CGI
Commission for the Management and Application of Geoscience Information

CGI 2010

http://www.cgi-iugs.org
ANNUAL REPORT TO THE INTERNATIONAL UNION OF GEOLOGICAL SCIENCES

First international workshop on geoscience language

Workshop attendees at the German Ministry of Economics and Technology.

An International Geoscience Language Workshop took place in Berlin between 25 and 27 August 2010 under the patronage of the Federal Ministry of Economics and Technology. The workshop, believed to be the first to explore this area digital spatial geoscience taxonomy, was initiated by CGI and supported by the European Commission-funded OneGeology-Europe project.

It was organised by the Bundesanstalt für Geowissenschaften und Rohstoffe (BGR). 66 participants from six continents took part. The Workshop was opened by a senior member of the Ministry, Diethard Mager, and the President of BGR, Hans-Joachim Kümpel.

Key presentations were made about the International Stratigraphic Chart, the OneGeology and OneGeology-Europe project, the influence of geoscience language on the implementation of the European Union INSPIRE Directive, and the challenges of building a European vocabulary. Other presentations tackled a variety of issues relating to geoscience language, vocabularies, harmonisation and technical implementation across the continents. See page 3 for more details.

Progressing interoperability

During 2010 the 'top-level' objectives of the Interoperability Working Group of CGI were to:

- release GeoSciML v2.1 for OneGeology-Europe
- further develop the GeoSciML vocabularies and related services
- provide training on configuring GeoSciML Web Feature Services
- test the GeoSciML v3 Release Candidates (Testbed 4)
- develop a simple GIS view of GeoSciML (GeoSciML-TV)

The IWG and all task groups met in a joint session in September 2010 in Rome, hosted by APAT. The principal objectives of this meeting were to: review use cases for GeoSciML v3; agree changes of the data model for GeoSciML v3 based on initial Testbed 4 results; review progress with developing common vocabularies, including their management; review implementation architectures, including vocabulary services; agree and implement changes to the structure and composition of the working group; establish an EarthResourceML Task Group to manage the mineral resources data model; identify mechanisms to increase the number of services delivering GeoSciML; and determine the relationship between GeoSciML and OGC working groups. *Continued on page 2.*

Interoperability and multilingual thesaurus working groups

At the CGI Council meeting in Berlin the Council discussed the work of these two groups, the benefits of their integration and merger. Council took a decision to merge the Multilingual Thesaurus of Geosciences Working Group with the Concept Definitions Task Group as single task group under the IWG.

This move integrates the two CGI teams that tackle geoscience language issues, the CGI vocabulary and the CGI thesaurus, initiate an holistic approach, avoid duplication of effort and overlap of thematic issues, maximise efficiencies, create structural simplicity and enhance communication; in summary substantial potential synergy can now be realised.

The decision to merge the groups was communicated to the three leaders in Berlin. Following this the groups will now be implementing their reorganisation and resolving membership issues. These tasks are still ongoing.

Interoperability

the report of the CGI Interoperability Working Group

The IWG operates through a number of task groups. Their progress is reported here.

Use cases and Requirements task group

A range of use cases were refined during the Rome meeting intended to form a basis for the development of the GeoSciML v3 data model, along with issues such as vocabulary implementation and enabling web linking.

GeoSciML Design task group

Development of the GeoSciML data model has constituted the greater part of the work of the IWG during 2010. GeoSciML v2.1 was released in February 2010 in order to meet OneGeology-Europe requirements. The cookbook on 'How to Map Data to GeoSciML v2' was revised to reflect the changes. All material related to GeoSciML v2.1 can be obtained from http://www.cgi-iugs.org/tech_collaboration/data_model/downloads.html.

The changes being tested in GeoSciML v3 are:

- Geologic Event (age) remodelled
- Geochemistry added
- Physical Description remodelled and generalised
- Alteration Description remodelled and generalised
- CGI_Value replaced with more specific (term or numeric) data types throughout the model
- Laboratory Analysis and Specimen packages developed and added based on the OGC Observations & Measurements standard

In addition a new GML application, GeoSciML Thematic View (GeoSciML-TV), has been developed to standardise the request/response formats for simple layer-based (GIS) map services.

Service Architecture task group

CGI 'best-practice' was changed to accommodate the move by OGC away from URNs as Uniform Resource Identifiers (URI) to http-URIs (structured like URLs). Establishing this is crucial to linking the various web, registry and vocabulary services.

