



## INTERNATIONAL UNION OF GEOLOGICAL SCIENCES INITIATIVE ON FORENSIC GEOLOGY

*This newsletter provides an overview of the International Union of Geological Sciences (IUGS), Initiative on Forensic Geology (IFG), for 2018. The aim of IUGS-IFG is to develop forensic geology internationally and promote its applications.*

<http://www.forensicgeologyinternational.org>

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*Dr Laurance Donnelly  
Chair, IUGS-IFG  
geologist@hotmail.co.uk*

### COMMITTEE

**IUGS-IFG Committee Changes:** IUGS-IFG has assigned Dr Biplob Chatterjee (Geovale Services, West Bengal, India) to the IUGS-IFG Committee as the Officer for India.

**IUGS-IFG website upgrade:** The IUGS-IFG web site is in the process of being upgraded. The new site is expected to become operational during 2018.

### PUBLICATIONS

**A Guide to Forensic Geology (In prep):** Sections completed include; (1) Introduction, (2) Historical Overview, (3) Ground Search for Burials. Chapters in the process of being completed are; (4) Crime Scene Investigation, (5) Geological Evidence Recovery, (6) Geological Evidence Analysis, (7) Geological Fakes and Fraud, and (8) Reporting and Giving Evidence in Court. The draft is scheduled to be completed in 2018, and publication by the Geological Society of London is expected in 2019.

**Geological Society Special Publication on Forensic Soil Science and Geology (In prep):** This includes papers presented at the 34th International Geological Congress, held in Cape Town, in 2016. The publication of this book is expected in 2019.

**Episodes:** The themed issue on Forensic Geology is available at:

<http://www.episodes.org/journalArchiveArticle.do>

### AWARDS AND RECOGNITION

**Professor Lorna Dawson** received a Pride of Britain Special Recognition Award for her dedication to forensic soil science, assisting police in their case work and in the effective communication of forensic geoscience. Professor Dawson was also awarded a CBE in the Queen's Birthday Honours List, for services to Soil and Forensic Science.

**Rosa Maria di Maggio and Pier Matteo Barone** were presented with the Italian Investigation and Forensic Award for their excellence in Forensic Geology. The award was organised by the Italian Forensic Associations and Forensic Magazines with a panel including experts from national law enforcement, forensic police departments, crime journalists, academic professors and lawyers.

**Dr Jennifer McKinley** received the Stemist Award set up to celebrate 70th Anniversary of the Geological Survey of Northern Ireland (GSNI). It was awarded to acknowledge Jennifer's strategic partnership with GSNI and international networking including both IFG and International Association of Mathematical Geosciences (IAMG).

**Microtrace LLC**, celebrated its 25<sup>th</sup> Anniversary. It was established by Skip Palenik in 1992 and has grown to become a globally recognised state-of-the-art microanalytical laboratory.

### ACTIVITIES AND NEWS: JANUARY TO JUNE 2018

**3rd Ibero-American Seminar on Forensic Geoscience, in La Plata, Argentina:** This event was the latest IFG knowledge transfer event focusing on the development of forensic geology throughout Latin America. Other

events have been held in Colombia (2009), Mexico (2010), Brazil (2013, 2015, 2016 & 2017) and Uruguay (2010). An event was also held in the UK in 2016 to discuss methods to help to locate and recover people that disappeared in Chile in the 1970s. These events typically involve an IUGS-IFG multi-disciplinary forensic geology team working in collaboration with Federal Police, national institutions and local experts. A combination of knowledge exchange, capacity building and formal training is provided in geological trace evidence, crime scene examination and the design and implementation of ground searches for burials. These are related to serious crimes such as criminal, humanitarian and environmental incidents, the search for missing persons and unknown graves associated with organized crime, mass burials, torture and homicide, environmental crimes such as deforestation and pollution, drug trafficking, violation of human right, terrorism, smuggling, fraud, embezzlement, robbery, sexual crimes,; precious mineral, fossil and metal theft and fakes. A booklet of abstracts that was presented to delegates in Argentina. It is anticipated, the 4th Ibero-American Seminar on Forensic Geoscience to take place in Mexico in 2019.

