



INITIATIVE ON FORENSIC GEOLOGY

INTERNATIONAL UNION OF GEOLOGICAL SCIENCES (IUGS)

INITIATIVE ON FORENSIC GEOLOGY (IFG)

Annual Report 2012

Dr Laurance Donnelly, Chair IUGS-IFG

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**INTERNATIONAL UNION OF GEOLOGICAL SCIENCES (IUGS)
INITIATIVE ON FORENSIC GEOLOGY (IFG)**

Annual Report 2012

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CONTENTS

1	TITLE OF CONSTITUENT BODY.....	1
2	OVERALL OBJECTIVES.....	1
2.1	Mission Statement.....	1
2.2	Goals	1
3	ROLE WITHIN IUGS SCIENCE POLICY.....	1
3.1	Background.....	1
3.2	Main Approach	2
4	ORGANIZATION	3
4.1	IFG Committee Changes	3
4.2	Collaboration with Australian Federal Police (AFP) & Federal Bureau of Investigation (FBI)	3
5	EXTENT OF NATIONAL/REGIONAL/GLOBAL SUPPORT FROM SOURCES OTHER THAN IUGS	3
6	INTERACTION WITH OTHER INTERNATIONAL PROJECTS	6
7	CHIEF ACCOMPLISHMENTS FOR 2012	7
7.1	Objectives for 2012.....	7
7.2	American Clay Minerals Society (CMS) Conference, Nevada, September, 2011	7
7.3	International Annual Meetings of the Soil Science Society of America, Texas, October, 2011 ...	7
7.4	IUGS Executive Committee Meeting, Spain, February 2012	7
7.5	American Academy of Forensic Sciences (AAFS), Atlanta, Georgia, USA, February 2012.....	7
7.6	National Policing Improvements Agency (NPIA), UK, Training Day, April 2012	7
7.7	Servicio de Criminalística of Guardia Civil, Madrid, Spain, April, 2012	8
7.8	Geological Association of Canada (GAC), St John’s, Newfoundland, Canada, May 2012.....	8
7.9	Environmental Forensic Field Investigation, Lethbridge College, Canada, May-June 2012.....	8
7.10	SWGCEO meeting, Atlanta, Georgia, USA, June 2012.....	8
7.11	IUGS Council Meetings, Brisbane, Australia, August 2012	8
7.12	34th International Geological Congress (IGC) Brisbane, Australia, August 2012	8
7.13	Australian Federal Police (AFP) Brisbane, August 2012.....	9
7.14	European Academy of Forensic Sciences Conference (EAFS), Netherlands, August 2012.....	9
7.15	Russian Federal Centre of Forensic Science, Ministry of Justice, Moscow, October 2012	9
7.16	GSA Annual Conference & Exposition, Charlotte, North Carolina, USA, November 2012	9
7.17	UK Outreach and Knowledge Transfer	9
7.18	The German Media	9
7.19	Interpol	10
7.20	A Guide to Forensic Geology	10
7.21	Environmental Forensics	10
7.22	Sub-groups.....	10
7.23	Global Geoforensic Support	10

8	MAIN PRODUCTS IN 2012.....	11
8.1	Confidential Documents	11
8.2	Website.....	11
8.3	Logo	11
8.4	Flier	11
8.5	Geoforensic International Network (GIN)	11
8.6	Publications	12
8.7	Episodes.....	12
8.8	IUGS-IFG Training Certificates	12
9	MAIN PROBLEMS ENCOUNTERED IN 2012	13
9.1	Principal Leadership Challenge.....	13
9.2	Confidentiality	13
9.3	Press and Media	13
9.4	Publications	13
9.5	Conferences.....	13
9.6	Competence, Accreditation and Regulation.....	13
10	SUMMARY OF EXPENDITURES IN 2012	15
10.1	IFG Annual Accounts.....	15
10.2	Bank Account	15
11	WORK PLAN FOR NEXT YEAR (2013)	16
11.1	Principal Objectives	16
12	CRITICAL MILESTONES.....	16
13	ANTICIPATED RESULTS TO BE ACHIEVED FOR 2013.....	16
13.1	2nd IberoLatin American Conference on Forensic Geology, Brazil	17
13.2	Brazilian Federal Police Training, Brazil	17
13.3	Russian Federal Centre of Forensic Science, Ministry of Justice, Moscow, Russia	17
14	BUDGET FOR 2013	18
14.1	IFG Budget request for 2013	18
	APPENDIX I: SELECTED PHOTOGRAPHS	19
	APPENDIX II: IUGS-IFG & AFP TRAINING FLIER.....	25
	APPENDIX III: EXAMPLE OF THE IUGS-IFG & AFP TRAINING CERTIFICATES.....	27
	APPENDIX IV: IUGS-IFG FLIER.....	29

INTERNATIONAL UNION OF GEOLOGICAL SCIENCES (IUGS)
INITIATIVE ON FORENSIC GEOLOGY (IFG)
ANNUAL REPORT FOR 2012

1 TITLE OF CONSTITUENT BODY

The International Union of Geological Sciences (IUGS), Initiative on Forensic Geology (IFG) was officially launched during the 62nd Executive Committee Meeting of the IUGS, which was held at UNESCO headquarters, in Paris, France, on 22 February 2011.

2 OVERALL OBJECTIVES

2.1 Mission Statement

IUGS-IFG seeks to; 'to develop forensic geology internationally and promote its applications'.

2.2 Goals

The principal objectives of the IUGS-IFG are to:

1. Collate and disseminate data and information on forensic geology applied to policing and law enforcement, criminal, environmental and civil investigations;
2. Promote international meetings, seminars, conferences and training;
3. Develop a 'Committee' to act as principal advisers, collaborators and active participants;
4. Develop an international network whereby each 'member' will act as a principal contact in their respective country for the collation and dissemination of information on forensic geology;
5. Collate, make available and where appropriate review any existing documentation and publications in forensic geology; and
6. Produce a document endorsed by the Committee to be called; '*A Guide to Forensic Geology*'.

3 ROLE WITHIN IUGS SCIENCE POLICY

3.1 Background

Although the documented history of forensic geology can be traced to the latter half of the 19th Century, in the past ten years or so has there been significant interests and developments in the multidisciplinary fields of forensic geology throughout the world.

Since the millennium there have been numerous international meetings, conferences and seminars on different aspect of forensic geology. Furthermore, several text books have been published on the subject and numerous technical papers in scientific journals, conference proceedings, magazines and newspapers have been published.

3.2 Main Approach

IUGS-IFG aims to raise the global awareness of forensic geology by holding meetings and conferences, promoting research, teaching, training and the operational deployment of forensic geologists. This will be consistent with the broad objectives of IUGS as follows:

- **Capacity building.** By raising levels of awareness, knowledge and providing information about forensic geology;
- **Technology transfer.** The actual improvement in skill sets; and
- **Outreach.** Educating and informing the police and law enforcement organisations and the 'general public' about forensic geology.