Implementation Testbed task group

OneGeology-Europe tested GeoSciML v2.1. Testbed 4 commenced during 2010, but delays in establishing the GeoSciML v3 schema meant no real progress was made. Completing Testbed 4 is major task for first half 2011.

Outreach and technical assistance task group

A highly successful two day Science Language Workshop and a one-day GeoSciML Open-Day were held in Berlin in 25–27 August 2010. Sixty-six participants from six continents took part and contributed.

Geoscience Concept Definitions task group

Fourteen new or revised vocabularies have been produced and released in SKOS-RDF format. This format allows them to be viewed with software that enable the hierarchies and other vocabulary relationships to be much more clearly visualised. Excel to RDF and RDF to Excel conversion processes allow users to manipulate the vocabularies in Excel, without requiring training in advanced ontology.

The Interoperability Working Group and GeoSciML development team in Rome, September 2010.

International geoscience language workshop

66 participants from 6 continents attended this workshop held in Berlin between 25 and 27 August 2010. *Continued from page 1.*

The workshop was organised by Kristine Asch, the Chair of CGI, who led a local team from BGR Hannover. Keynote presentations were made by Stan Finney, Chair of the IUGS International Stratigraphic Commission, about the development of the International Stratigraphic Chart; Ian Jackson, coordinator of the global OneGeology project, about the project's role in accelerating standards adoption; François Robida (CGI treasurer) reviewed the challenges of the OneGeology-Europe project; Robert Tomas of the European Commission analysed the influence of geoscience language on the implementation of the European Union INSPIRE Directive; Harvey Thorleifson, Director of the Geological Survey of Minnesota discussed systematic approaches in building a geoscience language in North America; and Kristine Asch explored the challenges of building a European vocabulary which was also consistent globally. Many other presentations tackled a variety of issues relating to geoscience language, vocabularies, harmonisation and technical implementation across the continents. These took place in four thematic sessions:

- The need for a coherent geoscience language.
- Vocabularies, thesauri and regional examples.
- Harmonisation and terms—aspirations and reality in Europe.
- Current state of the art in machine use of vocabulary services.

Within the discussions and subsequent break-out sessions 15 major points, concerning future requirements of geoscience language and harmonisation, were agreed and then placed in order of perceived priority:

1. Clarify and find an accepted method to collect the end user needs. It is important to identify the user needs as a base for defining the suitable level of harmonisation.
2. Identify a persistent and authoritative CGI-CGI web location for vocabularies and a CGI-IUGS namespace for publishing & development.
3. Need for a project for global harmonisation and knowledge transfer from OneGeology-Europe-E to all other IUGS efforts.
4. Need for international standard for vocabulary services. A CGI representative on W3C incubator group should be installed..
5. An agreed standard guideline and methodology is required to work on national data harmonisation (policy and practice).
6. Explore and adopt best practice from other communities.
7. CGI to establish vocabulary content provision arrangements with other IUGS domains.
8. Improve collaboration with other Science Mark-up language groups.
9. Need to define concepts for categories to create vocabularies.
10. Clarify scope of information resources for CGI interoperability activities.
11. Definition of a conceptual harmonisation process is needed and served by technical means (e.g. transformation services).
12. Identify achievable deliverables for Brisbane 2012, the next International Geoscience Language Workshop.
13. Multilingual Thesaurus: Need to define top level categories.
14. Vocabulary: Provide term mapping to other languages and to other users.
15. Working Group to establish best practice for construction and use of URLs (Uniform Resource Identifiers).

The presentations, lively discussion and strategic and yet constructive and practical outcome of this workshop clearly shows the considerable global and cross-domain interest in subject of geoscience language, and in particular solving semantic interoperability and harmonisation challenges in geoscience. It also underlined the relevance of the work of IUGS-CGI and the OneGeology-Europe project's work in this field.

See website www.bgr.bund.de/IGSL2010 for Workshop details, documentation and resources.

CODATA

CGI continues to represent the IUGS at the CODATA General Assembly though delegate John Broome. The evolution and acceptance of the GeoSciML standards and its demonstration through the OneGeology initiative has led to the IUGS and CGI being recognized in the CODATA community as science union leaders in data management and delivery.

In addition, the IUGG has now also created a 'data commission' modelled on the CGI. At the 2010 CODATA conference, a technical session focused on ICSU Union data activities with 4 unions, including CGI, presenting their approaches to data leadership and coordination. Associated discussions have resulted in an ICSU grant proposal being prepared to build upon best practices identified at the session and share this knowledge within the ICSU community. IUGS will be asked to be a supporting organization on the proposal.

