INTERNATIONAL UNION OF GEOLOGICAL SCIENCES (IUGS)

INITIATIVE ON FORENSIC GEOLOGY (IFG)

Annual Report 2012

Dr Laurance Donnelly, Chair IUGS-IFG
DATE ISSUED: 15 November 2012
REPORT NUMBER: IUGS-IFG/001
REPORT STATUS: Submitted Draft on 15.11.12

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

Annual Report 2012

PREPARED
Laurance Donnelly Chair

CHECKED
Duncan Pirrie Treasurer (Accounts)
Lorna Dawson Treasurer (Elect)
Rob Fitzpatrick Vice Chair
Marianne Stam Secretary
Alastair Ruffell Training & Publications

APPROVED (IUGS-IFG COMMITTEE MEMBERS)
Laurance Donnelly Raymond Murray
Rob Fitzpatrick Bill Schneck
Lorna Dawson Carlos Molina Gallego
Marianne Stam Rosa Maria Di Maggio
Elisa Bergslien Olga Gradusva
Mark Harrison Ekaterina Nesterina
Jodi Webb Ahmed Saeed Al Kaabi
Alastair Ruffell Ritsuko Sugita
Skip Palenik James Robertson
Christopher Palenik Roger Dixon
Shari Forbes

This report has been prepared by IUGS-IFG with all reasonable skill, care and diligence. The report is confidential to IUGS and IUGS-IFG accepts no responsibility of whatever nature to third parties to whom this report may be made known.

No part of this document may be reproduced without the prior written approval of IUGS and IUGS-IFG.

IUGS-IFG cannot guarantee the accuracy or completeness of facts, interpretations, conclusions or recommendations contained herein and reserves the right to alter these. Any third parties and others should not rely on the content of this report.
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
  7.3 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 or 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 SWGGEo 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

8.1 Confidential Documents

8.2 Website

8.3 Logo

8.4 Flier

8.5 Geoforensic International Network (GIN)

8.6 Publications

8.7 Episodes

8.8 IUGS-IFG Training Certificates

9 MAIN PROBLEMS ENCOUNTERED IN 2012

9.1 Principal Leadership Challenge

9.2 Confidentiality

9.3 Press and Media

9.4 Publications

9.5 Conferences

9.6 Competence, Accreditation and Regulation

10 SUMMARY OF EXPENDITURES IN 2012

10.1 IFG Annual Accounts

10.2 Bank Account

11 WORK PLAN FOR NEXT YEAR (2013)

11.1 Principal Objectives

12 CRITICAL MILESTONES

13 ANTICIPATED RESULTS TO BE ACHIEVED FOR 2013

13.1 2nd IberoLatin American Conference on Forensic Geology, Brazil

13.2 Brazilian Federal Police Training, Brazil

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

14 BUDGET FOR 2013

14.1 IFG Budget request for 2013

APPENDIX I: SELECTED PHOTOGRAPHS

APPENDIX II: IUGS-IFG & AFP TRAINING FLIER

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

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

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 (SWGGEO);
- 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 Forensics 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:

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 or 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 ‘Analisís criminalístico de suelos’ was held at the University of Alcalà, Alcalà 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 20-24. 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 Gradusva, 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 Geoforesnic 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 allow, 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:


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 forensics 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.

<table>
<thead>
<tr>
<th>Credit/Debit</th>
<th>Item</th>
<th>£ (Sterling)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit</td>
<td>Balance carried forward from 2011</td>
<td>868.28</td>
</tr>
<tr>
<td></td>
<td>Transfer of funds from IUGS (USD 15,000)</td>
<td>9251.90</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>10,120.18</td>
</tr>
<tr>
<td>Debits &amp; Date</td>
<td>L. Dawson Madrid Expenses 27/6/12</td>
<td>73.29</td>
</tr>
<tr>
<td></td>
<td>B. Schneck Expenses Canada 12/7/2012</td>
<td>1675.45</td>
</tr>
<tr>
<td></td>
<td>L. Donnelly Expenses Australia 28/8/12</td>
<td>1422.54</td>
</tr>
<tr>
<td></td>
<td>L. Donnelly Expenses Canada 28/8/12</td>
<td>694.99</td>
</tr>
<tr>
<td></td>
<td>D.C. Nobes Expenses Australia 28/8/12</td>
<td>1419.16</td>
</tr>
<tr>
<td></td>
<td>J. McKinley Expenses Australia 7/9/12</td>
<td>331.87</td>
</tr>
<tr>
<td></td>
<td>E. Bergliesen Expenses Canada 12/9/12</td>
<td>794.69</td>
</tr>
<tr>
<td></td>
<td>B. Schneck Expenses Canada (2) 25/9/12</td>
<td>1623.84</td>
</tr>
<tr>
<td></td>
<td>D. Pirrie Bank fees 28/9/12</td>
<td>139.69</td>
</tr>
<tr>
<td>Balance 02.11.12</td>
<td></td>
<td>£1944.66</td>
</tr>
</tbody>
</table>

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 (SWGGE0);
- 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

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 FLYER

Aims and Objectives
The workshop will be deliver on ground searches for burial, which includes: bomb and arms, searching for drug, money and false of value. This will cover the following:

- Ground searches: A Law Enforcement and Geospatial Perspective
- Seizure of large
- Forensic and Geographic Models
- Ground-based and Geographic Models
- Search and Retrieval Techniques
- Ground-based and Fieldwork
- Ground-based and Fieldwork

Dates and Venue
The workshop will take place from 8th to 9th August 2012 in Brisbane, Australia, at Secretariat building. The workshop will be influenced by the International Geospatial Congress 2013, at the International Conference on Geospatial, on 8th to 9th August 2012, also held in Brisbane.

Workshop Format
The workshop will comprise a series of lectures and presentations combined with practical and interactive training. It will include a lecture and a lecture-based training facility in the Brisbane area.

Who Should Attend
The workshop is aimed at both serving and forensic geologists and forensic geologists who are involved in ground searches.

Who are the Trainers?
The trainers will be serving police officers and forensic geologists from international institutions who are involved in ground searches.

Costs
This workshop is free, although accommodation costs must be paid by each delegate. Meals (lunch only), meals, and transportation will be provided from Brisbane to the event by the AFP.

IUGS-IFG
The International Union of Geological Sciences (IUGS) is a non-governmental organization representing the global membership of 1,000,000 Earth scientists through its approximately 120 member countries and almost all the nations of the world. The IUGS-IFG initiative was established in 2002 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 international cooperation against 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 Co-operation and the Australian Government's main source of advice on fighting crime.
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 Laurence 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 Laurence 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

IFG Officers

**Committee Officers:**
- Chair: Dr. Lawrence Armstrong, UK
- Vice Chair: Dr. Lesley Stephens, Australia
- Treasurer: Dr. Peter G. Hunsaker, USA
- Secretary: Ms. Marie S. Aronson, USA

**Regional Officers:**
- Asia: Dr. Ting Li, China
- Europe: Dr. Laura J. Maguire, Ireland
- Africa: Dr. Lynda C. Heap, South Africa

**Events:**

**Initiative on Forensic Geology**

http://forensicgeologyinternational.org

**IFG Mission Statement**

The IUGS Initiative on Forensic Geology (IFG) aims to:
- Develop forensic geology internationally and promote its applications.