



# The XIV Congress of the International Association for Engineering Geology and the Environment

Engineering Geology for a Habitable Earth

## Congress Notification No.5



## XIV IAEG Congress 2023

The 14th Congress of the International Association for Engineering Geology and the Environment will be held in **Century City International Convention Centre, Chengdu, China from September 21 to 27, 2023**. Based on the theme of **“Engineering Geology for a Habitable Earth”**, the congress aims to enhance the multi-disciplinary and research development of international engineering geology and the environment, and contribute to the advancement of major projects, ecological progress, and a habitable earth. We warmly welcome the worldwide engineering geological community to come to Chengdu to participate in this academic event.



Scan the QR for more information about the conference.

Or visit [www.iaeg2023.org](http://www.iaeg2023.org)

## Congress Program at a Glance

	Sept.21 Thursday	Sept.22 Friday	Sept.23 Saturday	Sept.24 Sunday	Sept.25 Monday	Sept.26 Tuesday	Sept.27 Wednesday
Morning	Onsite Sign-in	Opening Ceremony/ Keynote Sessions	Parallel Sessions	Parallel Sessions	Parallel Sessions	Field Trip	Field Trip
Afternoon		Parallel Sessions			Keynote Sessions/ Closing Ceremony		
Evening		Welcoming Banquet					

## Call for Abstract

**Submission Deadline**

**June 30, 2023**



Scan the QR for submission

Or visit

<https://www.iaeg2023.org/cfa.html>

## Congress Registration

**Early-bird Registration Deadline**

**Aug. 10, 2023**

**Online Registration Deadline**

**Sept. 21, 2023**



Scan the QR for registration

Or visit

<https://www.iaeg2023.org/reg.html>

# Themes and Sessions

## Theme 1: Engineering Geomechanics of Rock and Soil Masses

**Chairs:** Haris Saroglou, Qing Wang, Shengwen Qi

- Session 1: Ground Property Characterization from In-Situ Tests
- Session 2: Structure of Soil and Rock Mass
- Session 3: Engineering Geology and Environment of Redbeds
- Session 4: Rock Mass Engineering Geomechanics
- Session 5: Interface Engineering Geomechanics
- Session 6: Behavior and Treatment of Special Soil and Soft Rock
- Session 7: Multiphase Flow and Geomechanics in CO<sub>2</sub> Geological Sequestration
- Session 8: Unsaturated Soil Mechanics

## Theme 2: Climate Change and Sustainable Development

**Chair:** Fujun Niu

- Session 1: Extreme Climate, Soil and Water Conservation, and Sustainable Development in Semiarid Regions
- Session 2: Cryospheric Changes and Sustainable Development
- Session 3: Changes in the Permafrost Eco-Environment and Its Adaptive Protection
- Session 4: Disaster Risks and Engineering Solutions in Permafrost Regions
- Session 5: Impact of Climate and Environmental Change on Engineering
- Session 6: Frozen Soil and Ice Mechanics

## Theme 3: Megacity Engineering Geology

**Chairs:** Atsushi Yashima, Yu Huang

- Session 1: Development and Utilization of Urban Underground Space and Adverse Geology
- Session 2: Submarine Landslides and Tsunamis: Integrating Numerical and Physical Modelling with Field Observation to Predict Impacts on Coastal Cities
- Session 3: Recent Advances in Megacity Engineering Geology
- Session 4: Characterizing and Modelling the Effects of Surface Geology on Earthquake-Induced Ground Shaking
- Session 5: Enhance the Resilience and Adaptation of Megacity to Natural Hazards
- Session 6: Seismic Design and Analysis of Urban Underground Space
- Session 7: Water-Related Geotechnical Challenges and Innovations for Sustainable Megacity Development
- Session 8: Megacity Geotechnical Engineering under Complicated Geological Conditions
- Session 9: Uncertainty Quantification of Megacity Engineering Geology and Its Effect on Underground Structures

## Theme 4: Geoenvironmental Engineering and Ecological Solutions

**Chairs:** Yujun Cui, Bin Shi

- Session 1: Green Resilient and Innovative Solutions for Sustainable Development

- Session 2: Engineering Barriers
- Session 3: Advances in Geological Reinforcement Techniques
- Session 4: Atmosphere-plant-soil Interactions
- Session 5: Sustainable Remediation of Contaminated Sites
- Session 6: Novel Contaminants in Environmental Geology
- Session 7: NbS (Nature-based Solution) for Environmental Protection and Ecological Restoration
- Session 8: Recent Development in Bio-Geoengineering
- Session 9: Utilization of Solid Waste in Geotechnical Engineering
- Session 10: Expansive Soil/Clay and Its Environmental Effects
- Session 11: Solid Waste Landfills and Relevant Environmental Geotechnics
- Session 12: Sustainable and Resilient Construction and Materials