At the 2010 General Assembly, Mr Broome was elected as a member of the CODATA Executive which will facilitate communication between CGI and CODATA and continues to represent CGI/IUGS on the ad hoc ICSU Strategic Coordinating Committee for Information and Data (SCCID). This Committee provides ICSU with broad expertise and advice on strategic direction in the area of scientific data and information management and dissemination policy including advising ICSU on future directions for CODATA and the World Data System (WDS). SCCID is currently working on interim recommendation to be presented to ICSU in Spring 2011.

Open Geospatial Consortium

CGI has a very close connection and strong relationship with the global spatial standards body OGC. There have been many strategic and technical discussions between members of the organisations.

We are considering the different options to reinforce these connections between the two organisations in order to give a better visibility to the CGI standards (GeoSciML and maybe ERML), and to take advantage of the expertise of OGC for some of our technical challenges. The next step may be the signature of a MOU, and the creation of a joint Working Group.

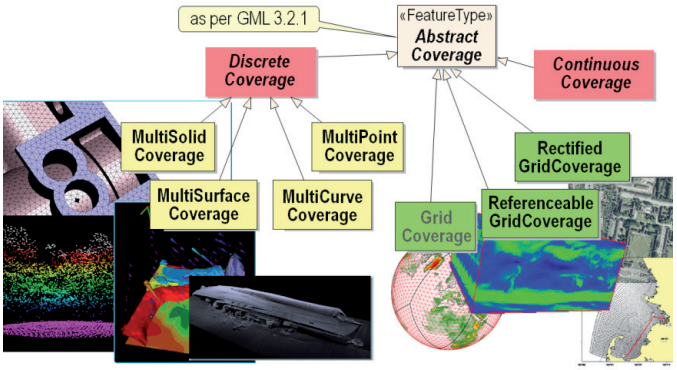
Web Coverage Service (WCS) 2.0

The OGC Web Coverage Service (WCS) 2.0 standard has been officially adopted by OGC in August 2010. WCS 2.0 defines a standard interface and operations that enable interoperable access to geospatial coverages, i.e.: space/time-varying phenomena such as sensor data, satellite imagery, digital elevation models, and climate/ocean data. An important aspect of the WCS standard is that it allows access and retrieval of raw, unprocessed data, which is more and more required by processing and rendering tools.

The WCS 2.0 standard has several significant enhancements over previous versions, following intensive hearings of many stakeholder communities. WCS 2.0 is harmonized with the Geography Markup Language (GML) coverage model, leading to increased interoperability across OGC standards. Further, WCS 2.0 supports all GML and ISO coverage types, therefore extending WCS from pure raster data to point clouds, curvilinear grids, general meshes, and more coverage types. Additionally, WCS 2.0 is highly modular and follows the OGC's new Modular Specification Policy, which describes a design pattern that makes standards easier to understand and implement. The WCS 2.0 standard is available for free download at http://www.opengeospatial.org/standards/wcs.

Further, a NetCDF Working Group has been established in OGC with the goal of making NetCDF an OGC standard. A similar step is under way with GeoSciML. Among the benefits expected is an intensified harmonization of these specifications with the relevant OGC standards, such as WCS.

Altogether, core specifications for geology in particular and the Earth Sciences in general have made important steps towards increased interoperability and, ultimately, enable a new level of service quality for Earth Science data access and retrieval.



CGI across the globe

CGI in Europe

2010 has been a very busy one for CGI related activities in Europe. There was the achievement of the EC funded OneGeology-Europe project in October, the CGI Science Language Workshop in Berlin and the annual meeting of the IWG in Rome.

The implementation of the INSPIRE Directive is something CGI and its Council are closely involved with. **INSPIRE is defining national laws across Europe for all spatial environmental data—including geology!**

The EC has selected and formed the groups responsible for the definition of the specification of the 25 themes related to environmental information. The Geology and Mineral resources themes have been merged into a single team. The Commission has selected two active members of the CGI IWG to play the leading roles of this group: Jean-Jacques Serrano as the Facilitator and John Laxton as the Editor. The group also contains other European experts active in CGI.

The specifications which will be produced by this group will define in details and standards for geological and mineral resources information and the way to exchange it. This will then become part of the European regulation and will force the public bodies that detain such information to make it available according to the INSPIRE specifications. This is obviously a huge opportunity for the CGI standards to be adopted by Europe. A first draft of specifications is being prepared and will be released in Spring 2011. It will be reviewed by the CGI.

