CGI ANNUAL REPORT 2013

IUGS

Contents

1. Overall objectives, mission and aims

An understanding of geology is crucial in protecting human life, health and assets, and sustaining our environment and resources. As in many areas of life today, information technology (IT) is having a dramatic impact on the way geological data and knowledge is being captured, processed and disseminated. The effective application of IT is the key to the future exploitation of geological knowledge for the benefit of society.

CGI aims to:

1. Provide the means for transferring knowledge on geoscience information and systems.
2. Stimulate international dissemination of best practice in geoscience information.
3. Stimulate and support initiatives which are developing standards.
4. Establish and occupy an accepted position in the international geoscience information community and represent IUGS on geoscience information matters.

2. Role within IUGS science policy

The CGI fills the role of the geoscience information body of the IUGS. It represents IUGS on geoscience information matters, provides the means for transferring knowledge on geosciences information and systems, assists international dissemination of best practice in geosciences information, stimulates and supports initiatives which are developing standards and its Council members hold several significant positions within the international geosciences information community.

3. Organization, Council members and officers

Council Officers 2012-2016

One member left the Council and three new CGI Council members were elected in 2013. The current CGI Council members are:

- François Robida (Chair) – France
- Kristine Asch (Secretary General) - Germany
- Robert Tomas (Treasurer) - Czech Republic
- Gabriel Asato – Argentina
- Peter Baumann – Germany
- Michael Frame – USA
- Zhang Minghua – China
- Kombadayedu K. Mhopjeni – Namibia
- Santiago José Muñoz Tapia - Dominican Republic
- Kazuhiro Miyazaki – Japan
- David Percy – USA
- Oliver Raymond – Australia

Ex-officio CGI Council representative: Gemma Nash (BGS, UK)), CGI media administrator

The current CGI secretariat is located at the Federal Institute forGeosciences and Natural Resources, Germany (BGR). The contact is cgisecretariat@bgr.de.

Council web presence

The CGI Council, along with BGS, provided the necessary updates to the Council web presence. More improvements are still in process. The intent of the redesign is to improve overall find-ability of information, better highlight CGI activities, emphasize CGI support emerging standards, and provide an area to showcase CGI sponsored Working Groups.
http://www.cgi-iugs.org

Since December 2013 our new CGI LinkedIn group exists. The group provides a forum for CGI and LinkedIn members to connect with other geoscience professionals, to post news of upcoming events, to ask questions and to discuss CGI related issues.
http://www.linkedin.com/groups?gid=6539642

Membership

CGI now has 269 members in 66 countries across the world.

4. Extent of national/regional/global support from sources other than IUGS

Other than the substantial in-kind contribution of the geological organizations that pay the salaries and expenses of CGI Council and members, the CGI does not receive additional support. Sometimes CGI workshops are co-organized by other organizations such as the UNESCO, the German Federal Ministry for Economic Cooperation and Development (BMZ), The Geological Survey of Namibia, Australian Aid, SEGEMAR or SEAMIC who have been contributing to the events.

5. Interaction with other international projects

A major partnership with OGC has been finalised in 2012 with the signature of a MoU with OGC (OpenGeospatial Consortium) to jointly work on the development of GeoSciML.
The CGI in collaboration with OGC, is continuing to develop Geoscience ML (GeoSciML), a mark-up language allowing the digital exchange of geoscience information locally, continentally and globally. Both, the linked global OneGeology project and the past European EC project OneGeology-Europe are using GeoSciML to make geological data interoperable and accessible via their web portals. The EC Directive INSPIRE and its implementing rules were published in December 2013 (see 6.8 Europe).
ERML (Earth ResourceML) is also a major development of the CGI, and adopted by major EU funded projects as Mineral4EU or Eurare.

6. Chief accomplishments and products

6.1 CGI COUNCIL Meeting at the 125th Anniversary Annual Meeting of The Geological Society of America, 31st October – 1st November in Denver, Colorado, USA

CGI Council Meeting in Denver, Colorado, USA 2013

The annual meeting of the CGI COUNCIL took place from 31st October to 1st November just after the annual meeting of The Geological Society of America in Denver, Colorado. The new Council met for one and a half days. Among the discussed issues especially the following subjects were important:

- Reconstruction of the CGI website
- Candidates for free positions of membership in the CGI Council
- CGI membership
- Organization of the budget administration

- Regional and Working Group reports
- Participation of CGI at FOSS4G-Europe 2014
- GIRAF workshop in Maputo, Mozambique in 2015
- Organization of a Geoinformation Super-Symposium at the International Geological Congress 2016 (IGC) in South Africa.

6.2 Interoperability Working Group

Introduction

Within the reporting period the 'top-level' objectives have been:

- To complete development of the data model and schema for GeoSciML v3.
- To complete development of GeoSciML-Portrayal.
- To complete the schematron service to validate GeoSciML WFS.
- To migrate stewardship of GeoSciML to OGC.
- To complete development of the data model and schema for EarthResourceML v2.