## Theme 5: Active Tectonics, Geomorphology, and Geological Hazards

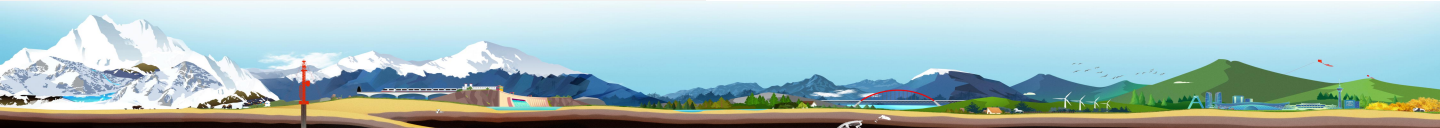
**Chairs:** Masahiro Chigira, Yueping Yin

- Session 1: Rockslide/Rock Avalanches: Geomorphology, Sedimentology, and Emplacement Dynamics
- Session 2: Active Faults and Earthquake Chained Hazard Zonation
- Session 3: Large-Scale Geohazard in Active Tectonic Region, as a Special Session of C24-IAEG
- Session 4: Tectonics, Surface Processes, and Geohazards
- Session 5: Mechanism, Evolution, and Prevention of Geological Hazards Caused by Earthquakes

## Theme 6: Marine Engineering Geology, Marine Geoenvironment and Disasters – 3rd International Symposium on Marine Engineering Geology (ISMEG 2023)

**Chairs:** Dong-Sheng Jeng, J.Paul Liu, Kawamura Kiichiro, Yonggang Jia

- Session 1: Technological and Methodological Advances for Marine Engineering Geology, Marine Geoenvironment and Disasters
- Session 2: Recent Development on Submarine Landslide and Its Hazard Chains
- Session 3: Coastal Engineering Environment
- Session 4: Nearshore and Offshore Engineering Geological Disasters
- Session 5: Geological Disasters Associated with Natural Gas Hydrate Systems and Their Effects on Marine Geological Environment
- Session 6: Monitoring and Risk Evaluation of Marine Carbon Dioxide Geological Storage
- Session 7: Marine Shallow Gas Emission: Mechanism and Monitoring
- Session 8: Geophysical Exploration of Seafloor Structures
- Session 9: Recent Development on Seabed Process in Marine Environments





### Theme 7: Deep Earth Resource and Energy Exploitation

**Chairs: Mark Eggers, Wanghua Sui**

- Session 1: Geomechanics for Deep Oil and Gas Exploitation
- Session 2: Engineering Geological Hazards in Deep Mining
- Session 3: Groundwater and Stability in Deep Mining
- Session 4: Engineering Geology for Underground Energy Storage
- Session 5: Major Engineering Construction in Mining Subsidence Area
- Session 6: Exploration and Exploitation of Medium-deep Geothermal Resources
- Session 7: Resources and Energy Exploration and Cooperation along the Maritime Silk Road

### Theme 8: Geohazard Mechanisms, Risk Assessment and Control, Monitoring and Early Warning

**Chairs: Nicola Casagli, Qiang Xu**

- Session 1: Georisk Assessment Using Machine Learning
- Session 2: Recent Development of Numerical Models for Simulating Geohazard Processes and Chains of Geological Hazards
- Session 3: Debris Flow Dynamic Process and Its Effects on Landform
- Session 4: Debris Flows: Mechanics, Monitoring, Experiments, Assessment, Prevention, and Risk Management
- Session 5: Research on Disaster Prevention and Environmental Protection in Japan
- Session 6: Groundwater and Land Subsidence for Infrastructure Development in the Deltaic Plains
- Session 7: Integrating Hydrologic Information into the Next Generation of Landslide Early Warning Systems
- Session 8: Mechanism, Mitigation, and Risk Management of Geohazards Triggered by Extreme Weather Events
- Session 9: Chains of Geohazards: Mechanism, Modelling and Prediction
- Session 10: Navigating Natural Hazard Risk Assessment and Management: Compound, Consecutive, and Cascading Events
- Session 11: Coseismic Landslides: Disaster Risk Cognition and Reduction
- Session 12: Advances in Disaster Reduction of Large Landslides: Activities of JTC1 and iRALL
- Session 13: Advances in Modelling Rainfall-Induced Landslides
- Session 14: Landslide Dams: Formation, Stability, Breaching and Risk Management
- Session 15: Numerical Methods for Engineering Geology and Geohazards

