7th OneGeology (Global) Technical Working Group Meeting
8 July 2011, Edinburgh, UK

Attendees: Tim Duffy (BGS- UK) (co-chair of TWG), John Laxton (BGS-UK), Dale Percival (GA-Australia), Oliver Raymond (GA-Australia), James Passmore (BGS-UK), Marcus Sen (BGS-UK), Bruce Simons (GeoScience Victoria-Australia), Agnes Tellez-Arenas (BRGM-France), Mark Rattenbury (GNS-New Zealand), Eric Boisvert (GSC-Canada), Koki Iwao (GSJ-Japan), Steve Richard (AGS-USA), Marcin Slodowski (PGI-Poland).

Apologies: Carlo Cipolloni (ISPRA-Italy), Lars Kristian Stolen (SGU-Sweden).

1. **Minutes from the previous meeting**
   Approval of minutes of meeting 08/10/2010 (Ghana – see
   http://www.onegeology.org/docs/technical/sixthMeeting/TWG_meeting_MINUTES_Ghana_081010_final.pdf)

2. **Matters arising from previous 1GG-TWG meeting 08/10/2010**

   ACTION POINT 1: Discussions are now taking place between the OneGeology secretariat and Bosnia-Herzegovina.
   Result: The buddy form was completed 19 April 2011 by Hazim Hrvatovi at the Geological Survey of Bosnia and Herzegovinia. They have officially requested that Slovenia (GS) serve their 1:1M lithostrat maps. Slovenia now has permission to serve the data. Service registration pending.

   ACTION POINT 2: BGS will work with Clemens Portele for ESRI inc on testbed testing of ESRI software for future ESRI WFS capability.
   Result: Clemens reported progress to GeoSciML Testbed4 on 4/7/2011 and it is likely (ESRI Inc are to discuss shortly and confirm) that an ESRI inc add-on product called ArcGIS for INSPIRE will contain a geodatabase Template for GeoSciML V3.0 data to allow GeoSciML WFS2 services to be set up ESRI software suite offer for OneGeology countries (using INSPIRE developed technology which is identical regarding the need to serve WFS2 services for complex property GML 3.2.1 schemas like GeoSciML).
   Action Tim Duffy: Clarify whether ESRI offer is just for national organisations or also covers regional 1G participants.

   ACTION POINT 3: A bid to the IUGS CGI Council has recently been made to create these tools and documentation necessary for supporting Geosciml 3.0 production services. If bid is successful, tools and documentation will be produced to support more OneGeology WFS' in 2011.
   Result: Bid successful and progress will be reported on agenda item.

   ACTION POINT 4: email and offer of support from onegeologyhelp@bgs.ac.uk on 09/09/2010 has been sent to the 9 buddies hosting approx. 17 WMS' for other Geological Surveys around the world – onegeologyhelp to help them and monitor progress.
   Result: No response so far.
   Action James Passmore: James Passmore to contact organisations again*.*

   ACTION POINT 5: BGR is working on Chad – Markus to pass contact details to Tim.
   Result: 1G secretariat to contact Chad via BGR contact: Thomas Himmelsbach

ACTION POINT 6: Mesfin of SEAMIC offered to host for any of the 'South Eastern' African countries currently on the participants map but clearly not serving/being served.
Result: last report was that SEAMIC will serve the Uganda and Ethiopia WMS (from a server in the Amazon cloud) and then move on to serving the other SEAMIC SLA countries including Tanzania.

ACTION POINT 7: Carlo – did not Israel offer to host countries near it at some meeting after Brighton? – ACTION: 1g secretariat to follow up.
Result: The secretariat has had no communication from Israel and they are not serving data. Luca Demicheli of EGS hopes to supply an Israel contact details to the 1G secretariat.

ACTION POINT 8: Markus believes BGR offered to host Ivory Coast – any progress Horst-Gunter Troppenhagen ? Action: 1g secretariat to follow up.
Result: Ivory Coast has accepted the BGR offer to buddy host, everything is ready and BGR await the data from Ivory Coast.

