

OneGeology Strategic Steering Committee (OSSC) Meeting

DATE: 17 November 2020

LOCATION: <https://ukri.zoom.us/j/97560338510>

Participant	Organisation
Tirza van Daalen	Director: Geological Survey of the Netherlands – Chair of OSSC
Bill Cunningham	Acting Director of Operations: United States Geological Survey (USGS)
Christophe Poinssot	Director: French Geological Survey, BRGM
Daniel Lebel	Director General - Geological Survey of Canada
Genevieve Marquis	Director: Northern Canada Division Canada Geological Survey of Canada
Karen Hanghøj	Executive Director: British Geological Survey
Koen Verbruggen,	Director: Geological Survey of Ireland
Lars-Kristian Stolen	Digital Strategist: Sweden Geological Survey of Sweden
Maria Glícia da Nóbrega Coutinho	Head of International affairs: Geological Survey of Brazil CPRM
Mashiko Makino	Assistant Director General: Geological Survey of Japan
Oleg Petrov	Director General: Russian Geological Research Institute (FGBU "VSEGEI")
Steve Hill	Chief Scientist: Geoscience Australia
In Attendance - Administration	
Kate Royse	Chief Digital Officer: British Geological survey
Matt Harrison	Director Data Services & Infrastructure: BRGM
Hazel Napier	One Geology Project Manager: British Geological Survey
Virginia Hannah	
Apologies	
Esteves Colnago	President: Geological Survey of Brazil CPRM

NOTES AND ACTIONS

1. Introductions (Chair/MH)

The Chair opened the meeting and thanked everyone for attending. She explained that this was the second meeting of the OSSC, the first had been a face to face in Uppsala in March 2019. She recognised that some attendees were new to the group therefore, she asked Matt Harrison (MH) to give a brief presentation of OneGeology, presentation attached at **appendix A**.

MH firstly paid his respects to Vic Labson, of USGS, who had recently passed away. He said that Vic was a great supporter of OneGeology, being involved from very early on, and had spent time encouraging other organisations to join the consortium. MH said that he would be a great loss to the geoscience community.

Members of the group formerly introduced themselves and gave a brief outline of their role.

Maria-Glicia (MG) from CPRM gave apologies for their President, Dr Esteves Colnago, who has been extremely poorly with COVID-19. The Chair said that she was sorry to hear this and asked MG to pass on thoughts and well wishes for a speedy recovery from the OSSC.

2. Chair of OneGeology Strategic Steering Committee – Discussion on process and timings for election (Chair/MH)

The Chair explained that she was coming up to the end of her two-year role as the Chair of the OSSC. She said that she felt, due to COVID19 pandemic, she had not been able to commit fully to the role. However, she would be very happy to stand for election for a further two years.

Koen Verbruggen (KV) said that he supported the current Chair, Tirza van Daalen, to remain as Chair for the next two years. He said that the OSSC is supported by a great secretariat that will continue to support the Chair and push this global collaboration.

MH explained that there is a process by which a new Chair is appointed. Admin confirmed that there is a process, included in the new Consortium Agreement, which all principal members re-signed earlier this year.

ACTION 01: Admin – circulate the election process with these minutes.

3. OneGeology Connection to World Community of Geological Survey Organisations (WCOGS) Daniel Lebel (DL)

DL gave the history of the thinking around the formation of the WCOGS. He acknowledged that in many ways OneGeology had become the place where geological surveys came together to discuss issues facing geological surveys, but those issues were broader than digital geoscience. In order to explore the gauge level of interest in a WCOGS, a face-to-face scoping meeting had been held at PDAC where there was strong support for such a group but participants agreed that the purpose of the WCOGS should be clear.

DL said the central goal of the group is to develop a community of best practice. Vic Labson had said that it should be about building relationships; geological surveys can learn a lot from each other by

working together. A virtual meeting was held in July 2020, discussion focused on economic survival and impact of COVID19. The results of this discussion are online and a newsletter was circulated.

Today there would be a meeting between the heads of global geological surveys on 3D geology and, later in the year, a critical minerals workshop being organised by Genevieve Marquis (GM) with colleagues from USGS and Australia, at which they hoped to see participation globally - Chris Lally is the lead organiser.

DL explained that the WCOGS, unlike OneGeology, does not have a structured membership and the intention is to keep the governance very light i.e. there is no membership fee/membership charter. The WCOGS will be steered through a board, providing steer on which topics are invited for development online at future virtual meetings. There is a clear connection between OneGeology and WCOGS. OneGeology provides an established forum for geological surveys to come together to discuss digital geoscience, however there is a need for geological surveys to collaborate and discuss other issues. DL said WCOGS was open to OneGeology members by virtue of their role as geological surveys, but he said participation was not limited to that of geological surveys.

Steve Hill (SH) said that Geoscience Australia has been heavily involved in the organisation of this group at a CEO level. They are very excited to be involved and look forward to linking up with other organisations.

KR suggested that OneGeology Global and WCOGS should hold a joint event to highlight what OneGeology has achieved so far and outline the aspirations of WCOGS to the global geological community. Incorporating and developing the connection with provincial surveys as well as national surveys would be critical to some organisations.

ACTION 02: KR agreed to coordinate the planning of a joint global event for OneGeology and WCOGS. The Admin will work with KR to arrange this and report progress at the next OSSC meeting in March.

MH said that he really hoped that the two groups would collaborate in the future and align future workshops and conferences.

