Conference Report

The Joint Conference of ISEH (International Symposium on Environment and Health), ICEPH (International Conference on Environmental Pollution and Health) and ISEG (Environmental Symposium on Environmental Geochemistry) on Environment and Health was successfully held on campus of University of Galway, Ireland during August 11-18, 2024.

The conference was originally planned in 2020. Due to the outbreak of Covid-19, it was postponed to 2024. The format of this conference was in-person!

The conference series of ISEH, ICEPH and ISEG provide internationally leading platforms for interaction between scientists, consultants, and public servants engaged in the multi-disciplinary areas of environment and health. With the fast economic development, the importance of environment and health is increasingly recognized in the world. There is a growing demand for international experts to work together on this emerging topic of common interest. Meanwhile, in the big data era, we are facing new challenges and opportunities. This conference provides a timely opportunity for a direct communication between international experts and helps to foster and develop international collaborations.

The conference location of Galway is recognized as "2020 European Capital of Culture". Located in the west of Ireland, Galway is one of the most popular tourist destinations in Europe and attracts more than 1 million international tourists annually. It is easily accessible, with frequent train connections with Dublin and frequent direct bus connections with Dublin Airport and Shannon Airport.

This conference is linked to several SDGs of the United Nations: Goal 3 Health; Goal 4 Education; Goal 6 Water and Sanitation; Goal 12 Sustainable consumption and production; Goal 13 Climate Action; Goal 14 Oceans; Goal 15 Biodiversity, forests, desertification; and Goal 17 Partnerships for the goals.

This conference was jointly organised by University of Galway, Jinan University, and the Geographical Society of China. The Co-Organisers are (in alphabetic order) Asia Resilience Center; Beibu Gulf University; Central South University of Forestry & Technology; Centre for One Health, University of Galway; Chengdu Technological University; Chinese-European Society for Environment, Ecology & Sustainability (CESEES); EuroGeoSurveys Geochemistry Expert Group; Geological Survey Ireland; Guangdong University of Technology; Guangzhou University; Guizhou Medical University; Harbin Institute of Technology; Henan University; IHE Delft; Indian Institute of Technology Guwahati; Institute of Eco-environmental and Soil Sciences, Guangdong Academy of Sciences; Institute of Geographical Sciences and Natural Resources Research, CAS; Institute of Urban Environment, CAS; International Environmental and Health Science Consortium (IEHSC); International Medical Geology Association (IMGA); Ireland Brownfield Network; IUGS Commission on Global Geochemical Baselines; Nanjing Agricultural University; Nanjing Institute of Geography and Limnology, CAS; Nankai University; NHC Key Laboratory of Reproductive Health; Northwest Institute of Eco-Environment and Resources, CAS; Peking University; Ryan Institute, University of Galway; South China University of Technology; Southwest Key Laboratory of Land Resources Evaluation and Monitoring, SICNU; The Committee on Environment and Reproductive Health, CEMS; Virginia Tech; UNESCO International Center on Global-Scale Geochemistry; Xiamen University; Xi'an University of Technology; Yantai Institute of Coastal Zone Research, CAS.

The sole sponsor of this conference is Failte Ireland (The National Tourism Development Authority). There were two exhibitors: Carbon Research and Biochar (journals), and PerkinElmer.

The reputation of the conference has been recognised as a top-level conference in the field of environment and health, with a focus on academic issues.

Group photo of conference delegates

General Statistics

The joint conference attracted a total number of 504 participants from 31 countries/regions, plus 59 visitors of a student group. There were 14 plenary talks, 314 oral presentations arranged in 64 parallel sessions, and 100 poster presentations.

Session Topics

The conference covers a wide range of topics ranging from natural environment to anthropogenic influences, from exposure to hazardous materials to diseases, from laboratory experiments to field investigations, with the data analytical tools from conventional statistics to artificial intelligence.