IUGS-IFG is currently planning to provide capacity building, technology transfer and outreach events in different parts of the world over the next 3-5 years.

4 ORGANIZATION

IUGS-IFG has established a Committee to manage and develop the working group. This comprises representatives from major geographical regions of the world to give global coverage. It includes specialists and experts from academia, industry, consultancy, operationally based geologists, the police, law enforcement agencies and forensic organisations. The structure of the committee in 2012 is provided in Figure 1 and Table 1.

4.1 IFG Committee Changes

Lorna Dawson will replace Duncan Pirrie as Treasurer in 2013. Duncan Pirrie will remain on the committee.

Jennifer McKinley will replace Lorna Dawson as Communications Officer in 2013.

The management of the IFG web site and the Information Officer will be Elisa Bergslien.

Jan Mahoney will step down from the IFG committee.

4.2 Collaboration with Australian Federal Police (AFP) & Federal Bureau of Investigation (FBI)

Commander Mark Harrison MBE of the AFP and Jodi Webb, forensic geologist with the FBI, both formally became affiliated to IUGS-IFG as the Law Enforcement Adviser and FBI Adviser.

Both Mark and Jodi help guide and steer IUGS-IFG and provide practical advice and assistance as well as assisting with critical training and development needs.

IUGS-IFG committee now includes police, law enforcement and forensic agencies from the USA, Colombia, Brasil, South Africa, UAE, Italy, UK, Russia, Japan and Australia.

5 EXTENT OF NATIONAL/REGIONAL/GLOBAL SUPPORT FROM SOURCES OTHER THAN IUGS

During 2012 support for IUGS-IFG was provided by both individuals and their employers/organisations. The in-kind value of this support is considerable. We estimate that the Committee Officers have put in at least 100 person days in the last year attending IFG conferences, training courses, provision of outreach, along with the management of the initiative.

The value of this in-kind support is difficult to quantify. IFG are fortunate in bringing together the leading forensic geologists world-wide and a commercial value to the time spent on the IFG to date would be in excess of £80,000 UK sterling equivalent.

In addition, participation in the various IFG events during the year has also been supported directly by Committee employers and via research funding. We estimate the value of this direct funding support to be in excess of £25,000.

Throughout 2012, IUGS-IFG received support from numerous organisations, which include the following:

- **Commercial companies:** Wardell Armstrong International (UK), Helford Geoscience LLP (UK), Microtrace (USA), Geologia Forense (Italy).

- Police and law enforcement agencies:** California Department of Justice (USA), Federal Bureau of Investigation (USA), Australia Federal Police (Australia), Queensland Police (Australia), Western Australia Police (Australia), Victoria Police (Australia), South Australia Police (Australia), Tasmania Police (Australia), Washington State Patrol (USA), Abu Dhabi Police (UAE), Russian Federal Centre of Forensic Science (Russia), National Research Institute of Police Science of Japan (Japan), South African Police Service (South Africa), Servizio Polizia Scientifica (Italy), Netherlands Police Agency, Specialist Criminal Investigations Department (Netherlands).
- Universities and research Institutes:** CSIRO (Australia), Centre for Australian Forensic Soil Science (CAFSS; Australia), The University of Adelaide (Australia), Flinders University (Australia), Buffalo State College (USA), Queens University Belfast (UK), James Hutton Institute (Scotland, UK), University of Canberra (Australia), University of Hawaii (USA), University of Technology, Sydney (Australia), University of Canterbury (New Zealand), The University of Tasmania (Australia), The University of South Australia (Australia), Chemistry Centre Western Australia, The National Institute of Forensic Science (Australia) and the Geological Society of London (UK).