As a result of its preliminary works, this group has proposed using the CGI standards GeoSciML and ERML as the reference for the data exchange for the INSPIRE related themes. The need to maintain a full consistency between the global standards defined by the CGI and the European standards is a clear objective of the working group.

CGI in South America

Current CGI activities in South America are focused on:

- Developing outreach activities to reduce the technological gap between developed and developing countries.
- Encouraging countries and organizations to have an active role in geoscience-information developments and applications in connection with hazard management systems and National Spatial Data Infrastructure projects
- Promoting the development of the OneGeology international initiative.

The CGI Seminar held in Buenos Aires in 2009 helped to create good relationships among countries and also provided context for the development of local initiatives and outreach activities. A second event was held in April 2010:

CGI Seminar Information Technology and Geosciences for Latin-America

This training course, supported by the Spain International Cooperation Agency, was developed in Cartagena, Colombia and focused on training in providing OneGeology level 1 services . Lectures were given by senior scientists from Spain, Argentina, Brazil and Peru. The success of this last event means that three new courses will be developed during 2011.

From the institutional point of view an important step was the promotion and support of OneGeology by ASGMI (Iberoamerican Geological and Mining Surveys Association) during its last meeting held in Barquisimeto, Venezuela.

Good news about the development of geoinformation systems comes from Brazil, Chile, Peru, Dominican Republic, and Cuba, where new corporate geoscience information systems were developed. Venezuela also has plans to develop their own system. OneGeology is celebrating the participation of Peru and Uruguay as new members, and the initiative now covers almost the 80% of South American continent!

CGI in Asia

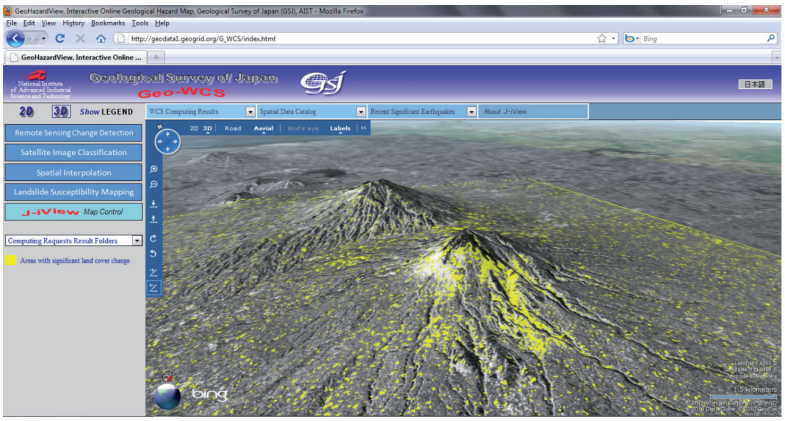
The Asian Working Group of CGI held an outreach workshop for the Asian geoscience community in Thailand in 201, in cooperation with CCOP. The workshop was endorsed by the CCOP annual and steering committee meetings in Manado, Indonesia in October 2010.

The Japanese Government decided to hold a training course for ASEAN Mineral Database from 2011 to 2013 to disseminate CGI standards such as GeoSciML and EarthResourceML.

The Geological Survey of Japan (GSJ) officially launched the open source based online viewer of Japan's seamless geological maps on Feb. 18, 2010. The viewer is named J-iView. J-iView is an online system used for the management, storage and delivery of geographically referenced information. The Web Mapping Service (WMS) of the 1:1 M Geological Map of Malaysia was successfully registered to the OneGeology portal on June 14, 2010. The WMS service is hosted by the GSJ.

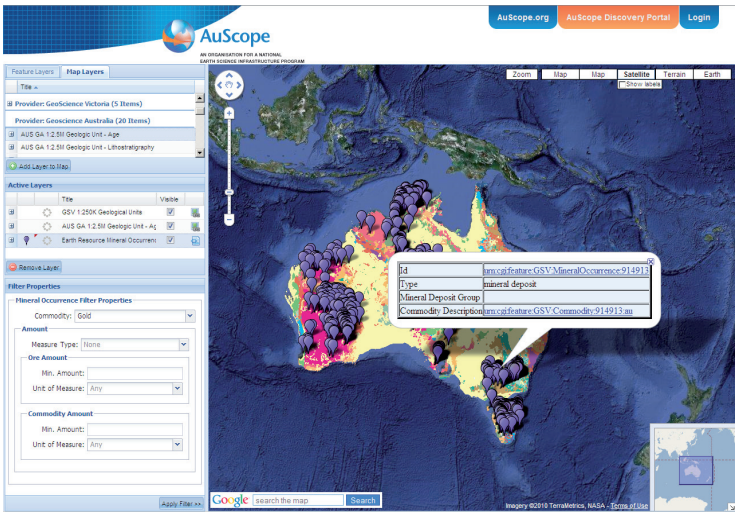
A new project support by the China Geological Survey (CGS) was set up in 2010. The main objective of this project is to study the CGI standards and its relationship with the IGMA (1:5M International Geological Map of Asia, CGMW). This project also got support from the ESRI China. CGS invites some young GIS experts to join this project.

