## **EDITORIAL**



# Report on the 21st International Symposium on Geo-disaster reduction, 5–8 August 2023, Shanghai, China

Hu Zheng  $^{1,2}\!,$  Yu Huang  $^{1,2}\!,$  Bo Li  $^{1,2}$  and Fawu Wang  $^{1,2*}\!$ 

## Abstract

The joint event of 21st International Symposium on Geo-disaster Reduction (21st ISGdR) was held onsite and online during 5–8 August 2023 in Shanghai, China. This symposium focused on the theme of "A new era for safe and resilient coastal and marine systems", providing a platform for academics, researchers and practitioners from different countries to discuss the research progress and exchange ideas on the reduction of disasters. The symposium consisted of keynote lecture, invited lectures and other presentations in parallel session.

## Introduction

In recent years, with the continuous development of marine resources, marine geological disasters have become more frequent. These disasters not only affect the construction of marine engineering projects but also pose risks to their safe operation, presenting new challenges to the development of marine system engineering. In order to enhance the exchange and discussion of key issues in the field of marine geo-disaster reduction, the 21st International Symposium on Geo-disaster Reduction was successfully held at Tongji University from 5-8 August 2023.

This conference serves as the annual academic meeting of the International Consortium on Geo-disaster Reduction (ICGdR) and was jointly organized by Tongji University and the UNESCO Chair on Earth Environment and Disaster Mitigation. The conference was held in a hybrid format, combining both online and offline sessions, and attracted significant attention from numerous experts

<sup>2</sup> Key Laboratory of Geotechnical and Underground Engineering

and scholars worldwide. Over 80 representatives from 7 countries including China, the United States, Italy, Turkey, Japan, Nepal, and Malaysia, sharing and exchanging the latest research findings (Fig. 1).

## Symposium

## Opening ceremony

The opening ceremony was chaired by Professor ZHENG Hu, the Secretary-General of the conference. The keynote speeches were delivered by Professor ZHU Hehua, an academician of the Chinese Academy of Engineering; Professor SHI Zhenming, Assistant President of Tongji University; Professor HUANG Yu, Head of the College of Civil Engineering at Tongji University; and Professor WANG Fawu, the President of the International Consortium on Geo-disaster Reduction (ICGdR).

Academician ZHU Hehua pointed out the frequent occurrence of marine disasters in recent years, posing potential threats to engineering construction, and emphasized the urgent need for international collaboration to explore new technologies for disaster prevention and reduction (Fig 2a). Professor SHI Zhenming expressed sincere gratitude and warm welcome to all the participants on behalf of the university, and briefly introduced the work conducted by Tongji University in the field of disaster prevention and reduction (Fig 2b).



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<sup>\*</sup>Correspondence:

Fawu Wang

wangfw@tongji.edu.cn

<sup>&</sup>lt;sup>1</sup> Department of Geotechnical Engineering, College of Civil Engineering, Tongji University, Shanghai 200092, China

of the Ministry of Education, Tongji University, Shanghai 200092, China



Fig. 1 Group photo of participants of the 21st ISGdR



Fig. 2 Opening ceremony. a Opening speech by Prof. Hehua Zhu; b Opening speech by Prof. Zhenming Shi

Professor HUANG Yu expressed gratitude on behalf of the College of Civil Engineering and organizing committee, and expressed expectations for the conference to provide new ideas for marine disaster prevention and reduction. President WANG Fawu introduced the establishment of the International Consortium on Geo-disaster Reduction and expressed hope that the attendees would focus on cutting-edge research, actively engage in discussions, and make greater contributions to disaster prevention and reduction efforts.

At the end of the opening ceremony, Prof. WANG Fawu hosted and presented ICGdR Award Ceremony. The winners of the ICGdR Award 2022~2023 and the Best Paper Award of Geoenvironmental Disasters 2022, the official journal of ICGdR, are listed in the table below (Tables 1 and 2).

## **Keynote lecture and parallel sessions**

The conference featured 8 keynote presentations (Table 3) and over 40 special topic presentations, focusing on significant scientific issues and key technological approaches related to marine engineering construction and disaster prevention and reduction of geological hazards (Fig. 3). The Keynote Lecture of the 21<sup>st</sup> ISGdR was chaired by Prof. ZHU Hehua and Prof. YE Weimin in the morning of 6 August, 2023, and Prof. LI Tonglu and Prof. JIA Yonggang in the afternoon of 7 August, 2023. The reports covered a wide range of topics, including analysis of submarine landslide disaster mechanisms, causes and characteristics of earthquake disasters, and AI-based risk assessment of marine geological hazards.