A total of 14 plenary talks were delivered, with the details as follows:

No	Name	Presentation Title
1	Shu Tao	Cost and Health benefits of promoting clean cooking and heating in rural China
2	Tong Zhu	Maximizing the Health Benefits of Air Pollution Control and Climate Change Mitigation
3	Guibin Jiang	New pollutants study in China: History & future perspective
4	Yanxin Wang	Mapping Distribution of Geogenic Contaminated Groundwater Using Machine Learning Methods
5	Robert Finkelman	Medical Geology: 20 Years of Progress
6	Jose Centeno	Medical Geology - Integrating Environmental Science, Public Health and Earth Science

7	Alecos Demetriades	Standardisation of Applied Geochemical Methods
8	Qiuming Cheng	Integration of Big Data and AI Techniques for Understanding Arsenic Behaviour in Mineralization Processes
9	Fang-Jie Zhao	Arsenic biogeochemistry in paddy soil and strategies to limit arsenic accumulation in rice
10	Ming-Hung Wong	Food contamination and health impacts: Geochemical and environmental pollutants
11	Xueqiu Wang	Chemical Earth Program: Global Geochemical Observation Networks
12	Minhan Dai	Coastal Ocean Under Intensifying Human Activities and Changing Climate: from Science to Sustainability and needs for a digital twin platform
13	Bojie Fu	Ecosystem Health and Sustainable Development
14	Donald Sparks	Climate, Soil, and Health Nexus: Grand Challenges in a Changing Environment

The following topics were provided as 4 parallel sessions in 4 days of August 12-15.

Agriculture
Air Pollution and Health
Antibiotics and Microbiology
Arsenic
Big Data and Data Analytics
Biochar
Climate Change and Population Health
Coastal System
Diagnostics and Remediation
Dust and Indoor Air Pollution
Emerging Organic Pollutants
Environmental Applications of Nanomaterials
Environmental Friendly Remediation
Environmental Geochemistry
Environmental Health
Environmental Health Management
Environmental Modelling
Environmental Pollution and Reproductive Health
Food quality
Geochemical Mapping
Geo-Health
GIS Spatial Modelling
Health Risks of Micro- and Nano-plastics
High Background Values in Soils
Medical Geology
Medical Geology in Africa
Microbiological Risks in Drinking Water
Nanoparticles and Microplastics
New emerging pollutants
Nitrogen Cycle
Organic pollutants
Peat
PFAS
POPs & PAHs
Potentially Toxic Elements
Public Health

Radon Risk
Remediation
Sediments
Soil Quality
Soil Threats
Statistical Modelling
Volatile Organic Compounds
Water Environment Health
Water Quality
Wetland

Main Conference

The conference was chaired by Professor Chaosheng Zhang and opened by Prof. Ciarán Ó hÓgartaigh, President of University of Galway in the morning of August 12, 1024, followed by Prof. Rebecca Braun, Executive Dean, Colleagues of Arts, Social Sciences and Celtic Studies, University of Galway, Ms Sandra Fahy, Tourism Careers Officer, on behalf of Fáilte Ireland and Mr Brian Barrett Head of Economic Development, Tourism and Culture, on behalf of Galway City Council.

Group photo at the conference opening ceremony
(from left to right: Chaosheng Zhang, Ciarán Ó hÓgartaigh, Rebecca Braun, Sandra Fahy, Brian Barrett, Donald Sparks, Minhan Dai, Xueqiu Wang, Jose Centeno, Robert Finkelman, Yanxin Wang, Tong Zhu, Fang-Jie Zhao, Alecos Demetriades, Taicheng An)

Prof. Chaosheng Zhang at the opening ceremony

Prof. Ciarán Ó hÓgartaigh at the opening ceremony

Plenary speeches in Bailey Allen Hall

Parallel sessions

Conference Volunteers

Social Activities

A range of social events were organised. In the evening of Aug. 11, the welcome reception was held in Bailey Allen Hall, with traditional Irish music performance.