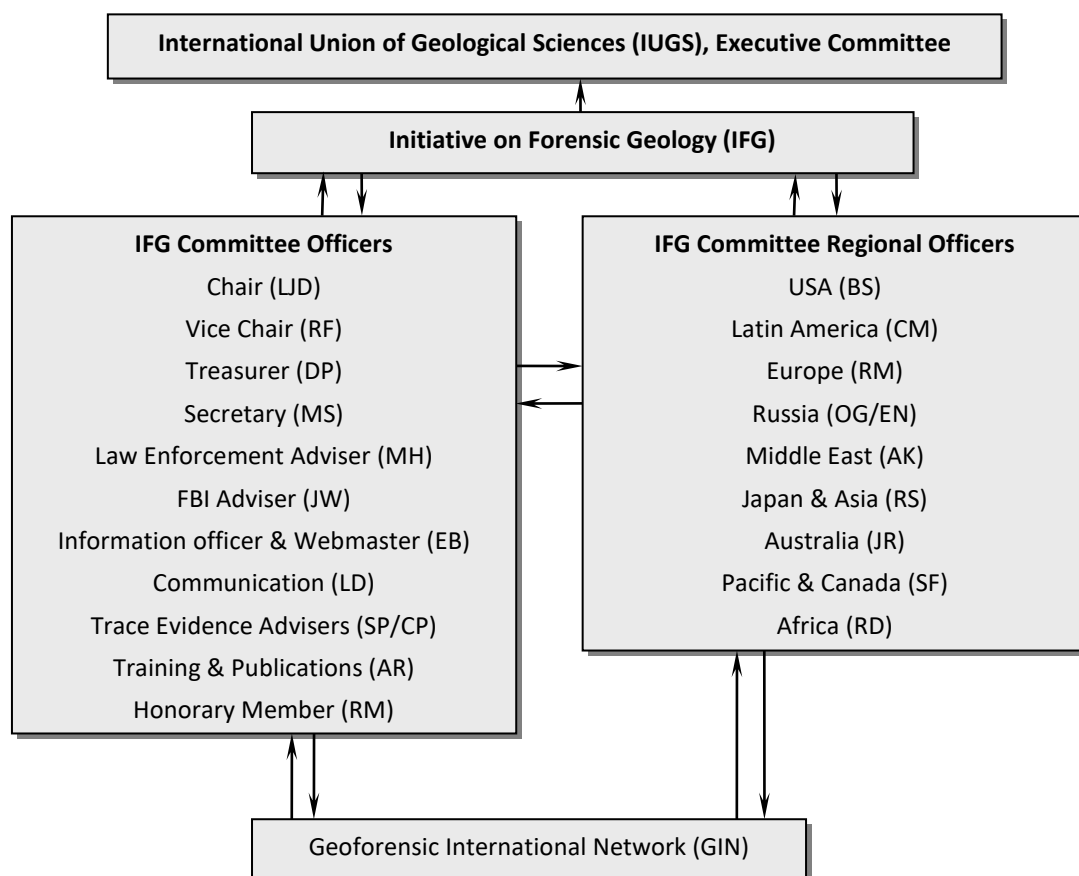


Figure 1. The general structure of IUGS-IFG Committee in 2012



POSITION	NAME	COUNTRY	AFFILIATION	EMAIL
Chair	Dr Laurance Donnelly	England (UK)	Wardell Armstrong International	ldonnelly@wardell-armstrong.com
Vice Chair	Prof Rob Fitzpatrick	Australia	CSIRO	Rob.Fitzpatrick@csiro.au
Treasurer	Dr Duncan Pirrie	England (UK)	Helford Geoscience LLP	L.Dawson@macaulay.ac.uk
Secretary	Ms Marianne Stam	USA	California Department of Justice	marianne.stam@doj.ca.gov
Information Officer & Webmaster	Dr Elisa Bergslien	USA	Buffalo State College	BERGSLET@buffalostate.edu
Geoforensic Law Enforcement Adviser	Commander Mark Harrison, MBE	Australia	Australia Federal Police	Mark.Harrison@afp.gov.au
FBI Adviser	Dr Jodi Webb	USA	Federal Bureau of Investigation (FBI)	Jodi.Webb@ic.fbi.gov
Training and Publications	Dr Alastair Ruffell	UK (Ireland)	Queens University Belfast	a.ruffell@qub.ac.uk
Communications	Prof Lorna Dawson	UK (Scotland)	Hutton Institute	j.mckinley@qub.ac.uk
Geological (Trace) Evidence Advisers	Dr Skip Palenik Dr Chris Palenik	USA	Microtrace	SPalenik@microtracescientific.com CPalenik@microtracescientific.com
Honorary Committee Member	Dr Raymond Murray	USA	Forensic Geologist, Montana	rmurray@bresnan.net
Officer, USA	Dr Bill Schneck	USA	Washington State Patrol Crime Lab	Bill.Schneck@wsp.wa.gov
Officer, Latin America	Mr Carlos Molina Gallego	Colombia	Instituto Nacional de Medicina Legal y Ciencias Forense	marmolgal@gmail.com
Officer, Europe	Ms Rosa Maria Di Maggio	Italy	Geoscienze Forensi Italia formerly Servizio Polizia Scientifica	rosamaria.dimaggio@gmail.com
Officer, Russia	Dr Olga Gradusva Dr Ekaterina Nesterina	Russia	Russian Federal Centre of Forensic Science	APOSTOL137@yandex.ru bio_soil@rambler.ru
Officer, Middle East	Captain Ahmed Saeed Al Kaabi	UAE	Abu Dhabi Police, United Arab Emirates	khudooma@gmail.com
Officer, Japan and Asia	Ritsuko Sugita	Japan	National Research Institute of Police Science, Japan	sugita@nrrips.go.jp
Officer, Australia	Prof James Robertson	Australia	University of Canberra	James.Robertson@canberra.edu.au
Officer, Pacific & Canada	Prof Shari Forbes	Australia	University of Technology, Sydney	Shari.Forbes@uoit.ca
Officer, Africa	Dr Roger Dixon	South Africa	Forensic Science Laboratory, South African Police Service	DixonR@saps.org.za

Table 1. IUGS-IFG committee members in 2012 and their professional affiliations

6 INTERACTION WITH OTHER INTERNATIONAL PROJECTS

During 2012, IUGS-IFG interacted and collaborated with the following organisations and projects:

- Geological Society of London, Forensic Geoscience Group (FGG);
- Soil Forensics International Conference, the Hague, Netherlands;
- 34th International Geological Congress in Brisbane;
- Australian Federal Police Training Programme 2012;
- USA Scientific Working Group-Geological Materials (SWGCEO);
- CSIRO/CAFSS in Australia to produce standard guidelines in geological trace collection, sampling and analysis;
- Collaboration with the UK Home Office and the Geological Society of London on regulation and accreditation in forensic sciences and forensic geology;
- Organisers for the 2nd Ibero Latin American Conference on Forensic Geology in Brasil in 2013;
- Ministry of Justice, soil forensic conference, in Moscow, Russia, 2013

7 CHIEF ACCOMPLISHMENTS FOR 2012

7.1 Objectives for 2012

IUGS-IFG's principal objectives for 2012, determined at the inaugural meeting in Rome, in September 2012, were as follows:

- Organise and provide a session on Forensic Geoscience at 34th International Geological Congress, in Brisbane, Australia;
- Design and deliver a training course on Forensic Geology, focusing on 'Ground Searches for Burials', consistent with the requirements of the Australian Federal Police;
- Provide a series of outreach lectures on different aspects of Forensic Geology at the Geological Association of Canada (GAC), Annual Meeting, St. John's, Newfoundland, Canada;
- Collaborate with the Geological Society of London, Forensic Geoscience Group and provide a series of outreach lectures at the International Conference on Criminal and Environmental Soil Forensic in the Hague, the Netherlands;
- Commence the writing of '*A Guide to Forensic Geology*'; and
- Produce a publication for Episodes on 'Forensic Geology'.

Throughout the latter part of 2011 and 2012, IUGS-IFG completed the following outreach, knowledge transfer and training events:

7.2 American Clay Minerals Society (CMS) Conference, Nevada, September, 2011

Rob Fitzpatrick represented IFG at the American Clay Minerals Society (CMS) Conference on 24-29 September 2011, held at Lake Tahoe, Nevada, USA, and presented papers on forensic soil science.

7.3 International Annual Meetings of the Soil Science Society of America, Texas, October, 2011

Rob Fitzpatrick represented IFG at International Annual Meetings of the Soil Science Society of America on 16-19 October 2011, held at San Antonio, Texas, USA and presented papers on forensic soil science.

7.4 IUGS Executive Committee Meeting, Spain, February 2012

IFG was represented by Peter Bobrowsky (IUGS Secretary General) at the IUGS 63rd Executive Committee meeting. Peter provided a presentation supplied by Laurance Donnelly. This event was held on 14-17 February, in San Sebastian, Spain. IUGS noted the excellent work undertaken by IFG during its inaugural year and endorsed IFG's continuation.

7.5 American Academy of Forensic Sciences (AAFS), Atlanta, Georgia, USA, February 2012

Marianne Stam represented IFG and participated in a two-day soils workshop and teaching in association with other American forensic scientists, at the American Academy of Forensic Sciences meeting, held in Atlanta, Georgia in February 2012. At this event a workshop on soil forensics was given by Skip Palenik.

7.6 National Policing Improvements Agency (NPIA), UK, Training Day, April 2012

Laurance Donnelly and Alastair Ruffell were invited by NPIA to attend a two-day training course on Forensic Archaeology at the NPIA training centre in Coventry, United Kingdom. This was organised by NPIA, Arts & Humanities Research Council, Serious Organised Crime Agency (SOCA) and the UK Missing Persons Bureau.

7.7 Servicio de Criminalística of Guardia Civil, Madrid, Spain, April, 2012

The seminar 'Análisis criminalístico de suelos' was held at the University of Alcalá, Alcalá de Henares, in Madrid, Spain, on 12-13 April. The seminar and training session was organised by the Instituto Universitario de Investigación en Ciencias Policiales (IUICP) and the Servicio de Criminalística of Guardia Civil. IFG was represented by Lorna Dawson and Rosa Maria Di Maggio who demonstrated advances in soil forensics, the range of analytical procedures adopted by the different forensic science laboratories and the potential of forensic soil analysis within criminal investigations.