Meetings

During the reporting period there was one plenary IWG meeting:

St Petersburg, Russia, June 2013

The IWG and all task groups met in a joint session in June 2013 in St Petersburg, hosted by VSEGEI. The principal meeting objectives were to:

- Exchange of information between GeoSciML and VSIGEI.
- Finalise the GeoSciML v3.2 data model with changes needed to accommodate INSPIRE.
- Discuss/review status of EarthResourceML v2.
- Discuss GeoSciML v4 designed to be consistent with OGC conformance classes. It was agreed that GeoSciML v4 will be developed under the auspices of the OGC GeoSciML SWG, not the IWG.

In addition to these two meetings there was a brief inaugural meeting of the OGC GeoSciML SWG in conjunction with the OGC TC meeting in Redlands, January 2013.

Group attending the GeoSciML/EarthResourceML/Vocabularies meeting in St Petersburg

Main actions during the review period

- Finalising and releasing GeoSciML v3.1 in December 2012.
- Finalising and releasing GeoSciML v3.2 in August 2013. This is last version of GeoSciML to be produced under the auspices of the CGI IWG.
- Finalising and releasing EarthResourceML v2 in September 2013.
- Agreement for a MoU between the CGI and OGC.
- The initiation of the OGC GeoSciML SWG under which all future GeoSciML development will be carried out.
- The initiation of work on GeoSciML v4 under the auspices of the OGC GeoSciML SWG. This will be based on the abstract specification of GeoSciML v3, but be structured to be consistent with OGC conformance classes.
- The extension of GeoSciML Portrayal to include boreholes.
- Continued development of the GeoSciML schematron.
- Initiation of work on EarthResourceML Portrayal.
- Close contact has been maintained with the development of the INSPIRE Geology and Mineral Resources data specifications. GeoSciML and EarthResourceML have been adapted to enable them to be used to implement the INSPIRE specifications.

Next steps

GeoSciML v3.2 has been published and subsequent versions of GeoSciML will be produced under the auspices of the OGC GeoSciML SWG, albeit with largely the same people involved. GeoSciML v3.2 will be used in the implementation of the INSPIRE Geology data specification. EarthResourceML v2 has also been published and will now be trialled in projects such as Mineral4EU and Eurare, as well as being used in the implementation of the INSPIRE Mineral Resources data specification. Any further versions of EarthResourceML will await feedback from use of EarthResourceML v2.

Liaison with the GeoScience Terminology Working Group will be maintained to ensure that the vocabularies required by EarthResourceML, and largely developed within the context of INSPIRE, are finalised and adopted by the CGI.

EarthResourceML Portrayal will be developed.

6.3 Geoscience Terminology Working Group

The GTWG held its first teleconference on 5th Feb. 2013, with 12 participants:

- General agreement that Steve Richard (The Arizona Geological Survey) remains working as group Chair. Will review in St. Petersburg after group has opportunity to get clearer picture of what is involved.
- Agreement to continue to use CSIRO WIKI for the time being, but to set up a Google Group for group emails.
- Primary work items identified include vocabularies for EarthResourceML, additional language localization (translations of concept labels) for existing vocabularies.
- Identified need for a policy document on work flow for proposing, developing, reviewing, adopting, and disseminating vocabularies.

The first face to face meeting was held in conjunction with the GeoSciML working group meeting in St. Petersburg, Russia, 7th June, 2013, with 18 participants present in person, with 2 remote participants.

- Process for proposing, developing and reviewing vocabularies was discussed (see attached minutes). Mark Rattenbury to draft policy document for group to discuss and review.
- Decision made to use Google Drive for shared working documents. Drive is located at https://drive.google.com/#folders/0B-5zXOYZ_JMINTBfUElRRTVOSTA.
- Vocabularies in development were summarized by shepherds for each vocabulary. The following vocabularies were adopted for use by the community:

  geologicHistoryRelationship
  samplingFrame
  linearDirected
  planarPolarity
  classificationMethod
  materialRoleValue
  mineStatusValue

rawMaterialRoleValue
reserveCategoryValue
resourceCategoryValue
wasteStorageType

6.4 Asia

OneGeology-Asia

The OneGeology project has been actively promoted by the Geological Survey of Japan (GSJ) and the Coordinating Committee for Geoscience Programmes in East and Southeast Asia (CCOP) in the Asian region. The OneGeology-Global and OneGeology-Asia projects were presented during the CCOP Annual Session in Langkawi, Malaysia on November 6, 2012. The OneGeology-Asia's portal was also developed by the Geological Survey of Japan. It could be accessed at http://jcbwebgis.com/OneGeologyAsia/index.php. The portal, together with the OneGeology-Asia Web Map Services (WMSs), was moved to the permanent server at onegeology-asia.org. GSJ developed the OneGeology-Asia Mobile for viewing Asian OneGeology registered geological maps using iPhone and iPads. The demo of the App could be viewed at http://www.youtube.com/watch?v=y0ZNf-U4sgg.