Authors	Title of paper
Sim, K.B., Lee, M.L. & Wong, S.Y.	A review of landslide acceptable risk and tolerable risk
Subedi, M., Acharya, I.P.	Liquefaction hazard assessment and ground failure probability analysis in the Kathmandu Valley of Nepal

## **Closing ceremony**

The closing ceremony of the conference was presided over by Professor LI Bo, the Secretary-General. The organizing committee presented certificates to the selected outstanding presenters (Fig. 4a), which is listed in Table 4. The host of the next conference introduced the preparation status of the upcoming event. Finally, Professor WANG Fawu, representing the organizing committee, delivered the closing remarks (Fig. 4b), expressing gratitude to the attendees and inviting them to continue participating in and supporting the activities of the consortium.

Through this symposium, scholars from both domestic and international backgrounds shared their latest research findings, engaged in extensive academic discussions, and put forward creative new ideas and approaches. The conference has sparked further global attention from numerous scholars regarding the issues of disaster prevention and reduction in marine geological hazards. It provided a systematic summary and

 Table 2
 The winners of the ICGdR Award 2022~2023

Awards-Winner	Awards	Affiliation
Masakatsu Miyajima	ICGdR Outstanding Activity Award	Kanazawa University
YU Haitao		Tongji University
PEI Huafu	ICGdR Outstanding Young Scientist Award	Dalian University of Technology
WU Qiong		China University of Geosciences, Wuhan
GUO Xingsen		University College London
NIAN Tingkai	ICGdR Technology Invention Award	Dalian University of Technology
QI Shengwen	ICGdR Science Achievement Award	Institute of Geology and Geophysics, Chinese Academy of Sciences
QIAO Jianyong		China University of Mining and Technology Beijing
ZHENG Hong	ICGdR Excellent Doctoral Dissertation Award	Ocean University of China

No.	Title	Presenter	Affiliation
1	Possible earthquake prediction strategies	HE Manchao	China University of Mining and Technology- Bei- jing/Tongji University, China
2	Sediment accumulations and monitoring in rivers originated from Siwaliks of Nepal	Ranjan Kumar DAHAL	Tribhuvan University, Nepal
3	Landslide acceptable and tolerable risk in Malaysia	Kwan Ben SIM	University of Nottingham Malaysia, Malaysia
4	Liquefaction hazard assessment and ground failure probability analy- sis in the Kathmandu Valley of Nepal	Mandip SUBEDI	Universal Engineering and Science College, Nepal
5	Estimation of dynamic soil properties to perform co-seismic hazard analyses	Beena AJMERA	Iowa State University, USA
6	Effects of clay content on wave-induced instability of a submarine slope	HUANG Yu	Tongji University, China
7	Earthquake potential evaluation of Denizli Metropol City (Türkiye) by using geological and archeological earthquake relics	Halil KUMSAR	Pamukkale University, Turkey
8	Flow-landslides impact against protection structures: modelling and design	Sabatino CUOMO	University of Salerno, Italy



Fig. 3 Keynote lecture: a keynote lecture presented by Academician HE Manchao; b keynote lecture presented by Professor Ranjan Kumar DAHAL; c keynote lecture presented by Professor Kwan Ben SIM; d keynote lecture presented by Professor Mandip SUBEDI; e keynote lecture presented by Dr. Beena AJMERA; f keynote lecture presented by Professor HUANG Yu; g keynote lecture presented by Professor Halil KUMSAR; h keynote lecture presented by Professor Sabatino CUOMO.



Fig. 4 Closing ceremony: a Photo of the best student presentation award ceremony; b Prof. WANG Fawu delivered the closing remarks on behalf of the organizing committee



Fig. 5 Field trip at Dongtan Wetland in Shanghai

exploration of the existing research achievements and shortcomings in the field of marine disasters. Furthermore, it played a significant role in enhancing disaster prevention and reduction capabilities in China and globally, while also providing guidance for the advancement of the discipline.

Table 4 The winners of the Best Student Presentation Award

Awards-Winner	Institute
CAO Chenyang	Taiyuan University of Technology
NIU Wenqing	Tongji University
PENG Xingliang	Tongji University
YUAN Sifan	Chang'an University
HE Jiangkun	Southwest Jiaotong University

### **Post-Symposium field trip**

Followed the onsite symposium, a field trip to the Dongtan Wetland in Pudong New Area, Shanghai, was conducted on the 8 August 2023 (Fig. 5). Dongtan Wetland is an important wetland conservation area. Situated in the southeastern part of Shanghai, adjacent to Hangzhou Bay, it is a naturally formed tidal flat wetland ecosystem. The total area of Dongtan Wetland is approximately 56.7 square kilometers, encompassing tidal flats, rivers, estuaries, salt pans, and sea areas, among other ecological environments. This trip focused on the engineering geology of estuarine and river mouth areas, as well as coastal zone engineering geology and conservation.

#### Acknowledgements

Financial support from Tongji University is greatly appreciated.

### Author contributions

HZ and BL wrote the manuscript, YH and FW refined it. All authors read and approved the final manuscript.

#### Availability of data and materials

Not applicable.

## Declarations

**Competing interests** Not applicable.

Published online: 18 December 2023

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