1st announcement: August 30, 2025

Abstracts due: September 20, 2025

2nd announcement: September 21, 2025

Registration of participants on-line: September 30, 2025

Final program: September 30, 2025

Registration of participants in person: October 14, 2025

Conference: October 14 - 18, 2025

Participants departure: October 18, 2025

6. Introduction of Guangzhou

Guangzhou is a famous culture city and a splendid tourism city with a history of more than 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 contributes to local natural beauty. 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, Peasant 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.

7. 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, 14th-18th October, 2025

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.

Keywords: Time New Roman, 12

Oral presentation or Not: Oral or not

The abstract submission deadline is September 20, 2025.

In case of regular 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. We will set **Zoom Software** for on-line presentations. You can remote answer the questions in Q&A time on-line, and join in the discussion, conclusion and set agreement.

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.

8. International support partners

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

University of Szczecin, Poland

Polish Geological Institute-National Research Institute, Poland

The Institute of Marine Sciences of the National Research Council, Italy

Brawijaya University, Indonesia

Baltic Earth System Science for the Baltic Sea Region

Coordinating Committee for Geoscience Programmes in East and Southeast Asia

DDE Marginal Seas Task Group

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

Guangzhou Association for Science and Technology, China

Greater Bay Area Science Forum, China

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

China University of Geosciences, China

Sun Yat-Sen University, China

Xiamen University, China

The Third Institute of Oceanography, MNR, China

In updating