Asia-Pacific Region Global Earthquake and Volcanic Eruption Risk Management (G-EVER)

The Asia-Pacific Region Global Earthquake and Volcanic Eruption Risk Management (G-EVER) is a consortium among the geohazard research institutes in the Asia-Pacific region. It was established in 2012 with the objective of formulating strategies to reduce the risks caused by the occurrence of earthquakes, tsunamis and volcanic eruptions worldwide. The G-EVER Hub website (http://g-ever.org) was setup to promote the exchange of information and knowledge about volcanic and seismic hazards among Asia-Pacific countries. Several G-EVER working groups and projects were proposed such as the following: (1) risk mitigation of large-scale earthquakes WG, (2) risk mitigation of large-scale volcanic eruptions WG, (3) next-generation volcanic hazard assessment system WG, and (4) Asia-Pacific region natural hazard mapping project. The first G-EVER International Symposium was held in Tsukuba on March 11, 2013 in commemoration of the devastating 2011 earthquake off the Pacific coast of Tohoku, Japan. The 2nd G-EVER International Symposium and the 1st International IUGS&SCJ Workshop on Natural Hazards were held in Sendai, Tohoku, Japan from October 19th to 21st, 2013. The activities were co-hosted by the International Union of Geological Sciences (IUGS) and Science Council of Japan (SCJ). The G-EVER next-generation volcanic hazard assessment system is released at
http://volcano.g-ever1.org/vhazard/HazardAssessment/.

ASEAN Mineral Database Training

The Geological Survey of Japan (GSJ) continuously conducts training courses and workshops on the development of the ASEAN Mineral Information System using Free and Open Source Software (FOSS) and Open Geospatial Consortium (OGC) Standards. The training entitled "Training Program on Mineral Resource Database for ASEAN" was conducted by GSJ at the Tokyo Kenshu Center from September 18th to 26th, 2012. The training was attended by information technology representatives from countries in the ASEAN region. GSJ also conducted a follow-up training about mineral resources database development at the Department of Geological Survey and Mineral Exploration, Nay Pyi Taw, Myanmar from

January 30th to 31st, 2013. Another follow-up training was hosted by the Ministry of Energy and Mineral Resources of the Republic of Indonesia. It was held in Bali, Indonesia from June 25th to 28th, 2013. More trainings and workshops about mineral resources information system development and geospatial information integration using FOSS and OGC standards are scheduled in 2014 and 2015. Lastly, the ASEAN Mineral Resources Database was presented in the expert meeting on Web-based GIS and Recent Geoscience Database during the CCOP Annual Session in Sendai, Tohoku, Japan on October 25th, 2013.

6.5 South/Latin America

The CGI activities in South America (SA) are focused on the development of outreach activities to encourage the development of geoinformation, promote the adoption of CGI standards and create awareness about the rule of information technologies in GS activities at decision levels.

Training courses

Training courses are a common and main activity in SA, unfortunately this year there were no opportunities to organize a new one.

Workshops

Argentina, Brasil, Colombia and Peru participated in a special mining and oil commercial event about data management and geoscience (Natural Resources Data Management Meeting) that was held in Rio de Janeiro, Brazil. There are a growing interest on Big Data analysis and management, human factors in data management and data management as a new professional discipline. Brasil and Peru presented their own corporate database systems and Argentina point-out in a presentation the importance of the human issues of technology adoption in SA.

Technical groups

In 2012 a technical group on Electronic Geoscientific Languages was created. The aim of this group is the development of a consistent set of geoscientific terms in all of the Spanish speaking countries in order to guarantee the semantic interoperability of the data across the continent. During 2011 the objectives and the work plan for 2012 was defined. But since 2012 there are no news about the progress or cancellation of this proposal.

Regional update

Colombia Mining and Geological Institute recently split in two new institutes. The Geological Survey of Colombia and the Mining Institute. At present Colombia is going to lead the development of a workshop around the project of the geological map of South America.

OneGeology and Latin America

At this time OneGeology seems to be in a period of stagnation. It probably happened that the geological surveys of Latin America didn't get a clear message about the progress of this initiative. In that sense it is necessary that the relations between OneGeology and Latin America must be renewed.

Despite of those general feelings a meeting with the Geological and Paleontological Survey of Cuba was made in order to facilitate the participation of that country in OneGeology.

Main Products

There are no new products for this year.

Main problems encountered in 2013

Due to communication discrepancies between the technical and decision sides in Latin America local operation didn't receive appropriate funds. Therefore outreach activities were organized based on enthusiasm and immediate opportunities rather than a clear medium term planning.

6.6 Africa

GIRAF 2013 Workshop – Geoscience Information in Africa, Mapping and Mining – 22.-27. September 2013, Accra, Ghana

From 22nd to 27th September the GIRAF 2013 Workshop took place in Accra, Ghana in concordance with the Centennial celebrations of the Geological Survey of Ghana.

121 participants from 26 African and 7 non-African countries took part. The workshop was the third workshop of the Geoscience InfoRmation in Africa network (GIRAF), which was founded in 2009. The GIRAF is governed by the IUGS-Commission the Management and Application of Geoscience Information (CGI) and supported by the UNESCO. The GIRAF-network is bringing together African scientists, authorities, national experts and other stakeholders in geoscience. The aims are to exchange and share geoscience information and good practice, stimulate and support cross-border geoscience information projects and to make Africa a more active part of the international geoscience information community. GIRAF provides a platform to address, discuss and raise awareness of what geoscience information can do to - in the long-term - improve the way geoscience information contributes to the health and prosperity of the people in Africa. At the moment GIRAF has 337 Members, mainly from 37 African, but also from 15 non-African countries.