7.8 Geological Association of Canada (GAC), St John's, Newfoundland, Canada, May 2012

On 27-29 May 2012, IUGS-IFG supported the Geological Association of Canada (GAC) and Mineralogical Association of Canada (MAC) conference, entitled 'Geoscience on the Edge', held at St. John's, Newfoundland, Canada. IFG was represented by Bill Schneck, Elisa Bergslien, Alastair Ruffell, Shari Forbes and Laurance Donnelly who delivered a series of lectures on geological trace evidence and search. The forensic geology session was attended by approximately 50 delegates with excellent feedback.

7.9 Environmental Forensic Field Investigation, Lethbridge College, Canada, May-June 2012

IUGS-IFG Honorary Committee Member, Dr Ray Murray, delivered a series of presentation on environmental forensics field investigations at Lethbridge College, Alberta, Canada, on 28 May to 1 June 2012. This course was attended by game wardens from Canada and around the world.

7.10 SWGGEO meeting, Atlanta, Georgia, USA, June 2012

The Scientific Working Group on Geological Materials (SWGGEO), held a meeting in Atlanta, USA. This was attended by a number of IFG committee members who also serve on the SWGGEO committee including Bill Schneck, Skip Palenik, Marianne Stam, Ray Murray, Elisa Bergslien and Alastair Ruffell. Continued collaboration between SWGGEO and IFG was recognised to be beneficial for the global advancement and development of forensic geology.

7.11 IUGS Council Meetings, Brisbane, Australia, August 2012

IUGS Council meetings were held on Sunday 5 August, at Brisbane International Conference Centre. IFG's chair (Laurance Donnelly) and vice-chair (Rob Fitzpatrick) were invited to attend and they provided IUGS committee members with an overview of the global status of forensic geology and IFG's activities and events. IUGS unanimously accepted the IFG proposals and commented on the excellent progress made by IFG in a relatively short time frame.

7.12 34th International Geological Congress (IGC) Brisbane, Australia, August 2012

Interesting facts and statistics for the 34th IGC, held in Brisbane, 5-10 August 2012 are as follows:

- 6012 participants;
- 112 countries were represented;
- 3712 oral papers were presented by 3232 authors;
- 1439 scientific posters were displayed;
- The 34th IGC was the largest and most complex international scientific meeting ever held in Brisbane and the first to occupy every single meeting room at the Brisbane Convention and Exhibition Centre.

The session on Forensic Geoscience, organised by Rob Fitzpatrick and co-convened by Laurance Donnelly and Dallas Mildenhall was held on Monday 6 August 2012. The keynote was prepared by

Laurance Donnelly and Jodi Webb (of the FBI) and a total of 9 papers were given on subjects including search, conventional geological trace evidence, palynology, diamonds and environmental forensics. The lecture theatre was full to capacity and was attended by in excess of 125 delegates.

7.13 Australian Federal Police (AFP) Brisbane, August 2012

IFG provided a series of knowledge transfer lectures and training for the AFP on 8-9 August 2012. IFG were represented by Laurance Donnelly, Mark Harrison, Rob Fitzpatrick, Shari Forbes, David Nobes, and Jennifer McKinley. A training course was delivered called, 'Design, Management and Management of Ground Searches using Geophysical Equipment'. This training focused on ground searches for homicide graves, fire-arms, weapons, drugs, money and items of value. Approximately 25 selected delegates attended comprising forensic and major crime investigators, anthropologists, archaeologists, detectives and forensic scientists. Attendees represented the AFP, Queensland Police, Western Australia Police, Victoria Police, Brazilian Federal Police, Netherlands Police Agency and Japan Criminal Investigation Bureau. IFG certificates for those who attended and presented on this course are in the process of being produced (Appendix I, II & III).

7.14 European Academy of Forensic Sciences Conference (EAFS), Netherlands, August 2012

The 6th European Academy of Forensic Sciences (EAFS) conference was held in The Hague, Netherlands on 20-24 August 2012. This was undertaken in collaboration with Lida van den Eijkel (Netherlands Forensic Institute) and in association with the Geological Society of London (GSL), Forensic Geoscience Group (FGG). The programme focused on soils as trace, search, taphonomy and archaeology. The International Union of Geological Sciences (IUGS), Initiative on Forensic Geology (IFG) and Geoforensic International Network (GIN) representatives included: Skip Palenik (held a special workshop on the power of using Polarising microscopes), Lorna Dawson, Shari Forbes, Rosa Maria Di Maggio, Ray Murray, Alastair Ruffell, Jennifer McKinley, Ruth Morgan, Olga Gradusova, Brenda Woods, David Hawkesworth, Patricia Wiltshire and Rob Fitzpatrick (Appendix I).

7.15 Russian Federal Centre of Forensic Science, Ministry of Justice, Moscow, October 2012

In February 2012, Laurance Donnelly wrote to the Director of the Ministry of Justice, for IFG's potential involvement in an outreach or knowledge transfer event in Moscow in 2013. On Monday 1 October 2012, Laurance Donnelly held a meeting with Olga Gradusova and Ekaterina Nesterina (IFG Committee members, representatives for Russia, based at the Ministry of Justice). As a result, IFG were invited to participate in a soil forensics conference, in Moscow, in October 2013.

7.16 GSA Annual Conference & Exposition, Charlotte, North Carolina, USA, November 2012

Elisa Bergslien represented IFG at the Geological Society of America (GSA) in Charlotte, North Carolina and presented on forensic geoscience.

7.17 UK Outreach and Knowledge Transfer

Throughout 2012, a series of forensic geology outreach and knowledge transfer lectures were given in the UK to; National Policing Improvements Agency (NPIA), Home Office Centre for Applied Science and Technology (CAST), Greater Manchester Police, South Yorkshire Police, Northumbria Police, St. Bedes Primary School (Manchester), Neston Rotary Club (Merseyside), De La Beche Society (Royal School of Mines, Imperial College, London) and Blackpool Geographical Association.

7.18 The German Media

In June 2012, Lorna Dawson, Alastair Ruffell and Laurance Donnelly arranged for an interview with the German media to promote and develop forensic geology.

7.19 Interpol

Ritsuko Sugita, of National Research Institute of Police Science, in Japan and IUGS-IFG officer for Japan and Asia was engaged by Interpol to review information on publications in forensic geology.

7.20 A Guide to Forensic Geology

IUGS-IFG committee members have supported and endorsed the production of a document to be called, '*A Guide to Forensic Geology*'. This seeks to provide information and general guidance on the practical applications of forensic geology. This document is envisaged to be of value to geologists, forensic scientists and police/law enforcement that currently are or may potentially become engaged in forensic geology. In 2012, IUGS-IFG developed an outline scope and identified potential authors. Progress on the initial draft is expected throughout 2013-2014. Publication is likely to be via IUGS and The Geological Society of London (to be confirmed).