GSJ and CGS actively participated in the Group on Earth Observations (GEO) 2010 meeting (GEO-VII) in Beijing in November 2010. GSJ just developed a new Web Computing Service (WCS) named Geo-WCS. The first service available is the land cover change detection system using ASTER and ALOS images. Land cover change detection is very important for the rapid identification of areas affected by natural disasters. The URL of the site is http://geodata1.geogrid.org/G_WCS/index.html .



CGI in Oceania

AuScope continues to be the main geoscience information related activity occurring in Australia; it is one with significant benefits for global information applications. The AuScope Discovery Portal allows users to discover, browse, save, and process geospatial information from earth science data sources around Australia. These sources include drillhole hyperspectral, geology and mineral resource data based on GeoSciML, EarthResourceML and O&M services. Both the GeoSciML and EarthResourceML exchange languages are governed by CGI.



AuScope have also established a vocabulary service that provides both the CGI's Geoscience Concepts Task Group's geosciences controlled vocabularies, formalised in SKOS/RDF, and a web service interface (API) for querying and navigating these ontologies. Clients maintain a mapping of the terms from their local database to the community agreed controlled concepts in the vocabulary service. This enables true interoperability of related geoscience.

Government Geologists Information Committee (GGIC) Activities

Close working between the CGI and the GGIC continued in 2010. The GGIC is a committee of geoscience information managers from the Australian State/Territory/Federal geological surveys and the New Zealand Ministry of Economic Development and GNS Science agencies. It reports directly to the Australian/New Zealand Chief Government Geologists Committee (CGGC). Its mission is to provide and promote a coherent national strategic direction for the management and delivery of geoscience information on behalf of CGGC. As part of this mission, CGGC finances Oceania representation at CGI Council meetings.

The CGGC requested the CGI assume ongoing governance and development of the GGIC developed EarthResourceML. This was agreed to at the 2010 CGI Council meeting. EarthResourceML has also been proposed as a candidate information model for the European INSPIRE Mineral Resource exchange model.

Pacific Islands Applied Geoscience Commission (SOPAC)

Initial contact with SOPAC has been made by CGI. Although the CGI Oceania representative (Bruce Simons) was unable to attend the SOPAC 39th Annual Session held in Fiji on 16–22 October 2010 at short notice, it is hoped that further collaboration between CGI and SOPAC will occur during 2011.

CGI in Africa

CAG23—The 23rd Colloquium of African Geology

In January 2011 a 1 day combined workshop of GIRAF, OneGeology and AEGOS will take place in Johannesburg during the 23rd Colloquium of African Geology. This 'Super' workshop of three initiatives, either purely African or working in/with Africa, offers an excellent opportunity to present an integrated programme on geoscience information and better coordinate efforts and meetings and to better link within Africa and cooperate in future.

The workshop held in Namibia in 2009—GIRAF—Geoscience InfoRmation In Africa—was the kick-off meeting of an initiative to build an pan-African Geoscience Information network of knowledge and best (good) practice.

The participants at GIRAF 2009 agreed 15 points and milestones (see www.GIRAF2009.org) to improve the development of geological Information knowledge, cooperation and projects from Africans for Africa and to widen the 'GIRAF community'.

One of the decisions was to hold a second follow-up workshop in 2011 with the main aims to:

- Continue the building of a pan-African geoscience information knowledge network to exchange and share geoscience information knowledge and best practice
- To review the realization of the GIRAF 15-point-GIRAF agreement set up at the First workshop and signed by all 97 participants
- Gather up-to-date feedback on the actual situation of geoscience information status and progress in Africa
- And in long-term planning improve the way geoscience information contributes to improve the health and prosperity of the people in Africa.