ACTION POINT 9: liaison between the BGS 1GG service side support and BRGM 1GG client/catalogue support (not present at this meeting) was required to work out what to propose in practice for enhanced dataset and service metadata and they are due to meet in January 2010 in Orleans to work out a proposal on this. The TWG would be informed (agenda item 4).

ACTION POINT 10: Tim to report this accreditation scheme feedback to 1G OMG accreditation sub-group.
Result: the OMG approved scheme will be described in agenda item 5 including the technological support and issues involved.

3. **Report and discussion on new core 19115 based Metadata Profile for OneGeology services adn datasets** (JPass).
   (Reference**:** [[http://www.onegeology.org/wmsCookbook/2_7.html][Core iso 19115 list from !OneGeology WMS cookbook (section 2.7)]]

Core ISO 19115	
Mandatory (M): The metadata entity or metadata element shall be documented Conditional (C): The metadata entity or metadata element shall be documented if another entity or element has been documented, or if a condition is or isn't met elsewhere. Optional (O): Provided to allow users to document their data more fully.	
Dataset title (M) A unique title (within your metadata records) for your data.	**Spatial representation type** (O) The method used to represent geographic information in the dataset. i.e., vector, grid, TIN etc.
Dataset reference date (M)	**Reference system** (O)
Dataset responsible party (O)	**Lineage** (O)
Geographic location of the dataset (by four coordinates or by geographic identifier) (C) If the metadata applies to a data set which is spatially referenced (such as a OneGeology WMS) this is required.	**On-line resource** (O)
Dataset language (M) Language(s) used within the dataset. Required even if the	**Metadata file identifier** (O) Unique identifier for this metadata file

resource does not include any textual information; defaults to the Metadata language.	
Dataset character set (C) Full name of the character encoding used for the data set. You must supply this character set if you are not using the ISO/IEC 10646-1 character set and if your character set is not defined by the document encoding.	**Metadata standard name** (O) Name of the metadata standard (including profile name) used
Dataset topic category (M) Main theme(s) of the data set described using the most appropriate term defined in the standard; for OneGeology services these are likely to be one or more from: '*geoscientificInformation*', 'economy' (for layers showing mineral resources), or '*imageryBaseMapsEarthCover*'	**Metadata standard version** (O) Version (profile) of the metadata standard used
Spatial resolution of the dataset (O) Scale or factor which provides a general understanding of the density of the spatial data in the dataset.	**Metadata language** (C) Language used to document the metadata. You must supply the metadata language if it is not defined by the document encoding. Note for INSPIRE GEMINI metadata you must always supply the metadata language.
Abstract defining the dataset (M) Brief narrative summary of the content of the resource.	**Metadata character set** (C) Full name of the character encoding used for the metadata set. You must supply this character set in your metadata if you are not using the `<a href="http://en.wikipedia.org/wiki/Universal_Character_Set" title="Wikipedia article on the Universal Character Set (ISO/IEC 10646)">`ISO/IEC 10646-1 character set`</a>` (http://en.wikipedia.org/wiki/Universal_Character_Set) AND if your character set is not defined by the document encoding. Note as most XML and HTML pages provide a character set as part of their own metadata, it is likely that you will not need to explicitly state this for your own layer metadata
Distribution format (O)	**Metadata point of contact** (M) Party responsible for the metadata information
Additional extent information for the dataset (vertical and temporal) (O)	**Metadata date stamp** (M)

The majority of the core iso 19115 metadata are already captured in the current OneGeology WMS GetCapabilites response. To capture all core metadata in a WMS GetCapabilites response we have to supply four additional bits of metadata. We can use the service keywords and layer keywords to add this metadata.

The required service-level metadata are detailed in the cookbook in section 2.4.1 [[http://www.onegeology.org/wmsCookbook/2_4_1.html][Required service-level metadata]]

Specifically for *service* keywords the new requirement is as follows:

A list of keywords or short phrases that users of the !OneGeology portal and other catalogue services could use to search/discover your services. You must include the keywords !OneGeology and two special @ style

keywords (MD_DATE@[value] and MD_LANG@[value]) that will be used to populate the !OneGeology catalogue of services.