7.21 Environmental Forensics

The Geological Association Congress in Canada (May 2012) and the 34th International Geological Congress in Brisbane (August 2012) both included presentations on environmental forensics as well as forensic geology applied to policing and law enforcement.

7.22 Sub-groups

IUGS-IFG officers from law enforcement and policing held preliminary discussion to develop an underwater search and airborne surveys sub-group within IUGS-IFG.

7.23 Global Geoforensic Support

Although IUGS-IFG was not set up to help support police some members of the committee and GIN members were contacted by the police and law enforcement agencies to provide advice on geological (trace) evidence cases and searches for missing persons and burials in parts of Europe, Africa and Australia. IFG and GIN were able to very quickly locate forensic geologists around the world with specialist knowledge to assist the police.

8 MAIN PRODUCTS IN 2012

IUGS-IFG main products in 2011 include the following:

- Development and growth of a web site;
- Production of flier;
- Development of a logo;
- Development of the Geoforensic International Network (GIN);
- Initiation of '*A Guide to Forensic Geology*'; and
- IUGS-IFG committee members published in; conference papers, proceedings, abstracts, newspaper, magazines, professional guidance documents and books.

8.1 Confidential Documents

Some information produced by IUGS-IFG in 2012 remains confidential as it contains sensitive information of a police or forensic nature.

8.2 Website

The IUGS-IFG web site is fully operational and is based at Buffalo State University, USA, where it is managed by Elisa Bergslien.

The web site addresses is: forensicgeologyinternational.org and/or forensicgeologyinternational.com

The web site has evolved throughout 2012 with the addition of new information on forensic geology.

IFG are currently updating the web site to appear more consistent with other IUGS groups.

8.3 Logo

The IUGS-IFG logo is in the process in being developed.

8.4 Flier

IUGS-IFG produced a draft flier on Forensic Geology. This is available in electronic format (as a pdf) and a printed version. Copies of this flier were circulated at conference, exhibitions and training events in Australia, Canada, Netherland, Spain and Russia (Appendix IV).

8.5 Geoforensic International Network (GIN)

The Geoforensic International Network (GIN) brings together forensic geologists, geoscientists and selected police/law enforcement officers from around the world, who have a desire and interest to develop forensic geology.

In 2012, new members were included from Argentina, Australia, France, Hungary, India, Iran, Mexico, Spain and Mongolia (pending).

GIN countries represented are now includes; Australia, Belgium, Brasil, Canada, Colombia, England, France, Germany, India, Iran, Ireland, Italy, Japan, Malta, Mexico, Namibia, Northern Ireland, New Zealand, Portugal, Russia, Scotland, South Africa, Spain, Sweden, Switzerland, Netherlands, United Arab Emirates, United States of America, Wales and the West Indies (Caribbean).

8.6 Publications

IUGS-IFG has published papers and articles in conference proceedings, conference abstracts, books, magazines and newspapers. Where copyright permissions allows, examples of these publications have been placed on the IUGS-IFG web site. The following books and manual were published by IUGS-IFG Committee members:

- Murray, R. 2011. *Evidence from the Earth. Forensic Geology & Criminal Investigations*. Mountain Press Publishing Company, USA.
- Bergslien, E. 2012. *An Introduction to Forensic Geoscience*. Wiley, USA.
- Fitzpatrick R.W., and Raven M.D. 2012. *Guidelines for Conducting Criminal and Environmental Soil Forensic Investigations (Version 7)*. Report CAFSS_076, Centre for Australian Forensic Soil Science, 37pp. <http://www.clw.csiro.au/cafss/publications/CAFSS076-GuidelinesV7.pdf>

8.7 Episodes

IUGS-IFG aims to complete a review article on forensic geology for publication on 'Episodes' and the IUGS-IFG web site. This is to be based on the Keynote presentation given at the 34th IGC in Brisbane, on 5 August 2012, by Donnelly (Chair) and Webb (FBI). This is likely to provide an overview of forensic geology and an update on the global status of forensic geology and 'recent' developments.

8.8 IUGS-IFG Training Certificates

IUGS-IFG & Australian Federal Police certificates were issued to the police officers and delegates who attended the 'forensic geology and search for burials' training course at the Queensland Police Training Centre in Brisbane, Australia (Appendix III).

9 MAIN PROBLEMS ENCOUNTERED IN 2012

9.1 Principal Leadership Challenge

The principal challenge facing the leadership of IUGS-IFG remains to be the ability to attract and sustain funding. Other sources of funding from corporate organisations and committee members' personal funds enabled IUGS-IFG to achieve a successful year. These funds proved to be an important financial resource in addition to the core funding provided by IUGS.

Annual funding received from IUGS is critical for the survival and growth of the forensic geology 'Initiative' and the international working group of forensic geology.

9.2 Confidentiality

Since IUGS-IFG collaborate with senior police and law enforcement officers IFG needs to determine a method for the secure exchange of information and contact details. One solution being examined is to develop a secure link on the Group's website that is password protected.

9.3 Press and Media

IUGS-IFG members may frequently be approached by the press for information on active or recent police and forensic cases.

IFG Committee members are encouraged to be selective when speaking to the media, especially on cases which are active, sensitive, international, high-profile and where permissions may be required from the police or law enforcement/forensic organisations.

Selective and carefully planned collaboration with the media can be of value to help with the global developments of forensic geology. Training in dealing with the press and media may be appropriate and a future consideration for IUGS-IFG.

9.4 Publications

In the past decade there has been a huge increase in the numbers of publications in forensic geology. This may result in non-forensic geology specialists having difficulty to determine which publications may be reliable and authoritative. This is recognised by IUGS-IFG and discussions are required to try to resolve this matter.

9.5 Conferences

The increased global popularity of forensic geology has resulted in an increase in the number of conference and meetings now held each year around the world that focus on or include elements for forensic geology. This can make it difficult to determine which events IUGS-IFG should support or lead. Furthermore, with increased demands for IUGS-IFG to provide outreach, knowledge transfer and training events deciding which police, law enforcement or forensic organisations to support also may create challenges, within the bounds of the total funding available and the provision of support in kind. There seems to be a general feeling that the numbers of conferences need to be reduced, although this is subject to ongoing discussions and debate.

9.6 Competence, Accreditation and Regulation

Currently, there is no internationally approved and recognised organisation for the accreditation and regulation of forensic geologists. However, this matter is being addressed by: (i) IUGS-IFG in association with the Geological Society of London and the UK Home Office and (ii) The Australia New Zealand Policing Advisory Agency (ANZPAA) who have recently approved a business plan for; *The*



Centre for Australian Forensic Soil Science (CAFSS) to also become an approved; *'Forensic Science Centre of Specialisation'*.

