



International Union of Geological Sciences (IUGS), Initiative on Forensic Geology (IFG) Monthly Update and Information for IUGS E-Bulletin, August 2024

37th International Geological Congress (IGC), Busan, South Korea, 25-31 August 2024

The combined event on Forensic and Medical Geology took place at the 37th IGC, in Busan, South Korea, during three sessions on Monday 26 and Tuesday 27 August 2024. It was organised by the Initiative on Forensic Geology (IFG) and International Medical Geology Association. IUGS-IFG was represented by Dr Laurance Donnelly (IUGS-IFG Chair), Prof Rob Fitzpatrick (IUGS-IFG Vice-chair) and Prof Jennifer McKinley (IUGS-IFG Communications Officer and IUGS Executive Officer, 2020-2024). The event on Forensic and Medical Geology was co-organised by Dr Laurance Donnelly, Prof Hassina Mouri (IUGS Vice President and University of Johannesburg) and Prof Anna Ladenberger (IUGS Commission on Global Geochemical Baselines and Geological Survey of Sweden). The three sessions were chaired by Laurance and attended by over 100 delegates. There were 24 papers and seven posters. The delegates that attended represented the Australia, Brazil, Cameroon, Chile, China, England, Ghana, Greece, India, Italy, Mozambique, New Zealand, Northern Ireland, Poland, South Africa, Sri Lanka, Sweden. Several papers were presented, which include the following:

- A tribute to Olle Selinus (1943-2023), The Founder of Modern Medical Geology.
- Comprehensive assessment and multivariate statistical analysis of Transfer Factors soil-to-plant estimated from bioavailable concentrations: A Case Study in the Campania Region, Southern Italy.
- Investigating the relationship between health and the environment using soil and air pollution data in a changing climate.
- Coupling of neurodegenerative diseases to element distribution through geospatial statistics.
- Anthropogenic gadolinium in surface and groundwaters of Poland.
- Role of Critical Minerals in Medical Geology: Applications and Implications.
- “Rasashastra”: An ancient Indian medicinal system promoting medical geology.
- Forensic application of traceability technology in illegal marine sand mining crimes.
- The Potential Traceability of Mineral Commodities using Artificial Taggant Particles.
- Determining the geographic origin of illegally imported Chinese dinosaur nests retrieved in Australia.
- Exploration of Characteristics of Pollen Assemblages in Soil Samples of China
- Mineralogy and morphology of earth materials in vehicle wheel-rims as significant trace evidence in a double murder and arson investigation in Australia.
- Importance of geoscientific knowledge for the search for missing people in Latin America.
- Hazard and exposure assessment in contaminated land investigations and environmental management: The Lavrion case study, Hellenic Republic.
- Community to Combat Crisis: Steps to engage with our environment and progress to better human and environmental health outcomes.
- Occurrence, Sources, Mechanisms of Enrichment and Possible Human Health Impacts of Fluoride-Bearing Groundwater in the Central Parts of the White Volta River Basin of Ghana.
- Assessment of potentially harmful elements on human health and agriculture of surface and groundwater sourced from the granito-gneissic phreatic aquiferous formations in Bertoua and its environs, east region Cameroon.
- Environmental and Health Risk Assessment of Coal Mining in Moatize, Tete, Mozambique.
- The occurrence of potentially harmful elements in gold mine tailings and their possible impacts on the environment and public health with reference to the Welkom goldfields in South Africa - A review.
- Geochemical and isotopic composition assessment of groundwater consumed by a vulnerable population with chronic kidney disease of unknown origin (CKDu) in the dry zone of Sri Lanka.
- Potential risk of CO poisoning for casual workers exposed to emissions from clamp kiln: a South African perspective.
- Dimensionality reduction for visualizing gold trace element geochemistry through the chain of production in Brazil using UMAP.
- Identification of mercury in stream sediment in Yanomami Indigenous Land, Roraima, Brazil.
- “We Did not Notice This Demon in Our Backyard!” —Introducing a New Source of Geogenic Health Hazard.

IUGS-IFG and the International Medical Geology Association noted numerous synergies between forensic and medical geology and agreed to hold a future combined international event.

Most read paper in the Geological Society of London

The paper by Prof Robert Fitzpatrick and Dr Laurance Donnelly, ‘*An introduction to forensic soil science and forensic geology: a synthesis*’, was the most read in the Geological Society of London. The paper is ranked number 1, above papers on volcanology, sedimentology, dinosaurs, palaeontology, extinctions and geophysics.

[Fitzpatrick, R.W. & Donnelly, L. J. \(eds\) 2021. Forensic Soil Science and Geology. Geological Society, London, Special Publications, 492, <https://doi.org/10.1144/SP492.10.1144/SP492-2021-81>](#)