MD_DATE@ is used to add a date for when the information in the !GetCapabilites file for the service was last updated, (for !MapServer services this would be the same as a change to the .map configuration file). For example the exemplar BGS_Bedrock_and_Superficial_Geology service has a MD_DATE@ keyword of ***MD_DATE@2011-06-15***

MD_LANG@ is used to add the language (using the ISO 639-3 three letter codes) that the !GetCapabilites file is populated with. This may be different from the language that the service returns its data in. For example the exemplar BGS_Bedrock_and_Superficial_Geology service has a MD_LANG@ keyword of ***MD_LANG@ENG***

The keywords for a service will therefore look something like (taken from the exemplar service):

```
<KeywordList>
<Keyword>OneGeology</Keyword>
<Keyword>geology</Keyword>
<Keyword>map</Keyword>
<Keyword>United Kingdom</Keyword>
<Keyword>bedrock</Keyword>
<Keyword>superficial</Keyword>
<Keyword>lithology</Keyword>
<Keyword>lithostratigraphy</Keyword>
<Keyword>age</Keyword>
<Keyword>MD_LANG@ENG</Keyword>
<Keyword>MD_DATE@2011-06-15</Keyword>
</KeywordList>
```

The layer keyword requirements and recommendations are described in the cookbook in section 2.6 [[http://www.onegeology.org/wmsCookbook/2_6.html][Other Layer metadata]]

Specifically for *layer* keywords the new requirement is as follows:

Layer (Data set) date	DS_DATE@value	Required
Layer (Data set) topic category	DS_TOPIC@value	Required (one or more)

The topic category is taken from the ISO 19119 topic category listing. A good reference to the categories and what they represent is found at: [[http://gcmd.nasa.gov/User/difguide/iso_topics.html]]. We anticipate that most layers would have a *DS_TOPIC@geoscientificinformation* keyword.

The Data set date is intended to be the date the LAYER was created.

The keywords for a layer will therefore look something like (taken from AFG AGS 1:1M Bedrock Age):

```
<KeywordList>
<Keyword>OneGeology</Keyword>
<Keyword>geology</Keyword>
```

```
<Keyword>Afghanistan</Keyword>
<Keyword>continent@Asia</Keyword>
<Keyword>subcontinent@South-central Asia</Keyword>
<Keyword>geographicarea@Afghanistan</Keyword>
<Keyword>serviceprovider@British Geological Survey</Keyword>
<Keyword>dataprovider@Afghanistan Geological Survey</Keyword>
<Keyword>DS_TOPIC@geoscientificinformation</Keyword>
<Keyword>DS_DATE@2008-12-03</Keyword>
</KeywordList>
```

Action AgnesTellezArenas: Display the DS_DATE and DS_TOPIC in the 1G Portal layer details pop-down box.

4. Report on progress with publication of GeoSciML v3.0 and hence rollout and support for OneGeology level 2 WFS' with cookbook and open source software schematron validation support.

   Planned publication date of GeoSciML v3.0 is September 2011.
   Also expect to have WFS v2.0 capable GeoServer by this date.
   Will have a web validation service to check Schema validity of instances and, in addition, extra Schematron rule checking.
   Should also have a web service to validate many aspects of WMS and WFS services.
   These should help participants set up their services and help the help desk to check services before they are registered in the Portal.