This and other GIRAF issues were presented and discussed in the Africa Session of the Conference of the European Geosciences Union (EGU 2010)

The CAG 23 Workshop of GIRAF, AEGOS and OneGeology will help the planning of the next GIRAF workshop which is planned to take place in Daressalaam and hosted by SEAMIC (The Southern and Eastern African Mineral Centre) can be made.

See you at the next GIRAF Workshop in Daressalaam!

OneGeology

Major advance in Europe!

OneGeology-Europe—a two year project spawned by OneGeology global and supported by the European Commission—has built a system to serve live geological map data from the computers in each nation and make it available on the internet to anyone with a web browser. A team of geologists and users of geological information from 21 European geological surveys have just delivered the first ever multilingual internet geological map of Europe. To do this the project team developed a state-of-the-art way to share digital geological map data (making it 'interoperable') and also tackled the enormous challenge of harmonising decades of scientific data from 21 different Member States. The team also overcame one of the biggest barriers to data access—the legal and copyright issues—all the participating nations have agreed a simple single one click licence that makes the data available for free, for any use.

The project has taken cutting edge internet mapping technology and standards and applied it to the distributed geological data of a whole continent. It is the first example of a multi-national deployment of environmental data of this scale. Making available geological data like this opens up a host of possibilities—some of which are already in train—including geological Apps for mobile phones. OneGeology-Europe was funded under the European Commission's eContentplus programme for 2008—Best Practice Networks: Geographic information. The overarching objectives of the eContentplus programme are to make digital content in Europe more accessible, usable and exploitable, facilitating the creation and diffusion of information, in areas of public interest, at Community level. The eContentplus programme is intended to have an enabling role.

OneGeology-Europe had 28 partners from 21 European nations. 20 of these partners are national geological surveys, 7 are users of geological information and one partner organisation is expert in the legal aspects of digital data. One of the prime aims of OneGeology-Europe has been to test and advance the implementation of a new European Directive—INSPIRE—which was brought into force in May 2009. This EC Directive requires each Member State to make available and share Public Sector spatial environmental data to enable better delivery of policy and actions across Europe.

OneGeology-Europe is of course contributing to OneGeology—the overarching global initiative set up two years earlier in 2006 (see www.onegeology.org). **116 nations are now participating in OneGeology global, with over 40 of those nations serving their data to a dynamic web map portal.** OneGeology is synergistically using the vehicle of creating a tangible geological map to accelerate progress of a global geoscience data model and interchange standard (GeoSciML). Most importantly the project is transferring know-how to those who wish to deliver spatial data on the Internet and especially developing countries. To do this several training courses were held in 2010. Reducing the length and expense of the learning curve allows developing nations to serve geological maps and data that will attract interest and investment.

A major objective of OneGeology in 2010 has been to make progress towards incorporated status and its Steering Group are currently considering the final draft of the Articles of Association.

CGI at the 34th IGC in Brisbane

34th IGC Geoscience Information Super-symposium

The CGI, in conjunction with the IAMG and GIC, are jointly organising a Geoscience Information Super-symposium at the 2012 34th IGC. The geoinformation sessions are about data and information management and services, including informatics standardization.

This super-symposium will consist of six major themes encompassing:

- spatial data infrastructure and regional geoinformation initiatives;
- interoperability and standards;
- delivery, dissemination and exploitation of geoscience data and information;
- mathematical geology and geostatistics;
- model fusion, visualisation, exploration and 3D & 4D modelling;
- software, hardware, open source and super computers.

In addition, there will be a 'Hot Topic' plenary session, scheduled for 1–2pm on one of the days, providing presentation and discussion on the 'Geoscience Information Revolution'.

As the Congress is only 5 days (6–10 August, 2012), fitting the proposed sessions into the available time will be a challenge. The organisers are therefore keen to ensure the highest quality for oral presentations and will be emphasising the importance of poster presentations.

The Geoscience Information Super-symposia coordinators are Bruce Simons (bruce.simons@dpi.vic.gov.au), Simon Cox (simon.cox@jrc.ec.europa.eu) Robert Tomas (robert.tomas@jrc.ec.europa.eu) and Richard Hughes (rah@bgs.ac.uk).