<http://www.conicet.gov.ar/wp-content/uploads/Booklet-Argentina-Seminar.pdf>



IUGS IFG team in Argentina

**Brazilian Federal Police and Forensic Geology:** IUGS-IFG Officer for Latin America, Dr Fábio Augusto da Silva Salvador, delivered presentations on forensic geology at the Quadrennial Conference of the International Geoscience Education Organization (IGEO) and the Brazilian Geological Congress.

**Police Scotland:** A series of soil sampling and recovery awareness raising days were held with the Scottish Police Service on 7 and 8 February 2018, at the Police Training College, Tulliallan, Scotland.

**IUGS-IFG and the Italian House of Representatives:** On 22 February 2018, the Italian House of Representatives (the Italian Parliament) invited Dr Rosa Maria Di Maggio, IUGS-IFG Officer for Europe, to deliver a presentation on forensic geology, entitled, *'The Missing: Social, Technical and Juridical Issues'*. The conference, organised by Italian political parties, was aimed at highlight the Italian 'state of art' at planning, implementing and managing the search for missing persons.



IUGS IFG Represented at the Italian House of Representatives

**European Network of Forensic Science Institutes (ENFSI), Animal, Plant and Soil Traces (ASPT), Working Group at the James Hutton Institute:** Professor Lorna Dawson, IUGS-IFG Treasurer, hosted a group at the James Hutton Institute on 20 to 22 February. The ENFSI working group provide a soil handling best practice manual for European Accredited Forensic Laboratories. This is a two-year project funded by the EU.

**Forensic Canine Detection:** IUGS-IFG supported Staffordshire University to develop research aimed at better understanding geological and hydrogeological influences on the deployment of victim recovery dogs during searches for unmarked homicide graves.

**European Network of Forensic Science Institutes, Animal Plant Soil Trace Group, (EBFSI APST):** IUGS-IFG was represented a meeting in Pontoise, France, to produce a best practice manual for collection and analysis of soil in Europe.

**University of Amsterdam Taphonomy Faculty:** IUGS-IFG was represented at the University of Amsterdam Taphonomy Faculty, in the Netherlands. The aim of the visit was to discuss methods of analysis of soil and diatoms in trace evidence and the interpretation of soil trace evidence

**Dr Ray Murray:** Dr Raymond C Murray, Forensic Geologist, died on 7 April 2018, aged 88. His first forensic case was in 1973 when he analysed soil on behalf of an agent from the US Bureau of Alcohol, Tobacco and Firearms. He co-authored the first text book on forensic geology in 1975. Dr Murray was inspirational, charismatic and a leading pioneer in forensic geology. Forensic geology would not have advanced to the level it is today if it was not for the work of Dr Murray. He encouraged the establishment of the Geological Society of London, Forensic Geoscience Group (FGG) and in 2010 he became the first recipient of the FGG award. He was the IFG Honorary Committee Member, and he supported IFG throughout the world. His legacy and global contributions to forensic geology will continue for generations within the police, law enforcement and geology.

<https://www.microtracell.com/in-memoriam-ray-murray/>



Dr Raymond C Murray (Source: [www forensicgeology.net](http://www.forensicgeology.net))

**Forensic Geology in Japan:** Ritsuko Sugita (IUGS-IFG Officer for Japan) delivered an invited lecture on Forensic Geology at an annual workshop of Kawasaki Geological Engineering Co., Ltd. on 28 June. Kawasaki Geological Engineering Co., Ltd. is one of the biggest geological consulting companies in Japan, utilizing geophysical ground search techniques and pollen analysis for their consulting business.