### Theme 9: New Technology in Engineering Geology (3rd Shaoxing International Forum)

**Chairs: Rafiq Azzam, Faquan Wu**

- Session 1: Advanced Monitoring Technologies for Geoengineering
- Session 2: In-situ Geo-technology
- Session 3: The Progress of Multiscale Geotechnical Numerical

- Session 4: New Laboratory Techniques and Their Applications in Engineering Geology
- Session 5: Current Trends and Future Perspectives of Machine Learning Applications in Geoscience and Engineering Geology

### Theme 10: Applied Geology for Major Engineering Projects

**Chairs: Vassilis Marinou, Tianbin Li**

- Session 1: Geological Problems and Countermeasures in Transportation Tunnel Engineering
- Session 2: Large Deformation in Squeezing or Intensively Fractured Rocks
- Session 3: Tunneling Practice of TBM under Adverse Geological Condition
- Session 4: Mechanism, Monitoring, and Early Warning of Dynamic Disasters in Deep Underground Engineering
- Session 5: Improvement of Soft Clay Ground
- Session 6: Hazard Prevention and Control of Groundwater System
- Session 7: Advanced Geological Prediction Techniques and their Applications in Tunnel Construction
- Session 8: Engineered Slope Stability and Control
- Session 9: Physical Modeling for Geological and Geotechnical Engineering
- Session 10: Prevention and Mitigation of Geohazards in Reservoir Area

### Theme 11: Preservation of Cultural Heritage and Engineering Geology

**Chairs: Atiye Tugrul, Jianxin Hua**

- Session 1: Investigation, Design, and Monitoring of Cultural Heritage
- Session 2: Material, Environment, and Digital Preservation of Cultural Heritage
- Session 3: Engineering Geology in Preservation and Protection of Heritage Sites, Stone Resources, and Geo-heritage

### Theme 12: Young Engineering Geologist Afternoon

**Chairs: Stratis Karantanellis, Changdong Li**

- Session 1: Mitigating Climate-Induced Geohazards in Vulnerable Hotspots
- Session 2: Multiphysics Coupling in Fractured Rocks and Its Engineering Application
- Session 3: Creep Characteristics of Rock and Soil Mass and Its Disaster-induced Mechanism: Testing, Monitoring, Early Warning, and Prevention
- Session 4: Rock Joint Detection and Characterization from 3D Point Clouds
- Session 5: Geological Hazards and Risk Management
- Session 6: Intelligent Prediction and Risk Assessment of Geohazards with Multi-source Monitoring Data
- Session 7: Towards Innovative Mitigation Strategies for Rockfalls/Rock Avalanches



## Congress Venue



### Century City International Convention Centre

Address: 198 Shijicheng Road, Gaoxing District, Chengdu, China

The InterContinental Century City Chengdu stands out as an exciting new landmark in the capital of Sichuan province. Serving as an ideal venue for the business traveller in Chengdu, the hotel is within walking distance of the Chengdu International Exhibition Centre and a 20-minute drive from the airport.

## Travel Grant

To provide financial assistance to attendees who might have financial constraints, the XIV IAEG Congress 2023 is pleased to offer travel grants to welcome a wider range of participants. The congress committee hopes that the travel grants will enable more attendees to benefit from the congress and advance their careers.

Travel grants are awarded based on financial need, potential contribution to the congress, and the quality of their paper, etc. Applications will be reviewed on a rolling basis, with decisions made as soon as practically possible.

Please visit <https://www.iaeg2023.org/grant.html> to know more details. If you have any questions or need additional support, please do not hesitate to contact us at [info@iaeg2023.org](mailto:info@iaeg2023.org).

**Note: Priority funding recipients: Students or participants from developing countries in Asia, Africa, Latin America, and other regions.**



Apply the Travel Grant

## Attending Support

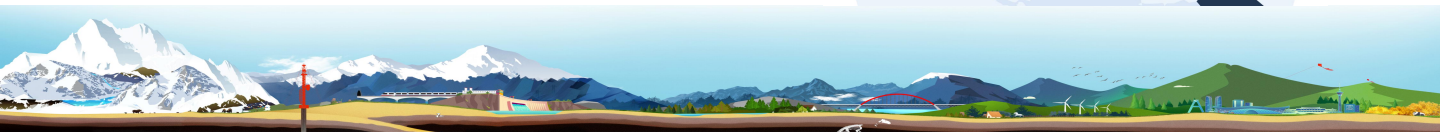
### ► Visa Application

To apply for a China visa, you need to complete an application form attached with your recently-taken color photo, prepare a valid passport, and submit them along with other supporting documents to China Visa Application Service Center, Chinese embassy or consulate which is in charge of your residence area.