Session theme	Description
1. Geoscience spatial data infrastructures and regional geoinformation initiatives	Symposia for regional geoscience information activities and developments from Oceania, Africa, Asia, Europe and the Americas. The latest news from geoscience-related Spatial Data Infrastructure development around the world, with particular reference to the pan-European INSPIRE initiative and SDI, the North American GIN and Geoconnections initiatives and the Australian AuScope project.
2. Interoperability and standards	Geoscience information management best practise and standards for digital and analogue data; thesauri, dictionaries, vocabularies, ontologies and semantics. Development and application of information exchange formats underpinning interoperability (GeoSciML, GML, EarthResourceML, OGC and other standards), mapping data models to standards; successes, best practise and lessons learnt.
3. Delivery, dissemination and exploitation of geoscience data and information	Strategic and technical progress, developments and plans from the OneGeology Global and OneGeology Europe initiatives. The creation of information and knowledge from geoscience data to address societal needs and create societal impacts and benefits; intellectual property and digital rights management in the digital era. Developments and best practise in the delivery of dynamic and static data and information.
4. Mathematical geology and geostatistics	New advances and methodological challenges in the analysis of spatial, time-dependent and compositional geoscience data. Non-linear modelling of natural systems. Application of geostatistical and geomathematical methodologies and tools to the interpretation of geochemical data, remotely sensed data, rock anisotropy, and climate data.
5. Model fusion, visualisation, exploration and 3D & 4D modelling	Progress and developments in linking process- and time-dependent models across the environmental science disciplines towards the development of predictive environmental modelling platforms. 2-, 3-, 4- and n-D geoscience information, modelling and immersive visualisation systems; error and uncertainty in such systems; deployment of such systems in geological surveys and agencies. Applications of geomathematical analysis and modelling in the field of mineral exploration.
6. Tools—software, hardware, open source	Information technology challenges and solutions in the geosciences; data management on the petabyte scale; high performance computing and grid technologies in the geosciences. Digital mapping techniques and methodologies, digital data capture and digital workflows from field to output; digital cartography techniques and standards.

Table Proposed Geoscience Information Super-symposium themes.

CGI business

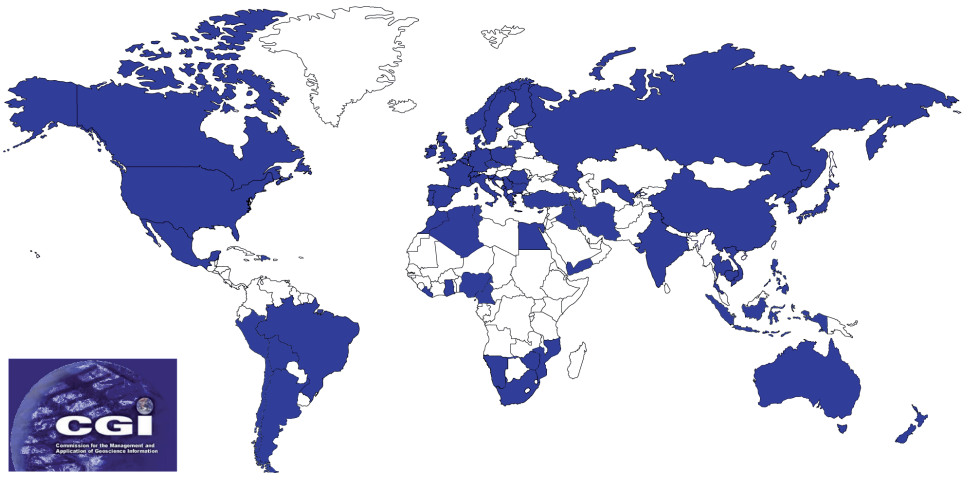
Meetings

The CGI Council Annual Meeting was held in Berlin in August. Berlin was chosen as this was also the venue for the major workshop on Geoscience Language and the meeting of the OneGeology Operational Management Group. We welcomed Wan Jung of China to the Council and agreed that Linda Gundersen of the USA would be approached as a replacement for Dave Soller (Linda has subsequently accepted.)

A prominent topic of discussion was the future of CGI and its activities beyond 2012 and this discussion has continued by email subsequently. A second major discussion related to the future of work on the Multilingual thesaurus—the decision about the merging of two of CGI's groups is described on page 1 of this report. Each component of the CGI 4 year Action Plan was reviewed:

- Catalyse alliances: evidence cited—1G, 1G-E, GIC, ICSU, IAMG, INSPIRE, GGIPAC, AUSCOPE, ICS, CGMW, EGS, OGC (list to be expanded by Council);
- Stimulate progress and standard geological concepts: evidence—CDTG, MTG, 1G-E multilingual vocabulary;
- Promote use of data exchange standards: evidence—IWG, 1G, 1G-E;
- Facilitate outreach: evidence—GIRAF, S. American workshop, 1G;
- Role in coordination of regional initiatives: evidence—INSPIRE, 1G-E, CCOP .