5. **Report and discussion of new OneGeology 5 star service accreditation scheme – TRD <nop>OneGeology</nop> Web Services Accreditation Scheme**
   1. Introduction
   This scheme is intended to provide an incentive for geological survey organisations (GSOs) who are participants in OneGeology and help them be more responsive to the needs of current and potential users of their map data. Practicality, attainability and simplicity of operation have been the key points in the design of the scheme. The criteria which are set out below were produced by reference to the overall OneGeology system, the GeoSciML protocols, the European INSPIRE Directive good practice in data and service sharing guidance, and last but not least the views of users. The Scheme has been developed by the OneGeology Coordination and Technical teams, with input from the Steering and Operational Management Groups. A scheme such as this can never be 100% quantitative, but this is not an issue; the intention of this scheme is to progressively raise the standard of GSO services, not seek perfection. The scheme is inspirational!
   2. How it will operate
   All existing OneGeology map service providers are regarded as already having attained the One Star level and graphics will mailed to them shortly. GSOs who wish to be accredited for two or more Stars will apply to the OneGeology secretariat via email (onegeology@bgs.ac.uk) or the online form – see section 4. The GSO will state the Star Rating and level of service they believe they meet. Their service will then be assessed by OneGeology Coordination and Technical team members. If the application meets the criteria the GSO will receive notification by email and at the same time receive files containing the appropriate OneGeology Star graphics. These graphics and any of the text within "Definition of Star Ratings" below may be used by the GSO on its web site or other communications and PR material. If the service is assessed as not meeting the criteria, feedback will be provided to the GSO and the application can be immediately re-submitted after corrective action. A reasonable degree of tolerance will be given; for example, if an issue which results in non-compliance is outside the control of the

organisation, this will be taken into account in the assessment. All services should be available for better than 95% of the year. Regular re-assessment will be made by the OneGeology Coordination and Technical teams on at least an annual basis.

3. Definition of the Star Ratings Star Rating
See Action points within the table below.

	Level of service attained	Technical and service parameters to be met
One star	Basic Web Map Service (WMS)	Web Map Service (WMS) supporting "GetCapabilities" and "GetMap" requests to deliver map images.
Two star	Upgraded Web Map Service (WMS)	• One Star requirements met • Map legend provided. • Minimum metadata available (contact information, abstract, access constraints, cataloguing keywords).
Three star	Enhanced Web Map Service (WMS)	• Two Star requirements met • "GetFeatureInfo" (at least text/html format) request supported. • Web Map Service (WMS) v. 1.3.0 supported. *Note*: this will require existing 1GE services to deploy the new eXows connector to replace the previous 1GEconnector to be fully WMS compliant. **Action Agnes Tellez Arenas:** to check whether a v.1.3.0 only service that doesn't support v.1.1.0 as well can be supported by the Portal. • Where Age harmonization is offered in a service layer it should be based on "International Commission on Stratigraphy" standards (http://www.stratigraphy.org). **Action Tim Duffy:** Consult on whether ICS above should be changed to IUGS. • Additional keywords to make GetCapabilities response ISO19115 core compliant • Clear statement of use relating to data, including licence and charging details (where appropriate). • Access to data must be transparent, simple and fair to all.
Four star	Web Feature Service (WFS)	•Three Star requirements met • "MetadataURL" for each WMS layer and WFS feature type conforming to the OneGeology metadata profile. **Action TimDuffy:** to check above should be re-phrased as MetadataURL for each WMS layer and WFS feature type should point to a metadata record conforming at least to the OneGeology metadata profile. • Web Feature Service (WFS) at a minimum v. 1.1.0. *Note*: This will require some upgrades of existing 1GE services to support correct WFS query typename. • To deliver map features in a GeoSciML format.
Five star	Enhanced Web Feature Service (WFS)	•Four Star requirements met • To deliver map features in GeoSciML v3 (or later), queryable using standard "Commission for Geoscience Information" (CGI) vocabularies for age and lithological properties, and compliant with profiles e validated by Schematron.

The best technical way to record stars was discussed. The promotional aim is to rate each organisation serving data but technically the catalogue stores layers and services not organisations and the technical criteria apply to services (with the slight caveat that WFS rating strictly depends on having a WMS as well). A technical use of the rating system might be to provide information to a client on the level of compliance but this isn't possible with the current system. The Portal catalogue is a technical system and is only suitable for holding technical data. Thus the data about which organisation has which star rating will be stored in a separate database of some sort and this information will be usable for display both on the www.onegeology.org list of participating organisations and against the data provider name in the layer display in the portal. There was also discussion of the possibility of having a parallel technical star system to be recorded against services which would actually be usable by a client to know what queries could be carried out on that service. This latter proposal will be discussed further depending on the technical capabilities of a service that could be of importance to a client. There was further discussion about the desirability of organisations being able to see their star ratings against their services in the catalogue but as the star rating can depend on more than one service the IWG decided that this was not sensible. The clarification was made that for a service to fulfil the criteria above every layer or feature in the service must satisfy the criteria (e.g. every layer must have a MetadataURL).