The GIRAF 2013 Workshop was hosted by the Geological Survey Department of Ghana and organized by the Federal Institute for Geosciences and Natural Resources (BGR) in Cooperation with the International Mining for Development Centre and supported by the Commission for the Management and Application of Geoscience Information (CGI) of the IUGS (International Union of Geological Sciences (IUGS) and the UNESCO. The event was generously supported by the German Federal Ministry for Economic Cooperation and Development (BMZ) an Australian Aid. It was bringing together numerous African geoscience information experts, managers and stakeholders.

The main theme of the workshop was "Geoscience Information, Sustainable Mining and Mapping" and offered and excellent opportunity to present and discuss national African geoscience information projects, to report progress since the first and second GIRAF workshop in 2009 and 2011 and explore ways to cooperate in friendship across political boundaries.

The GIRAF 2013 Workshop in Ghana: participants

The workshop was opened by the advisor to the vice-president of the Republic of Ghana and the Minister for Lands and Natural Resources, with contributions of the Australian High Commissioner to Ghana, the Acting Ambassador of Germany, the director of the Geological Survey of Ghana and the GIRAF coordinator.

Opening of the GIRAF 2013 Workshop, here: Speech by the German Acting Ambassador Thomas Wimmer

The Workshop encompassed more than 40 presentations about geoscience information projects and developments (including a presentation of GeoSciML and OneGeology) - the main focus was on sustainable mining, regional planning and small-scale mining.

GIRAF 2013 participants

In a final plenary session the following main results were achieved and presented:

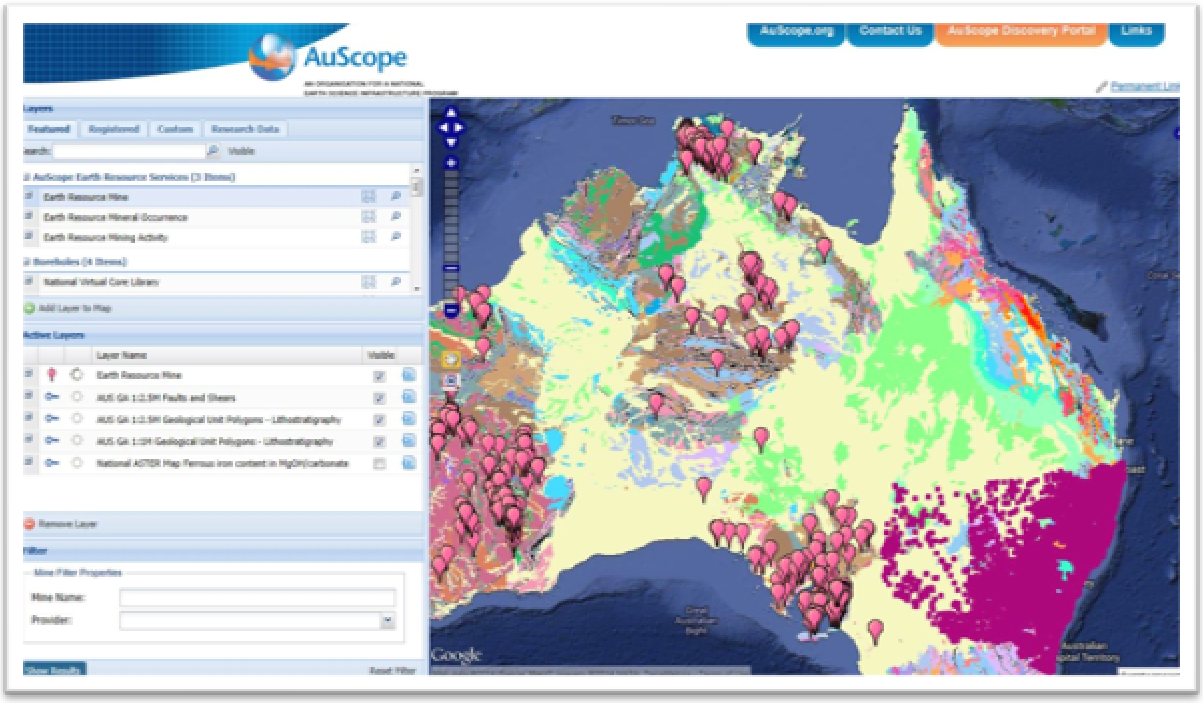
- 14 GIRAF "ambassadors" volunteered to create national core groups with 14 African countries;
- The newsletter of the GIRAF will be published not only in English, but also French (2 Editors volunteered);
- After a completion from 3 countries, Morocco, Niger, and Mozambique the next location for the GIRAF 2015 workshop was elected: Maputo, Mozambique;
- Recommendations about issues of small-scale mining are being prepared by a small group.

93 percent of the GIRAF 2013 workshop participants rated the workshop as very good to excellent.