A draft code of conduct for forensic geologists is proposed to be developed by IFG will be placed on the IUGS-IFG web site in 2013. Communications have continued between the Geological Society of London and UK Home Office regarding competency and regulation in forensic geology.

10 SUMMARY OF EXPENDITURES IN 2012

10.1 IFG Annual Accounts

The income and expenditure on the account is summarised in Table 2. As the bank account is held in the UK, the income and expenditure is shown in £ sterling. As of the 2nd November 2012 there is an unspent balance of £1944.66. Further expenditure in 2012 towards the website and flier is however, anticipated.

CREDIT/DEBIT	ITEM	£ (STERLING)
Credit		
Balance from 2011	Balance carried forward from 2011	868.28
IUGS Funding	Transfer of funds from IUGS (USD 15,000)	9251.90
TOTAL		10,120.18
Debits & Date	L. Dawson Madrid Expenses 27/6/12	73.29
	B. Schneck Expenses Canada 12/7/2012	1675.45
	L. Donnelly Expenses Australia 28/8/12	1422.54
	L. Donnelly Expenses Canada 28/8/12	694.99
	D.C. Nobes Expenses Australia 28/8/12	1419.16
	J. McKinley Expenses Australia 7/9/12	331.87
	E. Bergliesen Expenses Canada 12/9/12	794.69
	B. Schneck Expenses Canada (2) 25/9/12	1623.84
	D. Pirrie Bank fees 28/9/12	139.69
Balance 02.11.12		£1944.66

Table 2. Summary of income and expenditure for 2012

10.2 Bank Account

The IUGS-IFG bank account is currently held with the National Westminster Bank Plc, based in Falmouth, England. Plans are in place for the account to be moved to Aberdeen, Scotland, closer to the new treasurer (Prof Lorna Dawson, The Hutton Institute). This transfer is expected to take place in 2013 (subject to confirmation).

11 WORK PLAN FOR NEXT YEAR (2013)

11.1 Principal Objectives

The principal IUGS-IFG objectives for 2013 are currently as follows, and are subject to change:

- Training and knowledge transfer to be delivered to the Brazilian Federal Police (to be confirmed);
- Provide a series of outreach and knowledge transfer lecture on soil forensics and associated aspect of forensic geology in association with the Russian Federal Centre of Forensic Science, Ministry of Justice, Moscow (October 2013);
- Assist with the organisation and support of the 2nd Ibero Latin American Conference on Forensic Geology in Brasil (to be confirmed);
- Continue to collaborate with the Geological Society of London, Forensic Geoscience Group (FGG);
- Continue to collaborate with the Scientific Working Group on Geological Materials (SWGCEO);
- Continue to collaborate with the Centre for Australian Soil Forensics (CAFSS);
- Develop the writing of a document for publication to be called '*A Guide to Forensic Geology*';

The above events are to be organised by nominated IUGS-IFG committee members and overseen by the Chair and Vice Chair.

12 CRITICAL MILESTONES

IUGS-IFG Critical Milestones to date have included the following:

- Establishment of an international IUGS-IFG Committee;
- Establishment of the IUGS-IFG Web site;
- Establishment of the IUGS-IFG Geoforensic International Network (GIN);
- The development of links within international police forces and law enforcement; and
- Provision of training with the Australian Federal Police;

13 ANTICIPATED RESULTS TO BE ACHIEVED FOR 2013

The main expected results for 2013 are as follows:

- Update and development of the IUGS-IFG web site;
- Deliver training to the Brazilian Federal Police in Brazil;
- Provide support for the 2nd Ibero Latin American Conference on Forensic Geology in Brasil;
- Deliver outreach and knowledge transfer events with the Russian Federal Centre of Forensic Science, Ministry of Justice, Moscow; and
- Progress with the production of a draft manuscript for; '*A Guide to Forensic Geology*'.

Details of the some of the above proposed event are given below:

13.1 2nd IberoLatin American Conference on Forensic Geology, Brazil

Following the success of the 1st IberoLatin American Conference on Forensic Geology, held in Bogota, Colombia in 2009 and delivered by IUGS-IFG committee members. IFG have offered to provide support for the 2nd IberoLatin American Conference on Forensic Geology, which may be held in Brazil, in 2013.

13.2 Brazilian Federal Police Training, Brazil

The 2nd IberoLatin American Conference on Forensic Geology may be followed by the provision of training in forensic geology (geological evidence and search) for the Brazilian Federal Police. This is currently being developed by Laurance Donnelly and Carlos Martin Molina.

If the two Brazilian events do not take place, alternative contingency events are currently being considered in association with other organisations in developing parts of the world.

13.3 Russian Federal Centre of Forensic Science, Ministry of Justice, Moscow, Russia

IFG have been invited to participate in the All-Russian workshop, entitled; '*Modern Status of Forensic Soil Examinations*'. This is expected to be organised by the Ministry of Justice, on 21-25 October 2013. Other forensic specialists are to be invited from within the Russian Federation, Byelorussia, Ukraine, Armenia and Kazakhstan. This will be a landmark event in Russia, the first of its kind and a fantastic opportunity for IUGS-IFG to raise the profile of forensic geology in Russia and CIS countries.

14 BUDGET FOR 2013

IUGS-IFG is planning events to develop and promote forensic geology in South America and Russia during 2013. Other outreach, knowledge transfer and training events are likely to take place throughout the world during 2013.

Funding is required to allow key members of the 'Initiative' to attend the identified meetings and to be able to deliver the identified training programmes. This funding often acts as 'seed money' to attract additional funding.

We also anticipate expenditure on the production and distribution of fliers, the development of the IUGS-IFG web site and publications costs throughout 2013.

It is anticipated that the planned training programmes in 2013 should at least break even or generate a small surplus. The requested funding and any surplus generated through training will be used to support the other activities of the 'Initiative'.

IUGS-IFG will also continue to targeting specialised companies and organisations for the provision of additional funding, sponsorship and services in-kind.

14.1 IFG Budget request for 2013

IUGS-IFG would request that we can 'roll forward' the current balance of **£1944.66** (£ UK sterling), to assist with the purchase of air tickets to Latin America and Russia in 2013.

IUGS-IFG kindly requests the maximum available budget of **USD15,000** funding from IUGS to continue with the global development of forensic geology throughout 2013.