Registration desk

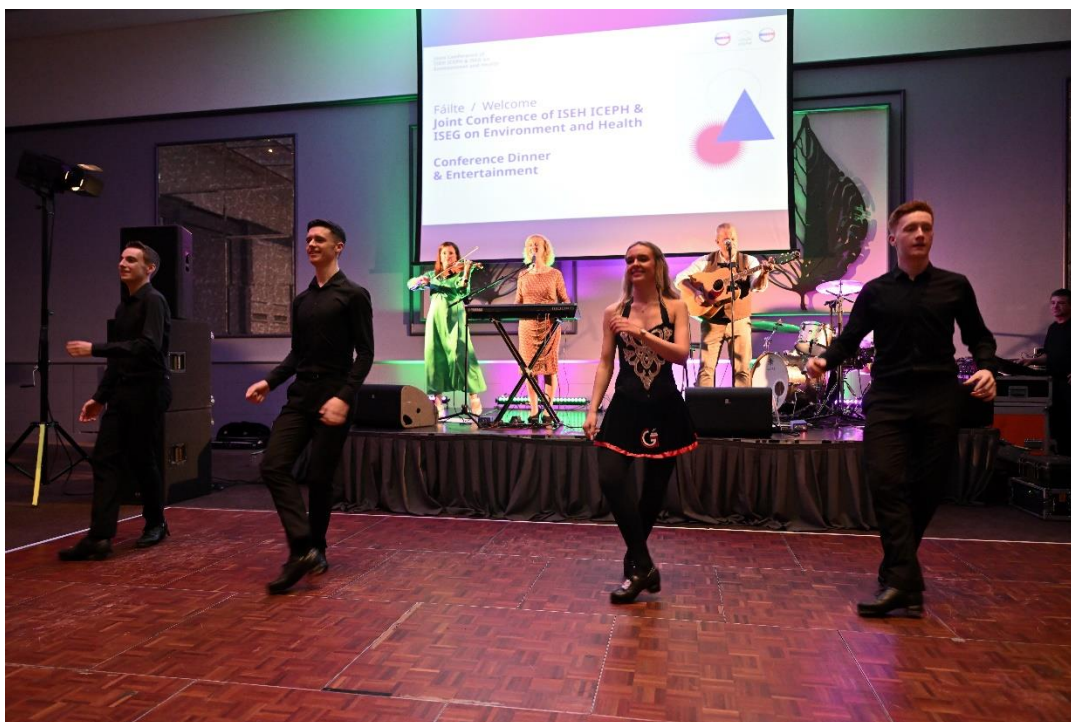*Welcome reception with traditional Irish music performance*

Coffee/tea break

The conference dinner was arranged in Galmont Hotel in the evening of Aug. 14, with a contemporary Irish show featuring an electrifying mix of music, song and Irish dance.

Irish music and dancing during conference dinner

Three fieldtrips were organised for conference delegates for networking which exploring the natural beautify and culture of the West of Ireland: The Burren and Cliffs of Moher, Connemara, and Aran Islands during August 16-18, 2024.

Special Issues in Journals

Delegates are invited to submit their full papers to the special issues in two journals: China Geology; Environment & Health.

Call for Papers: Special Issue of "*China Geology*"

The relevance of earth's materials and geological processes to human health has been confirmed by extensive scientific research. Geological survey work plays an important role in revealing environmental factors that affect and promote public health.

The objective is to better track the cutting-edge international research on environment and health, to systematically display the latest achievements in Geo-Health from both domestic and international perspectives, and to facilitate interdisciplinary collaboration in the areas of medical geology, environmental health, pollution, and environmental geochemistry.

China Geology (Online ISSN: 2589-9430 Print ISSN: 2096-5192), in collaboration with Prof. Chaosheng Zhang, the esteemed Chair of the Joint Conference of ISEH, ICEPH & ISEG on Environment and Health, announces the forthcoming publication of the Special Issue of the conference, scheduled for release during the 2024-2025 period.