**Forensic Geology: Ethics, Communication, Regulation, and Opportunities, RFG2018, Vancouver:** At RFG2018, IUGS-IFG jointly with the International Association for Promoting (IAPG) organised the session, '*RS12: Forensic Geology; Ethics, Communication, Regulation and Opportunities*'. The session included; issues of geoscience data and expert opinion communication, assessed the strengths and limitations of geoscience data in forensic investigations, sampling strategies and geostatistics, ground search, application of geoscience databases, accreditation and regulation in forensic geology, alignment with forensic science, case studies, illegal trade in geological commodities, international wildlife crime, legal issues, interpretation and communication, managing casework, security and approaches in dealing with fatalities, use of GIS and application of stable isotopes in provenance, dealing with sensitive human issues, handling human remains and sensitive data. IUGS-IFG and IAPG discussed the development of a Code of Ethics for Forensic Geology, starting from a white-paper to be produced jointly by IUGS IFG and IAPG.

[Links to the conference can be found: http://rfg2018.gibsongroup.ca/index.php](http://rfg2018.gibsongroup.ca/index.php)

**UK Home, Centre for Applied Science & Technology, Search Technology Academic Research Team (START):** In 2017, as part of the UK Governments remit to cut crime and deliver justice, the Home Office Centre of Applied Science and Technology (CAST) engage with academia and IUGS-IFG to seek new ways to protect the public while assisting efficient policing. Over 300,000 people on average go missing each year in the UK alone and many of these are never found. CAST Front Line Services is determined to redress the balance by creating new techniques and equipment for both ground and water search. The Search Technology Academic Research Team (START) was established by CAST to address gaps in technology or equipment highlighted by the Search Technology User Group (STUG). Members of IUGS-IFG were selected and invited as subject matter experts to

participate in this group. Other experts included forensic archaeologists, botanists and chemists. One aim will be to provide for Police guidance on the applications of geology to help investigate and solve crime and to locate burials. In 2018, CAST merged with the Ministry of Defence, Design Science and Technology (DSTL).

#### EVENTS, ACTIVITIES AND NEWS: JUNE TO DECEMBER 2018

**7th European Meeting on Forensic Archaeology (EMFA 2018):** IUGS-IFG supported the 7th European Meeting on Forensic Archaeology (EMFA 2018) taking place from 23 to 24 August in Belfast, Northern Ireland.

<https://www.qub.ac.uk/schools/NBE/Discover/Events/>

<http://enfsi.eu/agenda/7th-european-meeting-on-forensic-archaeology/>

**Conflict Minerals, Concentrate Substitution, Assay Sample Adulteration and Minerals Fraud, Mexico:** IUGS-IFG will be represented in Mexico to consider geological methods and techniques to investigate, manage and mitigate risks associated with mineral and mining, fraud and theft

**International Geological Congress, India:** India, along with its co-host neighbouring countries Bangladesh, Nepal, Sri Lanka & Pakistan will host the 36th International Geological Congress (IGC) in National Capital Region (NCR), Delhi from 2-8 March, 2020. IUGS-IFG held sessions at the 35th IGC (Cape Town, 2016) and the 34th IGC (Brisbane, 2012) and propose to hold an event in Delhi in 2020. Dr Laurance Donnelly will meet Dr Chatterjee in India, in October-November 2020, to discuss the session on forensic geology at the 36<sup>th</sup> IGC in Delhi.

**Recent Work in Archaeological Geophysics, Geological Society of London, 4 December 2018:** The Near Surface Geophysics Group of the Geological Society of London (NSGG) is pleased to announce the thirteenth in a succession of biennial day meetings devoted to archaeological geophysics. Near surface geophysical techniques have become increasingly established in archaeological research and evaluation over the past decade and are now routinely applied in archaeological investigations. This meeting offers a forum where contributors from the UK and further afield can present and debate the results of recent research and case studies. Suppliers of equipment and software also attend and the meeting therefore represents an invaluable opportunity for both archaeological and geophysical practitioners to exchange information about recent developments.