APPENDIX I
SELECTED PHOTOGRAPHS

Training In Forensic Geology & Ground Searches with the Australian Federal Police (AFP), Brisbane, Queensland, Australia



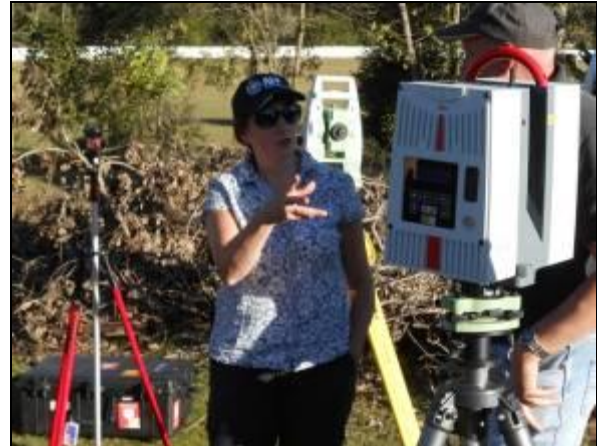
Commander Mark Harrison providing knowledge transfer



Mr Nick Barrett (AFP) provides a brief for the search training



Dr David Nobes demonstrates the EM38 and MD2000



Dr Jennifer McKinley discusses surveying and GIS



Dr Laurance advises on the development of a
Conceptual Geological Model for burials



Prof Shari Forbes and AFP discuss the preservation
and decomposition of human remains and geology

Photographs on this page were supplied by © Laurance Donnelly



Australian Federal Police delegates



Australian Federal Police delegates



Prof Rob Fitzpatrick & Dr Laurance Donnelly demonstrate diggability



AFP officer awaiting the deployment of GPR



Field applications of the EM38



Field applications of GPR

Photographs on this page were supplied by © Laurance Donnelly

European Academy of Forensic Sciences Conference (EAFS), The Hague, Netherlands



Prof Lorna Dawson, UK



Aurea Carvalho, Portugal



Dr Ray Murray, USA



Dr Rosa Maria Di Maggio, Italy



Dr Skip Palenik, USA



Prof Rob Fitzpatrick, Australia

Photographs on this page were supplied by © Lorna Dawson



Brenda Woods, Australia



Barbara Von der Lühe, Germany



Joann Buscaglia, USA



Prof Dawson and Prof Forbes meet the Wise Owl



BBQ and knowledge exchange at the forensic archaeology sub group meeting

Photographs on this page were supplied by © Lorna Dawson



Prof Skip Palenik and the forensic microscopy master class team



Prof Skip Palenik demonstrates to the delegates

Photographs on this page were supplied by © Skip Palenik (left) and © Rob Fitzpatrick



APPENDIX II
IUGS-IFG & AFP TRAINING FLIER



AFP & IUGS-IFG
Brisbane, Australia, 8th-9th August 2012

Two-Day Workshop on the Design, Management and Implementation of Ground Searches using Geophysical Equipment

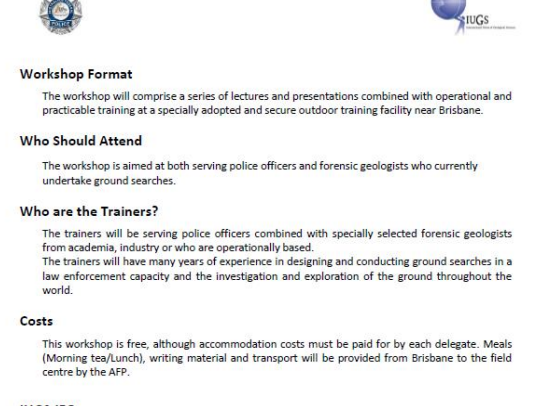
Aims and Objectives

The workshop will be delivered on ground searches for burials, which includes; homicide graves, fire-arms, weapons, drugs, money and items of value. This will cover the following:

- Ground Searches: A Law Enforcement and Geological Perspective
- Search Types
- Behavioural and Geographic Models
- Conceptual Geological Models
- Search Methodologies
- Search Assets and Instrumentation
- Search Design, Management, Operations and Logistics

Dates and Venue

The workshop will take place from 8th to 9th August 2012 in Brisbane, Australia, at (insert name of venue). The workshop will follow the 34th International Geology Congress immediately, Forensic Geoscience Symposium, on 6th to 7th August 2012, also held in Brisbane.



Workshop Format

The workshop will comprise a series of lectures and presentations combined with operational and practicable training at a specially adopted and secure outdoor training facility near Brisbane.

Who Should Attend

The workshop is aimed at both serving police officers and forensic geologists who currently undertake ground searches.

Who are the Trainers?

The trainers will be serving police officers combined with specially selected forensic geologists from academia, industry or who are operationally based. The trainers will have many years of experience in designing and conducting ground searches in a law enforcement capacity and the investigation and exploration of the ground throughout the world.

Costs



This workshop is free, although accommodation costs must be paid for by each delegate. Meals (Morning tea/Lunch), writing material and transport will be provided from Brisbane to the field centre by the AFP.

IUGS-IFG

The International Union of Geological Sciences (IUGS) is a non-governmental organization representing a global membership of one million Earth scientists through its approximately 120 member countries and almost 50 affiliated organizations. The Initiative on Forensic Geology (IFG) is an IUGS international working group and was established in 2011 to promote and develop forensic geology throughout the world.

AFP

The role of the Australian Federal Police (AFP) is to enforce the Commonwealth criminal law, contribute to combating organised crime and to protect Commonwealth and National interests from criminal activity in Australia and overseas. The AFP is also Australia's International Law Enforcement and Policing representative and the Australian Governments chief source of advice on Policing issues.



Attendance Confirmation

Delegates wishing to attend the AFP and IUGS-IFG search training must send their confirmation by Saturday, 30 June 2012, to any of the following:


Mark Harrison, MBE
Australian Federal Police
Manager Forensic Operations
Forensic & Data Centres
Canberra, ACT 2611

P: +61 (0) 2 62036239
Ext: 156239
M: +61 (0) 400515206
Email: Mark.Harrison@afp.gov.au
www.afp.gov.au

Dr Laurance Donnelly
BSc (Hons), PhD, CGeol, CSci, EurGeol, FGS, FGSA
Associate Director
Forensic Geologist and Police Search Adviser

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M: +44 (0) 7976 038 238
Email: donnelly@wardell-armstrong.com



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APPENDIX III
EXAMPLE OF THE IUGS-IFG & AFP TRAINING CERTIFICATES



We hereby certify that

Emiliano Santos Rodrigues de Oliveira

Brazilian Federal Police

has attended the two-day workshop and training on the

Design, Management and Implementation of Ground Searches using Geophysical Equipment

held at the

Queensland Police Training Centre, Brisbane, Australia, 8th-9th August 2012



Dr Laurance Donnelly
Forensic Geologist and IUGS-IFG Chair



Commander Mark Harrison, MBE
AFP Manager of Forensic Operations



We hereby certify that

Nicholas Barrett

Australian Federal Police

Participated as a trainer in the two-day workshop and training on the

Design, Management and Implementation of Ground Searches using Geophysical Equipment