6.7 Oceania

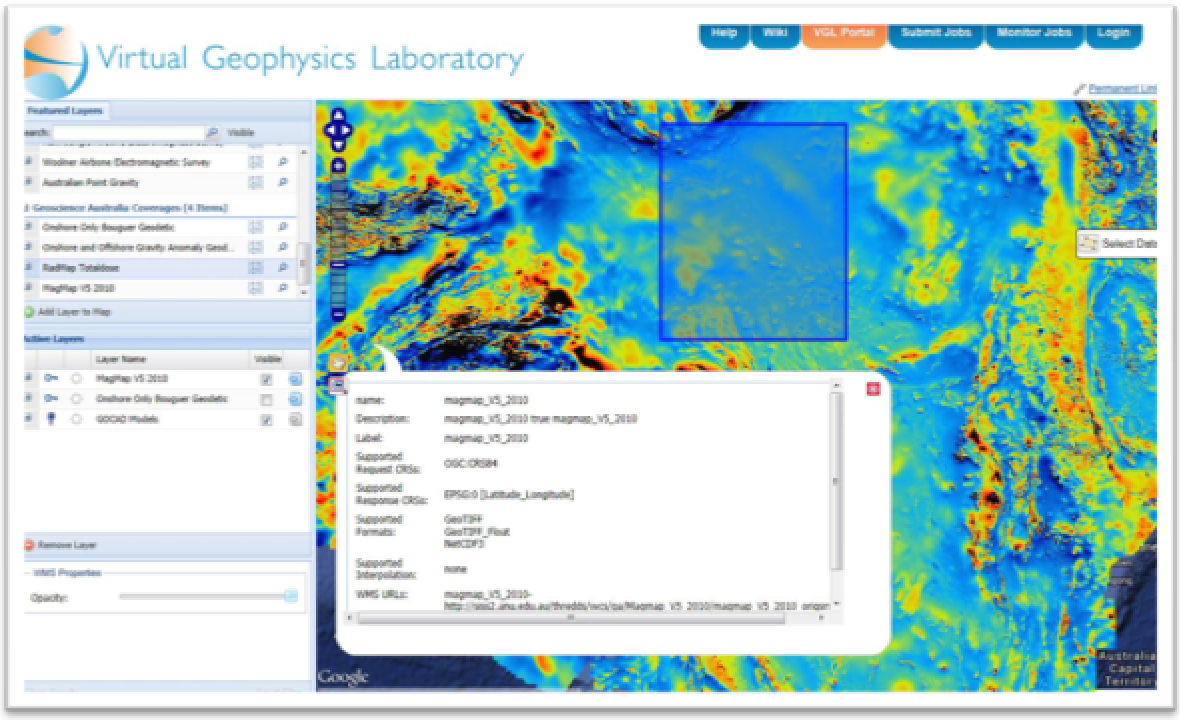
Australia and New Zealand (NZ) are key participants in the development and testing of IUGS-CGI data standards, including GeoSciML and EarthResourceML. There are also two Australian and one NZ representatives on the CGI Geoscience Terminology Working Group.

The Australia/New Zealand Government Geoscience Information Committee (GGIC) continues to develop and promote interoperability of geoscience information in the Oceania region. GGIC is currently designing and building a portal for interoperable discovery and delivery of Australian federal, state, and territory government geoscience data. The portal design is being strongly influenced by proof-of-concept work undertaken by the AuScope project (http://www.auscope.org.au/) over the past few years, particularly the AuScope Portal (http://portal.auscope.org/portal/gmap.html). The AuScope project continues to assist Australian geoscience agencies to build and maintain borehole and mineral deposit web services. AuScope developers have also contributed enhancements to enable the Geoserver open source web services application to better deliver borehole interval data.



Screen snapshot of the AuScope Portal

The GGIC has recently published simple features WFS/WMS schemas for mineral exploration tenements (MineralTenementML) and mineral occurrences (MinOccML) at http://schemas.geoscience.gov.au. The mineral occurrences schema is a copy of the IUGS-CGI proposed release candidate EarthResourceML-Portrayal (ERML-P) schema and will be retired when the ERML-P schema is published. MineralTenementML and MinOccML will be used by Australian government agencies to deliver WMS and simple WFS services.



Screen snapshot of the Virtual Geophysics Laboratory portal

A major technological development in Australia in the past year is the Virtual Geophysics Laboratory (VGL, https://www.nectar.org.au/virtual-geophysics-laboratory). The VGL is a collaboration between CSIRO, Geoscience Australia, and the Australian National University supercomputing facility and is a scientific workflow portal that provides scientists with access to an integrated environment for geophysical data processing and analysis that exploits web services, and cloud-based data processing tools and high performance computing technology.

Geoscience Australia published an updated GeoSciML-Portrayal Australian surface geology Web Map Service:
(http://www.ga.gov.au/gis/services/earth_science/GA_Surface_Geology_of_Australia/MapServer/WMSServer).
which will be registered with OneGeology by the end of 2013. Work is underway to build standard CSW metadata services in all Australian government geoscience agencies to aid discoverability of publically available geoscience data.
In New Zealand, GNS Science is steadily increasing the number and scope of geoscience web services particularly for geological map and petroleum exploration data. These Geoserver/OpenLayers WMS layers are also being used for web map applications (e.g. http://data.gns.cri.nz/geology, http://data.gns.cri.nz/dataportal). In addition, ArcGIS Server WMS and WFS have recently become available for demonstration purposes (e.g. http://eaglesgis.maps.arcgis.com/home).
Incorporation of IUGS-CGI geoscience vocabularies into geological map data layers has begun and redevelopment of the data structure is closely following the GeoSciML Portrayal form as a precursor to providing this portrayal web feature service. Similar alignment work is occurring with the development of a new borehole view for GNS Science-hosted data.