For more detailed information, please consult the embassy of the People's Republic of China in your country. If any further assistance needed, contact us via email: [info@iaeg2023.org](mailto:info@iaeg2023.org).

### ► Invitation Letter

You may need the invitation letter as part of the supporting documents for applying a VISA to China. You can contact us via email: [info@iaeg2023.org](mailto:info@iaeg2023.org) for further assistance.





## IAEG Organization

### Sponsor:

International Association for Engineering Geology  
and the Environment (IAEG)

### Organizers:

- IAE G China National Group
- Engineering Geology Commission, China Geology Society
- State Key Laboratory of Geohazard Prevention and Geoenvironment Protection, Chengdu University of Technology

## Congress Publication



# Springer

Accepted papers will be included in IAEG congress proceedings and published by Springer, which will be sent to indexed by EI Compendex and Scopus.

## Academic Committee

(Alphabetical Order)

**Chairs:** Sijing Wang      Runqiu Huang

### Members:

- |                                  |                     |
|----------------------------------|---------------------|
| Anthony Bowden                   | Bin Shi             |
| Bo An-Jang                       | Carlos Delgado      |
| Charles W. W. Ng                 | Chungsik Yoo        |
| Defang Kong                      | Dingcheng Huang     |
| Faquan Wu                        | Fawu Wang           |
| Helen Reeves                     | Hengxing Lan        |
| Hsein Juang                      | Huiming Tang        |
| Janusz Wasowski                  | Jean Hutchinson     |
| Jean-Alain Fleurisson            | Jian Yang           |
| Jianbing Peng                    | Jianmin Zhang       |
| Jianxin Hua                      | Jinxiu Yan          |
| John Ludden                      | Julien Cohen-Waeber |
| Kyoji Sassa                      | Lansheng Wang       |
| Manchao He                       | Martin Culshaw      |
| Moshood Niya Tijani              | Nicola Casaghi      |
| Niek Rengers                     | Peng Cui            |
| Qing Wang                        | Rafiq Azzam         |
| Ranjan Kumar Dahal               | Resat Ulusay        |
| Ricardo Oliveira                 | Roger Frank         |
| Scott F. Burns                   | Shitian Wang        |
| Shutao Yang                      | Vassilis Marinou    |
| Victor Manuel Hernandez Madrigal | Wei Wu              |

Wei Zhang

Xiao Li

Xiating Feng

Yong-Seok SEO

Yueping Yin

Yusheng Gao

Zelian Chen

Zuyu Chen

## Organizing Committee

(Alphabetical Order)