We welcome submissions from researchers in geology, environment, and health-related fields, especially young scholars. The specific submission requirements are as follows:

Administration Enquiries: Conference Secretariat, Go West Conference and Event Management, Gteic, Spiddal, County Galway, Ireland. Postal Code: H91 CH01, Ireland. Tel: +353-91-591222 Web: gowest.ie. Conference email address: ISEH-ICEPH-ISEG@gowest.ie
Academic Enquiries: Prof. Chaosheng Zhang, Conference Chair, School of Geography, Archaeology & Irish Studies, University of Galway, Postal code: H91 CF50, IRELAND. Tel: +353-91- 492375 Email: Chaosheng.Zhang@universityofgalway.ie

Special Issue Title:
Special Issue of Joint Conference of ISEH, ICEPH & ISEG: Recent Developments in Geo-Health Research

Focus Areas for Paper Submissions:

- **International Progress Review**: Encompassing advancements in geological environments and population health, such as health geology, medical geology, environmental health analysis utilizing big data and GIS, and experimental tests related to environmental health.
- **Investigations and risk assessments of geological environmental factors affecting public health**: Exploring the spatial distribution and health risk assessment of beneficial and detrimental elements, emerging pollutants, and microorganisms in soil, water, and atmosphere in typical regions.
- **Mining Area Studies**: Conducting Geo-Health surveys, risk assessments, and Nature-based Solutions (Nbs) research in major mining regions, including metal and non-metal mines, with an emphasis on population health risk evaluation and globally promotable remediation/monitoring technologies.
- **Case Studies & Technical Methods**: Presenting Geo-Health survey cases and methodologies in unique areas, including drinking water-related illnesses, high-quality and low-quality groundwater/land distributions, longevity hotspots, mining clusters, special agricultural products, natural medicinal resources, and mineral medicine.
- **Analytical Methods & Standards related to environmental public health**: Novel electrochemical, magnetic, biological sensors, mobile laboratory-based rapid on-site detection, as well as techniques and standards for analyzing isotopes, micro-regions, and new pollutants.

Submission Requirements:

Abstract submission precedes full-text submission upon approval. The full text must comprise primarily original research, adhering to the format guidelines at http://chinageology.cgs.cn/news/96
Chinese abstracts should exceed 500 words. Full-text length is unrestricted bilingual submissions (Chinese & English) are welcome.

Deadlines:
Abstract submission deadline: October 15, 2024
Full-text completion: March 31, 2025

Submission Method:

Email abstracts and full texts to the special issue contacts, with the subject line labeled "GHS2024-2025". Manuscripts undergo rigorous peer review and collective discussion by the organizing committee before acceptance. Submissions are then to be uploaded online via the album portal.

Special Issue Contacts:
Dawen Liu: dawen_liu@qq.com
Siwen Liu: siwenzliu@126.com

Administration Enquiries: Conference Secretariat, Go West Conference and Event Management, Gteic, Spiddal, County Galway, Ireland. Postal Code: H91 CH01, Ireland. Tel: +353-91-591222 Web: gowest.ie. Conference email address: ISEH-ICEPH-ISEG@gowest.ie
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Call for Papers: Artificial Intelligence and Machine Learning for Environmental Health

The Joint Conference of ISEH ICEPH & ISEG on Environment and Health supports this special issue in Environment & Health. Follow the instructions on the website:
https://axial.acs.org/earth-space-and-environmental-chemistry/cfp-artificial-intelligence-and-machine-learning-for-environmental-health

This Virtual Special Issue, supported by the Joint Conference of ISEH ICEPH & ISEG on Environment and Health, aims to capture the latest research advances in the applications of artificial intelligence and machine learning for environmental health studies. **Submit your manuscript by October 30, 2024.**

Artificial intelligence (AI) and machine learning (ML) are transformative fields of computer science. They empower researchers to develop algorithms and models capable of extracting meaningful insights, making predictions, and automating tasks by analyzing and learning from data. Due to the intricate nature of environmental health issues, the integration of AI and machine learning is imperative. These advanced computational technologies have the potential to revolutionize environmental health studies through fundamentally improve and advance environmental exposure assessment, environmental health risk assessment, and environmental policy development.

This Virtual Special Issue from *Environment & Health* extends an invitation to scientists to share their innovative work on leveraging AI and ML for environmental health studies.
We welcome contributions of Articles, Reviews, Perspectives or Viewpoints that delve into topics including, but not limited to:
• Source appointment
• Chemical toxicity prediction
• Identification or screening of unknown pollutants
• Human exposure assessment
• Molecular mechanisms between exposure and disease
• Data compliance and ethics

By sharing these findings or perspectives, we hope to spur further innovation and advancements in this critical and rapidly evolving field.