6.8 Europe

On 10th of December, Regulation (EU) No 1253/2013 (the Annex II+III amendment of the Implementing Rules on interoperability of spatial data sets and services) was published in the Official Journal (http://inspire.ec.europa.eu/). At the same time the final Technical Guidelines (versions 3.0) for Annex II and III were published on the INSPIRE site. These legal act complements other INSPIRE legal acts and standards, that together form the basis of the Infrastructure for Spatial Information in the European Community (INSPIRE) that Directive 2007/2/EC envisions. This new Regulation is a milestone in the development of INSPIRE. It is the result of effort of hundreds of experts from across Europe that have been working together for several years to agree common definitions in important policy areas such as energy, climate change, biodiversity, the marine environment, mineral resources and human health.

The relevant EU Member states (data providers) have to comply with this Regulation by 2015 for new datasets or heavily restructured datasets and by 2020 for current datasets.

The European Geoscience community (CGI) was very much involved in this probably the world's single largest data harmonization effort for environmental information. The CGI IWG European members where actively participating in the development of various data specifications (Technical Guidelines) by promoting the use of GeoSciML, Earth ResourceML as well as the relevant geoscience/mineral resources vocabulary. As a result of this active involvement of CGI members the final versions of the relevant INSPIRE data models (geology including geophysics, groundwater, geomorphology; mineral resources) are strongly based on the CGI-IWG work (GeoSciML 3.1, EarthResourceML 2.0). The cookbook *"GeoSciML 3.2 Encoding Cookbook for INSPIRE WFS services"* was developed (John Laxton et.al) to ease the use of GeoSciML for INSPIRE (the similar activity is planned for EarthResourceML).

The work of the CGI - Geoscience Terminology Working Group (GTWG) was also utilized for INSPIRE in a way that 12 geology related codelists and 14 mineral resources related codelists where included in the legal text (Regulation No 1253/2013) as well in the Central INSPIRE Registry (http://inspire.ec.europa.eu/registry/). As a positive aspect of having the CGI vocabularies in the EU legal text is the fact that all the concept definitions were translated into 23 languages.

6.9 North America

Executive Summary

The United States Geological Survey (USGS) has two activities of significant importance to our project, Portland State University (PSU) has one. Details will be provided below. The USGS is working on an Open Data effort, and a Big Data initiative. PSU is expanding on its Geoinformatics curriculum by going into the online world.

US Government Open Data

On May 9, 2013, the White House released the Executive Order, "Making Open and Machine Readable the New Default for Government." This Order built upon an earlier interagency memorandum released by the Office of Science and Technology Policy (OSTP) and was accompanied by an Office of Management and Budget (OMB) Policy and a site hosted on GitHub, Project Open Data, to guide implementation. To meet the requirements outlined in these initiatives, USGS will undertake a variety of tasks, in concert with the Department of the Interior (DOI). One of the principal initial tasks will be to include all of USGS's data assets in a public data listing that can be used by DOI and Data.gov as a reference point for all appropriate USGS data assets. The USGS Core Science Analytics and Synthesis (CSAS) Program, with input from a variety of other actors and programs throughout USGS and DOI, will be undertaking primary development to create a Science Data Catalog responding to this public data listing requirement.

Big Earth Data Initiative

Along with the National Aeronautics and Space Administration (NASA), the National Oceanic and Atmospheric Administration (NOAA) and the United States Department of Agriculture (USDA), USGS participated on a working group led by the Office of Science Technology and Policy (OSTP) to develop an overview and strategy for the Big Earth Data Initiative. USGS will take initial steps to advance this initiative by developing an implementation plan for USGS Earth science data that may be easily expanded to include DOI and other agency partners. The plan will leverage and contribute to DOI priorities such as Data.gov, Geospatial Platform, and EcoINFORMA (Ecoinformatics-based Open Resources and Machine Accessibility, etc.). The overarching goal of the Big Earth Data Initiative (BEDI) is to improve the ways Federal Earth system data are collected, managed, and delivered. It is one of the implementation mechanisms to meet the May 9, 2013 Executive Order, "*Making Open and Machine Readable the Default for Government Information*." BEDI will lay the groundwork for the discovery of data that will benefit the advancement of science and enable better decision-making. The primary focus will be to improve the discoverability, accessibility and usability of high-value observing systems data that were identified in the Earth Observation Assessment; however, other critical data assets such as cross-DOI science data sharing requirements, existing Bureau Programs' and observing networks' priorities, etc. may also be considered.

- Data discoverability refers to whether a particular data set can be found using common web search engines (e.g. Google, Bing, etc.).

- Data accessibility improves ability to access smaller project data and methods for getting relevant parts of very large data sets.

- Data usability is the ability to understand and apply data to relevant questions and the ability to easily combine data from different sources.