6. **Report on OneGeology portal improvements, current and planned, based on the above developments – AT-A**
Reviewed recent upgrades to the portal like greater browser compatibility etc.
Also discussed further improvements that could be made.
Discussed supporting polar projections for arctic and Antarctic maps. These wouldn't be supported by all services so they would return error images in those cases. Decided it would still be worth supporting if documentation made clear that users would have to make sure the layers they have selected support the projection they are asking for. Some issues with reporting of supported CRSs were discussed (GeoServer listing all projections in database?) and the details will be looked into.

7. **Changes to the <nop>OneGeology-Europe</nop> WFS connector (now open source and called eXows) to allow 1GE WMS and WFS to be fully OGC standards conformant and therefore conformant with the other WMS/WFS in the 1GG portal.**

The version of eXows released in May 2011 has fixed the service=WMS requiring parameter issue and it is now no longer required by eXows and so it is now OGC/ISO WMS conformant. Still to be resolved is the issue of when a WMS 1.3.0 service is available (with or without parallel WMS 1.1.1 service being available also) the eXows should return a WMS 1.3.0 response (the highest version WMS response available should be returned according to the WMS 1.3.0 and WMS 1.1.1 standards) if no specific version is requested (this problem was also in the '1GEConnector before the eXows became available) – currently it only returns WMS 1.1.1 even if a WMS 1.3.0 service is available. The OneGeology portal can now handle WMS 1.3.0 services.

The eXows connector (and 1GE Connector before it) currently lists feature names like OGE_1M_surface_GeologicUnit:
e.g.
http://ogcdev.bgs.ac.uk/exows/?SERVICE=WFS&VERSION=1.0.0&REQUEST=GetCapabilities&
response lists:

OGE_1M_surface_GeologicStructure,
OGE_1M_bedrock_GeologicStructure,
OGE_1M_surface_GeologicUnit

OGE_1M_surface_GeologicUnit_age
OGE_1M_bedrock_GeologicUnit
OGE_1M_bedrock_GeologicUnit_age
but a request to retrieve any of these, e.g.
http://ogcdev.bgs.ac.uk/exows/?SERVICE=WFS&VERSION=1.0.0&REQUEST=getFeature&typename=OGE_1M_surface_GeologicUnit&MAXFEATURES=10&SRS=EPSG:4326&BBOX=-8.7,49.8,1.8,60.9

returns a collection of gsml:MappedFeature. This is not OGC WFS conformant.
The eXows needs to request typename=gsml:MappedFeature and get gsml:MappedFeature back to comply to WFS standard. A consequence is that there will have to be a different WFS URL for the MappedFeature's corresponding to each of the different associated WMS layers. Finally the eXows connector needs to come with a GeoSciML v3.0 template (alongside the existing GeoSciML 2.1 template) for stable GeoSciML 3/GML 3.2.1/WFS2 based WFS services.

The above improvements to the eXows connector need to be completed in order for 1GE participants to be able to upgrade their services to achieve WMS and WFS accreditation in the new OneGeology global accreditation system.

Action BRGM: to release updated eXows to 1GE participants who wish their services to be accredited in the 1GG portal, once GeoSciML v3.0 is published in September.

8. **Round table discussion on progress of (new and old) services, including Russia and China, around the globe leading up to the IGC34 at Brisbane, August 2012.**
   China has undertaken to put up a 1:5M service in time for launching at Brisbane.
   Japanese and japanese hosted services have just been put back up.
   ISPRA are to offer to host a Moroccan service.
   SEAMIC are to serve Ethiopia and Uganda.
   Poland offered to provide technical assistance and possibly host a Ukrainian service.
   Action OneGeology secretariat: to contact Ukraine and see if they are interested in this offer.

9. **Any Other Competent Business**
   The next meeting is likely to be held in association with the next proposed GeoSciML working group meeting in Wellington, New Zealand, immediately after the IGC34. To be confirmed.

-   Close of meeting –
OneGeology secretariat; August 2011.