Organizing Editors

Miao Yu, Ph.D., Guest Editor, The Jackson Laboratory, USA
Mingliang Fang, Ph.D., Guest Editor, Fudan University, China
Zhenyu Tian, Ph.D., Guest Editor, Northeastern University, USA
Bin Wang, Ph.D., Guest Editor, Peking University, China
Douglas Walker, Ph.D., Guest Editor, Emory University, USA
Yuming Guo, Ph.D., Associate Editor, *Environment & Health,* Monash University, Australia

Submission Information

Authors who submit their manuscripts to this Virtual Special Issue may apply for an APC waiver if their paper is accepted after peer review. Appropriate consideration will be given for a waiver providing the paper has already met the scientific and editorial standards required for publication in *Environment & Health*.

For more information on submission requirements, please visit the journal's Author Guidelines page.

Papers accepted for publication for this Virtual Special Issue will be available ASAP (as soon as publishable) online as soon as they are accepted and will be included in the next available issue of the

journal. After all submissions have been published, they will then be compiled online in a dedicated landing page to form the Virtual Special Issue. Manuscripts submitted for consideration will undergo the full rigorous peer review process expected from ACS journals.

How to Submit
- Log in to the ACS Paragon Plus submission site.
- Choose *Environment & Health*.
- Select your manuscript type
- Under "Special Issue Selection," choose "Artificial Intelligence and Machine Learning for Environmental Health."

Please see our Author Guidelines for more information on submission requirements. The deadline for submissions is **October 30, 2024**.

Ready to Submit? Begin Here

Contact: Dr. Qian Liu qianliu@rcees.ac.cn

Conference Awards

ISEH ICEPH & ISEG Best Oral Presentations

ID	Name	Presentation title
31	Bin Wang	Exposome and Female Reproductive Health
151	Ignacio Machado	Distribution of inorganic contaminants along the Uruguayan coast
174	Haofan Xu	Identification of possible sources for potentially toxic elements and polycyclic aromatic hydrocarbons and their spatially varying relationships in urban soils of Dublin, Ireland
185	Qifeng Tang	Preliminary Exploration of GeoHealth Survey in the High Geological Background Area of the Black Shale Series in Northwestern Zhejiang
254	Mingming Sun	Phages in vermicomposts enrich functional gene content and facilitate pesticide degradation in soil
271	Guoyu Yin	Global biogeography and projection of soil antibiotic resistance genes
353	Guiying Li	Toxicity mechanism of human respiratory system exposed to typical pathogens in vitro
405	Devandren Subramoney Nadasan	A code for Medical Geology fieldwork in Africa: Guidelines on health and safety issues in mapping disease distribution and their geoenvironmental correlates
533	Chang He	Human Internal Exposure to Contaminants of Emerging Concerns at Typical Industrial Sites in China
621	Xolile Mkhize	The geochemical circulation of nutritional and potentially harmful elements in the human body: Current researches on bioavailability, bioaccessibility and dose-response relationships
744	Jing Jin	The Past, Current Situation, and Future of China's Health Geological Survey
775	Margaret Waskow	Examining the Potential Impact of a Peatland Policy Portal for Europe in Reducing GHG Emissions
878	Xiaokai Zhang	Risk Assessment of Biochar Remediation of Pb Contaminated Water - A Whole-cell Bioreporter based Technique

ISEH ICEPH & ISEG Best Post Presentations

ID	Name	Presentation Title
524	Taotao Yan	Characteristics of geochemical gene in a longevity village of Bama in Guangxi, China
687	Zacharenia Kypritidou	Soil mineralogy in support of a regional geochemical baseline study in Greece

Announcement of Future Conferences of ISEH and ISEG

ISEH 2026 will be held in Beijing, China, during summer 2026. Details to be announced.

ISEG 2025 will be held in Aveiro, Portugal, in end of July and early August,2025. Details to be announced.

2024-09-12