**Chair:** Qiang Xu

### Vice-chairs:

Qiangbing Huang

Shengwen Qi

Xiangjun Pei

Xiaoqing Chen

Yuyong Jiao

**Secretary General:** Xuanmei Fan

### Members:

Chaojun Ouyang

Chaosheng Tang

Jianjun Zhao

Liangqing Wang

Ning Liang

Wen Zhang

Yuhuan Song

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**Tel.:** +86-13739469027

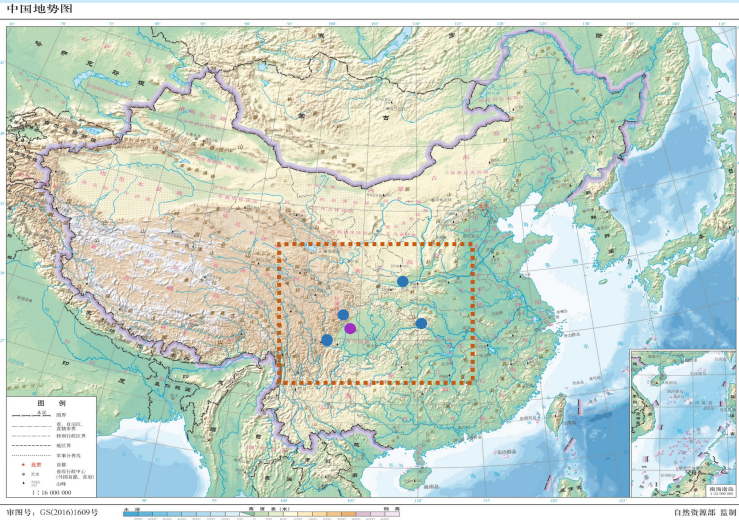
**Website:** www.iaeg2023.org







## FIELD TRIPS



Scan the QR for more information

**#1: Chengdu-Dujiangyan-Yingxiu-Chengdu (One-day tour on Sept. 26)**

**#2: Chengdu-Luding-Chengdu (Two-day tour on Sept. 26-27)**

**#3: Chengdu-Badong-Sanxia-Chengdu (Two-day tour on Sept. 26-27)**

**#4: Chengdu-Xi'an (Two-day tour on Sept. 26-27)**





### Field Trip #1



**26 September 2023 – 1 FULL DAYS WITH LUNCH**

Departure on 26/9 at 8:00 – return to Chengdu on 26/09 at approx. 19:00.

#### Organizers:

**Prof. Wei Hu, Chengdu University of Technology**

Email: 513933225@qq.com

**Dr. Ming Chang, Chengdu University of Technology**

Email: changmxq@126.com; changming15@cdut.edu.cn

**Dr. Yan Li, Chengdu University of Technology**

Email: 43133660@qq.com

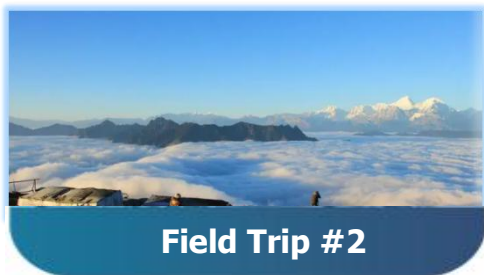


### Topic: Hydraulic Engineering Masterpiece, Earthquake Damage and Geohazard

#### General Description

Dujiangyan City has two famous Water engineering masterpieces, and Yingxiu Town is one of the most destructively damaged regions during the Wenchuan earthquake, retaining many earthquake relics and landscapes. This scenic route focuses on the two water engineering masterpieces, some post-earthquake geohazards consequent on the Wenchuan earthquake in 2008, and overview of large-scale debris flow mitigation structures, passing through Dujiangyan City and Yingxiu Town in Sichuan Province. The activity will last for 1 day. The four key scenic spots in this route are: (1) The Dujiangyan Irrigation System: is a well-known attraction that was constructed around 256 BC by the State of Qin to regulate floods and manage irrigation, and has been recognized as a UNESCO World Heritage Site. (2) The Zipingpu Water Conservancy Project: located on the MinJiang River, upstream from Dujiangyan City, was built to manage irrigation and water supply, with comprehensive benefits in power generation, flood control, environment protection, and tourism. (3) Xuankou middle school earthquake relic: it is the only relatively well-preserved large-scale site in the "5.12" Wenchuan earthquake, and it is also the memorial site for the anniversary memorial ceremony for the "5.12" Wenchuan earthquake. (4) Niujian debris flow and Hongchun debris flow: you'll view the epicenter of the "5.12" Wenchuan earthquake and two large-scale debris flow mitigation structures.