To accomplish these goals, the prioritized Earth science data must be "treated" with policies, standards, services and tools that make the data more discoverable, accessible and usable. Treatments may include ensuring metadata are available in central catalogs, web services are implemented and data are appropriately documented.

Geoinformatics Academic Curriculum

PSU developed a Geoinformatics course in 2012, and delivered an updated version in 2013. The class uses cloud computing infrastructure donated by Amazon Web Services (AWS) and open source software mainly endorsed by OSGeo. The class project has been to stand up syntactically, semantically, and ontologically compliant Portrayal versions of GeoSciML for the state of Oregon, where the university is located. The 2014 version of the class will venture into the online world, not quite a Massive Open Online Course (MOOC) yet, but the class will be available worldwide via our distance learning software. This will hopefully increase attendance (which has averaged approximately 15 students per year). It will also require the class to become more generalized, likely losing the focus on GeoSciML, and embracing some other markup languages used in the Natural and Physical Sciences. PSU strongly suggest to discuss a new name for this area of study, as Geoinformatics has a different meaning in the rest of the world. The name of the course has been changed to Spatial Informatics.

7. Main problems encountered

The World's economic crisis is having strong impact on monetary support for regional activities of the CGI, e.g. in South America by main countries such as Spain.
In general it must be said that the communication among professionals from different countries is still a difficult issue, though since 2006 the CGI performed several successful activities (CGI-Seminar 2009, several GIRAF workshops, 2010 Cartagena training course, 2010 Geoscience Language Workshop in Berlin etc.) and a network of collaboration and communication have been created.
This problem may have different causes:

1) The Geoscience Informatics discipline is still not fully recognised as part of Geological Sciences.
2) Trips and travel expenses are usually only available for executives in the organisations.
3) It is not easy to get support from the organizations itself.
4) The difficulties in cross-border communication and low budget meeting organization make it difficult to maintain the group cohesion and stay informed on the problems and issues that each of the e.g. South American or African countries struggle with.
In this context, outreach activities must often be organized synergetically, based on any opportunities given, rather than merely on medium term planning.

Another problem important to mention here is that the IUGS is building on the IUGS commissions' willingness to open private accounts in order to administer IUGS finances. Due to governmental issues, the transfer of the CGI finances from the former CGI treasurer to the new one could not be accomplished yet. This matter is currently in discussion by the new IUGS treasurer - Prof. Dong Shuwen and the new CGI treasurer Robert Tomas. It would be excellent, if a common way could be found to open IUGS-CGI accounts not as a private person in order to establish a transparent process of the use of IUGS resources to support CGI activities.

8. Summary of expenditure

	$ 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				
2003 allocation IUGS (5000$)			4 104.75	
Council meetings				-826.27
MT workinggroup				-426.00
CGI bank acccount costs				-25.00
Balance 2003	**7 659.89**		**3 931.07**	
2004				
2004 allocation IUGS (5000$)			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$)	5000.00			
council meetings				-286.30
Cost CGI bank account 2005				-20.00
Balance 2005	**12659.89**		**4 592.40**	
2006				
IUGS Grant outreach workshop (10000$)	10 000.00			
UNESCO Grant outreach workshop leaflet (5000$) contract	5 000.00			
2006 IUGS allocation (5000$)	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	**19660.98**		**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	**27160.98**		**2 429.17**	
2008				
Travel expenses preparation Giraf Schutte				-240.00
cost CGI bank account 2008				-30.00
cost transfer accounts Fortis--> LCL				-43.26
Balance 2008	**27160.98**		**2 115.91**	
2009				
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		

	$ account	€ account
transfer charges	-24.60	
2010		
Payment maintenance of CGI web site (NERC/BGS)	-2300.00	
2010 IUGS allocation	7 500.00	
transfer charges	-23.17	
transfer charges	-21.16	
2011		
2011 IUGS allocation	10000.00	
transfer charges	-23.54	
Payment maintenance of CGI web site (NERC/BGS)		-1779.01
transfer charges		-30.00
transfer charges		-22.00
transfer account USD --> €	-1900.00	1377.81
transfer account USD --> €	-19000.00	13777.10
transfer charges		-25.90
Payment to BGR - GIRAF workshop		-13783.00
transfer account USD --> €	-8900	6610.71
transfer charges		-22
Payment to BGS (update cookbooks, schematron rules)		-6600
Transfer charges		-3,90
Balance December 2011	**23 496.96**	**1 398.81**
Balance 2011	**23.496,96**	**1.398,81**
2012		
Bank account charge		*-5,96*
CCOP hosted CGI meeting	*--12.000,00*	
transfer charges	*-21,75*	
IWG developments	*-6.580,00*	
transfer charges	*-21,64*	
2012 IUGS allocation	*10.000,00*	
transfer charges	*-21,59*	
Payment from CCOP	858,43	
transfer charges	*-20,15*	
transfer account USD --> €	*-715*	*546,34*
transfer charges		*-22*
CSIRO hosting CGI-IWG websites		*-550,00*
transfer charges		*-16,5*
Balance November 2012	**14.975,26**	**1.350,69**
Back payment from BGR (balance from Giraf 2011) December 2012		*4.967,79*
Balance 2012	**14.976,26**	**6.318,48**
2013		
transfer charges		*-3,98*
Payment to BGR – Giraf workshop 2013		*-5.000,00*
Subscription Visa card		*-39,96*
Balance 2013	**14.976,26**	**1.274,54**

- No solution has been found so far for the transfer of the CGI accounts, kept as private ones by the former treasurer (F. Robida) to the new CGI Treasurer (R. Tomas). Therefore, the provisional solution was found and agreed that the accounts are still operated by the former CGI treasurer on behalf of the new one (including the formal

control checking). A solution has been and will be sought with the support of IUGS Secretariat.