CGI Council members also met opportunistically at a number of events throughout the year.



Website and communications

The CGI website is regularly updated by the CGI Secretariat (our continuing thanks to Kathryn Bull of BGS) and contains all the essential documentation about the Commission and its work.

Membership

CGI now has 243 members in 64 countries across the world.

Finance and budget

CGI receives funding from the IUGS (7.500 USD in 2010) but no direct regular financial support from other bodies. It does however receive considerable indirect support in terms of staff-time and meetings and infrastructure facilities from the parent organisations of its Council members and organisations such as CGMW.

Thanks to the support of BGR and of the German government, the cost of the CGI Geoscience Language workshop was covered without requiring funds from the CGI. The hosting maintenance of the website was done by BGS which only charged a part of its cost to CGI.

The CGI council decided to fund three main activities in 2011 to maximize the outreach of the work of its working groups:

A) an Asian Outreach workshop (estimated cost to be covered by CGI : 12.000 USD)
B) Interoperability and GeoSciML publication (estimated cost to be covered by CGI :12.000 USD)
C) GIRAF 2011—African outreach (estimated cost to be covered by CGI : 11.000 Euro).

The CGI accounts are presented in the attached table.

	$ account		€ account	
	in	out	in	out
October 2002 kickoff 'new' CGI	**2 172.81**		**1 113.59**	
2002 allocation IUGS (3000$)	3 000.00			
2001/2002 grant ICSU (5000$)	5 000.00			
Council meetings				-10.00
New web site		-2 512.32		
CGI bank account costs		-0.60		
balance 2002	**7 659.89**		**1 103.59**	

2003	in	out	in	out
2003 allocation IUGS (5000$)			4 104.75	
Council meetings				-826.27
MT working group				-426.00
CGI bank acccount costs				-25.00
Balance 2003	**7 659.89**		**3 931.07**	

	$ account		€ account	
2004	in	out	in	out
2004 allocation IUGS (5000$)			4165.28	
Debudgetting unclaimed expenses 2003			426.00	
Council meetings				-138.00
CGI Flyer				-696.00
MT Workinggroup				-426.00
Firenze prep. & participation				-294.60
Website				-2006.05
CGI bank costs				-20.00
Balance 2004	**7 659.89**		**4 941.70**	
2005				
Domain name CGI website (28.2£)				-43.00
2005 allocation IUGS (5000$)	5000.00			
Council meetings				-286.30
Cost CGI bank account 2005				-20.00
Balance 2005	**12 659.89**		**4 592.40**	
2006				
IUGS Grant outreach workshop (10000$)	10 000.00			
UNESCO Grant outreach workshop leaflet (5000$) contract 4500027900	5 000.00			
2006 IUGS allocation (5000$)	5 000.00			
Refund Datamodel workshop Perth dec 2004		-367.68		-27.83
Maputo outreach workshop		-2941.23		-3510.85
Printing and Shipping leaflet		-4690.00		-2390.49
Internal transfer $ => €		-5000.00	3857.73	
Balance 2006	**19 660.98**		**2 520.96**	
2007				
cost CGI bank account 2006				-20.00
2007 IUGS Grant allocation	7500.00			
Cost domain name CGI website (24.99£)				-41.79
Cost CGI bank account 2007				-30.00
Balance 2007	**27 160.98**		**2 429.17**	
2 008				
Travel expenses preparation Giraf Schutte				-240.00
Cost CGI bank account 2008				-30.00
Cost transfer accounts Fortis--> LCL				-43.26
Balance 2008	**27 160.98**		**2 115.91**	
2 009				
ACCOUNTS TRANSFERED				
Travel expenses Broome CODATA		-1139.69		
Repro banner Giraf				-216.91
2009 IUGS allocation	15 000.00			
Cost transfer IUGS --> CGI		-23.01		
Travel expenses S. Richard - MLT St Petersburg		-2808.85		
Transfer charges		-24.60		

	$ account		€ account	
2 010	in	out	in	out
Payment maintenance of CGI web site (NERC/BGS)		-2300.00		
Transfer charges				-16.50
2010 IUGS allocation	7 500.00			
Transfer charges				-16.50
Balance December 2010	**43 364.83**		**1 866.00**	

Acknowledgements

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CGI Council
15 December 2010

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