**26-27 September 2023 – 2 FULL DAYS WITH ACCOMMODATION**

Departure on 26/09 at 8:00 - return to Chengdu on 27/09 at approx. 18:00

### Organizers:

**Prof. Yunsheng Wang, Chengdu University of Technology**

Email: 1109286292@qq.com

**Prof. Yonghong Luo, Chengdu University of Technology**

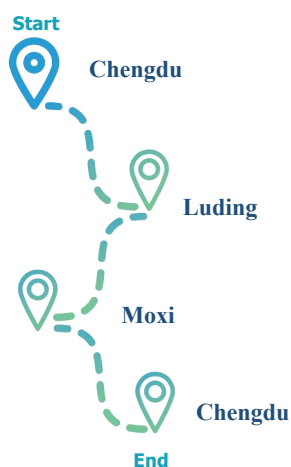
Email: lyh445890689@qq.com

**Prof. Yinghui Yang, Chengdu University of Technology**

Email: xzhfhyyy@126.com

**Prof. Dan Wang, Chengdu University of Technology**

Email: wddy8@mst.edu



### Topic: Co-seismic Landslides and Major Engineering Projects Site Selection

#### General Description

Luding County is located on the eastern edge of the Qinghai-Tibet Plateau and is the most deeply entrenched gorge area in the western Sichuan high mountain and plateau region. The Dadu River runs through the county from north to south, making it a necessary passage for traveling between Tibet and Sichuan. This scenic route focuses on the co-seismic landslides and major engineering project site selection. The activity will last for two days. The two key scenic spots in this route are: (1) Major Engineering Projects Site Selection: Yakang bridge and Luding chain bridge are crossing hundreds of meters wide of the Dadu river, Luding hydropower station built on the Dadu river. Multiple active faults distributed along the Dadu River and complex rock mass structure of the bank slope make it very difficult to select the project site. You will have the opportunity for close observation of the geological structure of major engineering projects. (2) Co-seismic landslides: Wuzhisuo landslide and Mogangling landslide (1786) induced by historical earthquakes and Moxi Mesa composing of glacier deposit damaged by Luding Mw6.6 earthquake will be introduced. You can come to survey the location of giant landslide blocking the Dadu river for ~9 days. Understand maybe the most catastrophic event in the world ever due to a landslide dam breach to cause more than 100,000 deaths.





### Field Trip #3



**26-27 September 2023 – 2 FULL DAYS WITH ACCOMMODATION**

Departure on 26/9 at 8:36 – return to Chengdu on 27/9 at 22:11.

#### Organizers:

**Prof. Changdong Li, China University of Geosciences (Wuhan)**

Email: lichangdong@cug.edu.cn

**Dr. Zongxing Zou, China University of Geosciences (Wuhan)**

Email: zouzongxing@cug.edu.cn



### Topic: The Three Gorges Hydropower Project and Reservoir Landslide Disasters

#### General Description

The Three Gorges Hydropower Station is the world's largest hydropower station and the largest construction project in China. The accompanied issues, such as immigration, relocation, and environmental issues, have attracted widespread attention from the moment of its establishment. After the impoundment of the hydroelectric reservoir, the hydrological environment of the original bank slope has been greatly changed, leading to the revival of many large landslides. This scenic route focuses on the Three Gorges hydropower project and reservoir landslide disasters, passing through Badong County and Yichang City in Hubei Province. The activity will last for two days. The two key scenic spot in this route are: (1) Badong Field Comprehensive Experimental Station: established in the Huangtupo landslide with the largest volume in the Three Gorges Reservoir Area. A three-dimensional comprehensive observation is carried out for this landslide. It allows for close observation of the geological structure and deformation characteristics of the landslide. (2) Three Gorges Dam: You can come to the vicinity of the top of the Three Gorges Dam to view the whole scenic area. Understand the construction process and functions of the Three Gorges Dam by visiting different scenic spots.





**26-27 September 2023 – 2 FULL DAYS WITH ACCOMMODATION**

Departure on 26/9 at 8:46 – return to Xi'an on 27/9 at 18:00.

### Organizers:

**Prof. Xinghua Zhu, Chang'an University**

Email: zhuxinghua@chd.edu.cn

**Prof. Tonglu Li, Chang'an University**

Email: dcdgx08@chd.edu.cn

**Prof. Quanzhong Lu, Chang'an University**

Email: dcdgx14@chd.edu.cn

Start



### Topic: Urban Ground Fissure and Loess Landslide

#### General Description

Xi'an, with a history spanning over 3,100 years, was designated as a capital city 1,100 years ago. It has served as the old capital of 13 dynasties in China and is recognized as one of the significant birthplaces of Chinese civilization and the Chinese nation. Xi'an is situated in the Weihe basin that is located in the southern part of the Chinese Loess Plateau. Here, there are the most severe ground fissures and loess landslides in China, which have hindered urban development in the region. The objective of this route is to investigate the two types of geological disasters: (1) Urban Ground Fissure: ground fissures in Xi'an have caused massive damage to engineering structures in the past years. We will visit representative ground fissures and its monitoring sites including Yuhuazhai Ground Fissure, Qingliangshan Park Ground Fissure Monitoring Site, and Xiyang Road Ground Fissure Monitoring Site. (2) Loess landslides: loess landslides are extensively distributed throughout the Chinese Loess Plateau due to the honeycomb-type meta-stable structure of loess that is susceptible to collapse upon wetting. We will visit several representative loess landslides that have been triggered by farmland irrigation, and observe the typical geological profile of loess-paleosol sequence. Additionally, we have the opportunity to visit renowned cultural heritage sites such as the Xi'an City Wall and the Terracotta Warriors of the First Chinese Emperor.