- The transfer of the IUGS allocation for 2013 has not been done.
- No invoices (approx. 380 US$) were received so far for the meeting room and the technical equipment for the Council Meeting 2013 in Denver.

9. Work plan for next year

- Continue the development of GeoSciML and Earth ResourceML.
- Update and reconstruct the CGI website.
- Publish more publications of CGI related issues within IUGS "Episodes".
- Participate at FOSS4G-Europe 2014.
- Preparation and finding of financing for the GIRAF workshop 2015 in Mozambique.

10. Critical milestones

The most critical milestone, i.e. the installation of the new Council and transfer of the secretariat form BGS to BGR, has been successfully managed in 2012.

Signature of MoU with OGC.

In 2013 the major GIRAF Workshop in Accra, Ghana by September has been successfully organized and funding partners have been found.

CGI participation at FOSS4G-Europe in 2014.

Preparation and finding of financing for the GIRAF workshop 2015 in Mozambique.

Organisation of a Geoinformation Super-Symposium at the International Geological Congress 2016 (IGC) in South Africa.

11. Anticipated results to be achieved next year

See section 7. "Work plan for next year".

12. Budget for 2014 and potential funding sources

CGI Council expects a similar budget to that provided by IUGS in previous years.

13. Review chief accomplishments over last five years (2009-2013)

CGI developed an Action Plan in 2008 which is set out in section 1 of this report. Evidence indicates that, despite issues of resources and travel constraints, CGI through its Working

Groups, members and associated initiatives, has been extremely successful. The Commission has: catalysed alliances, vide OneGeology (1G), OneGeology-Europe (1G-E), GIC, ICSU, IAMG, INSPIRE, GGIPAC, AUSCOPE, ICS, CGMW, EGS, OGC, USGIS; stimulated progress and standard geological concepts, vide CDTG, MTG and the 1G-E multilingual vocabulary; promoted the use of data exchange standards, vide IWG, 1G, 1G-E; facilitated outreach, vide the GIRAF (2009, 2011, 2013), South American, European and Asian workshops and OneGeology; and played a full role in the coordination of and participation in regional initiatives. This includes several INSPIRE Working Groups (the Drafting Teams Data Specification and Metadata, the Thematic Working Groups Geology and Mineral Resources), EuroGeoSurveys (within the Spatial Information Expert Group) , OneGeology-Europe, CCOP, South American initiatives, and the GIRAF network.

14. Objectives and work plan for the next 5 years (2014-2019)

Substantial changes have taken place in the composition of the CGI Council in August 2012 and October 2013. However, the major objectives of the CGI for the next five years have found an agreement but may be adapted to actual requirements:

- Catalyze productive alliances between geo-information bodies, including OGC;
- Stimulate progress in development and application of standard geoscience concepts and their representation in multiple languages.
- Promote international use of data exchange standards; Facilitate outreach, knowledge transfer and take-up of best practice in geo-information (e.g. with the South America initiative, the Asia initiative and GIRAF, the African geoinformation network).
- Create a task force to evaluate the feasibility of developing interoperability of 3D - 4D geosciences data models
- Enhance collaboration with other IUGS commissions, e.g. ICS.
- Play a role in coordination of regional initiatives, e.g. by organizing workshop and training courses on geoscience information management, standards and language.
- CGI participation at FOSS4G-Europe in 2014.
- Preparation and finding of financing for the GIRAF workshop 2015 in Mozambique.
- Organize a Geoinformation Super-Symposium at the IGC 2016 in South Africa.

15. Suggestions for improvement of IUGS activities, especially in reference to activities of IUGS bodies

Understandably, given the remit of our Commission, we would urge the IUGS Executive to give greater prominence in terms of discussion time, publication space and funding, to the area of geoscience information, its interoperability and especially digital standards. In a world which is increasingly data and IT driven and dependent, it is imperative that the IUGS takes a lead in pushing forward digital advances and ensuring consistency of approach in geoscience data content and applications. Without this, holistic solutions to transnational geological challenges will be that much more difficult to deliver. We believe there is a need

for geoscience information expertise to be present at the highest level in IUGS, ie a member of the Executive; if necessary by co-option.

In conclusion

We would like to express our thanks to all members of the CGI and its regional and thematic working groups, and also to the members of the IUGS Executive for their help and encouragement. We would also like to express our particular gratitude to BMZ, Australian Aid/IM4DC and the Geological Survey of Ghana for their tangible support. We look forward to continued productive cooperation in 2014.

CGI Council
17. January 2014

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