<http://www.nsgg.org.uk/meetings/>

**Criminal & Environmental Forensics, Geological Society of London, 5 December 2018:** This multidisciplinary meeting will capture shared interests between the geological, environmental science, engineering, geotechnical, mining and archaeological communities with those practitioners working in the criminal and environmental fields. Expected sessions will include use of such techniques to the intelligence community, novel methods of analysing forensic geoscience material, case and controlled studies, remote sensing, geochemistry, geophysics, etc.

<http://www.nsgg.org.uk/meetings/>

**Forensic Geology, From Crime Scene to Courtroom, American Geophysical Union (AGU), Washington DC, USA, December 2018:** A session on Forensic Geology will be held at the American Geophysical Union, 10-14 December 2018, in Washington DC. The goal is to make this a wide-ranging session highlighting a variety of methods including case studies and current practices. Geosciences are applied in the criminal justice system in numerous ways. Soil and other geologic materials found on items of evidence can be compared to samples collected at a crime scene, while geophysical, remote sensing, and spatial analysis can aid in locating clandestine burial sites. Provenance studies focus on identifying potential source locations for geological evidence by comparing them with the known distribution of soils, rock types, and pollen. Because of the limited quantity of materials often obtained, many methods commonly used in geology and geochemistry are unsuitable for forensic characterization of geologic materials. This session highlights geoscience methods that can be applied in the criminal justice system including case studies, current practices, and forward-looking methods. Novel forensic geology methods may include LIDAR, multi-spectral imaging, predictive spatial analysis. Analysis of forensic soils may be enhanced with DNA-based taxonomic identification, Raman microscopy, micromorphometry, among others. The abstract deadline is 1 August 2018. IUGS-IFG will be represented at this event by Dr Laurance Donnelly

<https://agu.confex.com/agu/fm18/prelim.cgi/Session/46981>

**4th IberoAmerican Congress on Forensic Geology, Mexico:** IUGS-IFG propose to support the 4th IberoAmerican Congress on Forensic Geology, in Mexico, in October 2019. This included collaboration with the 'Annual Meeting of Mexican Geophysics.'

<https://www.raugm.org.mx/>

### CONTACT DETAILS

For further information

<http://www.forensicgeologyinternational.org>

<http://www.forensicgeologyinternational.org>

[geologist@hotmail.co.uk](mailto:geologist@hotmail.co.uk)



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#### Chair

##### **Dr Laurance Donnelly**

IUGS, Initiative on Forensic Geology  
Manchester  
United Kingdom  
T: +44 (0)7970 038 236  
E: [geologist@hotmail.co.uk](mailto:geologist@hotmail.co.uk)

#### Vice Chair

##### **Dr Rob Fitzpatrick**

CSIRO Land and Water  
Private Bag No. 2  
Glen Osmond  
South Australia, 5064  
T: +61-8-8303 8511  
E: [rob.fitzpatrick@csiro.au](mailto:rob.fitzpatrick@csiro.au)

#### Treasurer

##### **Prof Lorna Dawson**

The James Hutton Institute  
Craigiebuckler  
Aberdeen AB15 8QH  
Scotland, UK  
T: +44 (0) 1224 395 328  
E: [Lorna.Dawson@hutton.ac.uk](mailto:Lorna.Dawson@hutton.ac.uk)

#### Secretary

##### **Ms Marianne Stam**

California Department of Justice  
Riverside  
California  
USA  
E: [marianne.stam@doj.ca.gov](mailto:marianne.stam@doj.ca.gov)

#### Training & Publications

##### **Dr Alastair Ruffell**

School of Natural and Built  
Environment  
Queens University Belfast  
University Road  
Belfast BT7 1NN  
T: +44 (0) 28 9024 5133  
E: [a.ruffell@qub.ac.uk](mailto:a.ruffell@qub.ac.uk)

#### Communications

##### **Dr Jennifer McKinley**

School of Natural and Built  
Environment  
Queens University Belfast  
University Road  
Belfast BT7 1NN  
T: +44 (0) 28 9024 5133  
E: [j.mckinley@qub.ac.uk](mailto:j.mckinley@qub.ac.uk)