held at the

Queensland Police Training Centre, Brisbane, Australia, 8th-9th August 2012






Dr Laurance Donnelly
Forensic Geologist and IUGS-IFG Chair




Commander Mark Harrison, MBE
AFP Manager of Forensic Operations



APPENDIX IV
IUGS-IFG FLIER

INITIATIVE ON FORENSIC GEOLOGY	INITIATIVE ON FORENSIC GEOLOGY	INITIATIVE ON FORENSIC GEOLOGY
<h3>IFG Officers</h3> <p>COMMITTEE OFFICERS: Chair: Dr Laurance Donnelly, UK. E: idonnelly@wardell-armstrong.com Vice Chair: Prof Rob Fitzpatrick, Australia. E: rob.fitzpatrick@csiro.au Treasurer: Dr Duncan Pirrie, UK. E: dpirrie@helfordgeoscience.co.uk Secretary: Ms Marianne Stam, USA. E: marianne.stam@doj.ca.gov Information Officer/Webmaster: Dr Elisa Bergslien, USA. E: bergslet@buffalostate.edu Geoforensic Law Enforcement Officer: Mr Mark Harrison, Australia. E: mark.harrison@afp.gov.au Training and Publications: Dr Alastair Ruffell, UK. E: a.ruffell@qub.ac.uk Communications: Prof Lorna Dawson, UK. E: lorna.dawson@hutton.ac.uk Geological (trace) Evidence Advisers: Drs Skip and Christopher Palenik, USA. E: spalenik@microtracescientific.com Honorary Committee Member: Dr Raymond Murray, USA. E: rmurray@bresnan.net Hostmaster: Mrs Jan Mahoney, Australia. E: jan.mahoney@csiro.au</p> <p>REGIONAL OFFICERS: Africa: Dr Roger Dixon. Australia: Dr James Robertson. Europe: Dr Rosa Maria Di Maggio. Japan and Asia: Dr Ritsuko Sugita. Latin America: Mr Carlos Molina Gallego. Middle East: Dr Ahmed Saeed Al Kaabi. Pacific and Canada: Dr Shari Forbes. Russia: Dr Olga Gradusva and Dr Ekaterina Nesterina. USA: Dr Bill Schneck.</p>	<h3>IFG Events</h3> <ul style="list-style-type: none"> Forensic Geology Session at the Criminal and Environmental Soil Forensic Conference in The Hague, the Netherlands, 20-24 August 2012. Training and knowledge transfer to be delivered to the Australian Federal Police, Brisbane, Australia, 8-9 August 2012. Forensic Geology Session at the 34th International Geological Congress (IGC2012), Brisbane, Australia, 6 August 2012.  <ul style="list-style-type: none"> Forensic Geology Training Session, Geological Association of Canada, St. John's, Canada, May 2012. Training in forensic soil analysis with la Guardia Civil, Alcalá de Henares, Spain, April 2012. Inaugural meeting of the IUGS-IFG, Rome, Italy, September 2011. First Ibero-American Course on Forensic Geology, Bogota, Colombia, March/April 2009. 	<h2>Initiative on FORENSIC GEOLOGY</h2> <p>http://forensicgeologyinternational.org</p>  

INITIATIVE ON FORENSIC GEOLOGY	INITIATIVE ON FORENSIC GEOLOGY	INITIATIVE ON FORENSIC GEOLOGY
<h3>Forensic Geology</h3> <ul style="list-style-type: none"> Forensic geology involves the application of geoscience to: Policing, law enforcement or other investigations, which may potentially be relevant for a court of law. Forensic geoscientists may be called upon to be an expert witness or to provide an expert opinion for a variety of cases: Murder, rape, counter terrorism, kidnapping, humanitarian incidents, environmental crimes, geohazards, mining incidents, geotechnical and civil engineering failures, materials engineering, precious minerals and metals theft and fraud etc. Police support is provided by geoscientists in two broad areas: Geological (trace) evidence and ground searches. Geological (trace) evidence involves the collection of soil, rock fragments, micro-fossils or man-made materials derived from geological raw materials (such as glass, bricks, concrete and tiles). These are analysed before being evaluated with some knowledge of the particular circumstances of the investigation. The aim may be to help determine if there could be an association between the samples. This is based on the premise that every contact leaves a trace and geological evidence may be transferred onto the body of a victim, offender or associated item/object. Ground searches are conducted to locate; homicide graves, mass genocide graves, weapons, firearms, drugs or other items of value that have been buried beneath or concealed on the ground surface. 	<h3>IUGS and IFG Development</h3> <ul style="list-style-type: none"> The International Union of Geological Sciences (IUGS) is a non-governmental organization representing a global membership of one million Earth scientists through its approximately 120 member countries and almost 50 affiliated organizations. It encourages international co-operation and participation in the Earth sciences with a view to understanding earth processes and earth resources especially in relation to human welfare. IUGS works through its Commissions, Subcommissions, Task Groups, and Joint Programmes and with the support of its international affiliated bodies to address Earth science issues of relevance to society. In 2011 IUGS approved the establishment of the Initiative on Forensic Geology (IFG) which operates through a system of committee and regional officers (see below). <div style="border: 1px solid #0056b3; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">International Union of Geological Sciences (IUGS) Executive Committee (EC)</p> <p style="text-align: center;">↑</p> <p style="text-align: center;">Initiative on Forensic Geology (IFG)</p> <p style="text-align: center;">↑ ↓</p> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid #0056b3; padding: 5px; text-align: center;">IFG Committee Officers</div> <div style="border: 1px solid #0056b3; padding: 5px; text-align: center;">IFG Committee Regional Officers</div> </div> <p style="text-align: center;">↑ ↓</p> <p style="text-align: center;">Geoforensic International Network of members</p> </div> <div style="border: 1px solid #0056b3; padding: 10px; margin: 10px 0;"> <h4 style="text-align: center;">IFG Mission Statement</h4> <p style="text-align: center;">The IUGS Initiative on Forensic Geology (IFG) seeks to: <i>'Develop forensic geology internationally and promote its applications'.</i></p> </div>	<h3>IUGS-IFG Approach</h3> <p>IUGS-IFG aims to raise the global awareness of forensic geology by holding meetings and conferences, promoting research, teaching, training and the operational deployment of forensic geologists. This will be achieved through an approach consistent with the broad objectives of IUGS:</p> <ul style="list-style-type: none"> Capacity building: by raising levels of awareness, knowledge and providing information about forensic geology Technology transfer: an improvement in skill sets Outreach: educating and informing the police and law enforcement organisations and the 'general public' about forensic geology <p>IUGS-IFG currently is planning to provide capacity building, technology transfer and outreach events in different parts of the world over the next 3-5 years.</p> <h3>IFG Objectives</h3> <ul style="list-style-type: none"> Collate and disseminate data and information on forensic geology applied to policing and law enforcement, criminal, environmental and civil investigations. Promote international meetings, seminars, conferences and training. Develop a 'Committee' to act as principal advisers, collaborators and active participants. Develop an international network whereby each 'member' will act as a principal contact in their respective country for the collation and dissemination of information on forensic geology. Collate, review and make available any existing documentation and publications in forensic geology. Produce a document endorsed by the Committee to be called 'A Guide to Forensic Geology'.