Maria-Glicia (MG) said her organisation is very interested in the initiative and looked forward to getting involved.

4. Digital Twin up-dates – reminder of agreements from last meeting

MH introduced the item. He explained that the 'Digital Twin' concept emerged from facilitated discussions held at the last OSSC meeting in Uppsala in March 2019. Participants had recognised that the geological surveys were in a unique position to work together on a coordinated 10-year global challenge of developing a global digital twin. However, it was recognised that in the early stages, this objective would need to be broken down into smaller parts in recognition of the different priorities and capabilities of the different geological surveys. The OSSC had planned to reconvene at the IGC in March 2020 to discuss progress and identify next milestones. MH suggested the ensuing discussion try to re-capture the enthusiasm shown at the Uppsala meeting, identify any gaps or missed opportunities and re-focus some of the ideas.

5. Digital Twin progress (5-10 minutes each WP lead)

Representatives of each working group that emerged from the meeting in Uppsala last year, were invited to give a brief update of their digital twin progress

TNO - responsible for the Rhine-Meuse delta and urban geology. For urban geology, TNO is involved in the Eurogeosurveys urban geology expert group which came out of the North Atlantic Geological Surveys (NAG) initiative. TVD will request an update from the expert group on progress. The Rhine-Meuse delta digital twin is ready to go and could be hosted on OneGeology, however, the OSSC needs to decide if OneGeology should host digital twins developed by individual organisations and countries.

GSC – there was much enthusiasm following the meeting in Uppsala which led to development of ideas with GSA on ore deposits and use of digital technology to do mineral resources assessment. Two other major initiatives in process – geo-mapping in north Canada and another focussed on ore deposits. Genevieve Marquis is also leading an activity on visualisation and interrogation of datasets with AI.

GSA – collaboration with GSC (as above) following Uppsala. Considerable progress on developing good network of location information at national and local scale, which will be key for underpinning digital twins, and a national drilling initiative across the continent targeted around mineral systems, energy resources and groundwater. Also important to show data changes over time. GSA are developing a data-cube type approach with their Digital Earth Australia initiative. The same approach is now being applied to a Digital Earth Africa.

BGS – some progress at city scale incorporating different types of data for Glasgow, UK <https://www.youtube.com/watch?v=hCCLbNdgjXY>. The focus is on heat energy from flooded mine workings. Includes static data (geology, boreholes, urban structures, old mine workings, mining infrastructure, borehole logs) and live data which changes over time (temperature, radiation, chemistry). Techniques could be applied at a larger scale

VSEGEI – Outlined maps that are available at various scales including a tectonic map of the world and tectonic maps of continents, as well as the development of a draft legend of the tectonic map of the world based on methods used when creating the tectonic map of the Arctic and Asia. Other worldwide themes include seismic activity, magnetic anomalies, gravimetric anomalies, sedimentary cover thickness and crustal thickness. VSEGEI is keen to be involved in digital twin work and hopes that OneGeology and other initiatives such as Deep time Digital Earth (DDE) will support this work. VSEGEI presentation attached **appendix B**

GSJ – are developing a 3D geological model of central Tokyo area with cross sections. Includes hardness of sediments where the softer sediments have a potential risk of amplifying earthquake ground motion. The digital twin shows the relationship between the geology and earthquake ground motion. Done in collaboration with International University of Japan and demonstrates progress to estimate the risk of geohazard. Is an ongoing project and will be published on the website of GSJ. Presentation attached **appendix C**

An in-depth discussion took place around the topic of digital twins.

KV said collaboration and exchange of information, rather than building physical infrastructure which requires effort to raise funds, is very important – networks with larger surveys are beneficial to the smaller surveys. The Eurogeosurveys has a new expert group on geological mapping and modelling – with huge research funding going into digital twins, particularly focussed on the climate,

oceans, seabed mapping. Geological digital twins, with the inclusion of BIMs (Building Information Models) and urban infrastructure, will be of interest to many. KV agreed to feedback to MH in terms of what quick wins GSI can contribute related to mineral exploration, coastal hazards and marine/offshore.

The Chair said the European Commission is to launch a new framework programme. Subsurface digital twins of Europe are mentioned in the programme. She agreed with KV that any developments will start with the marine environment and build on existing successful initiatives such as EMODnet. It is likely that there will be a digital twin of Europe in the next 10 years and suggested OneGeology should be ready to collaborate.

KR pointed out that it would be important to identify what steps we would need to take to move from the local scale to a national and global scale. What does the global picture look like? She said the vision and mission would be really important. How might digital twins talk to each other on a global scale - interoperability and common standards would be key.

MH noted the need to bring data together from different organisations and different sectors e.g., inclusion of BIMs, as demonstrated by some high-resolution test beds. The power of the OneGeology collaboration is that members are aware of these developments, the challenges faced by individual organisations and how individual initiatives could fit into the bigger picture/long term vision.

KH said there were many initiatives looking at digital twins at various scales e.g. the Geo8 European Alliance for Earth Sciences is discussing development of a European scale digital twin. KH said any OneGeology activities would need to synergise with such initiatives - to link with other communities. She suggested the OSSC should discuss the strategy for digital twins to ensure all efforts are truly synergised

MH mentioned that the TIG discusses the technical challenges and standards underpinning the data and services provided by OneGeology. BGS and BRGM has invested a lot of money over the years in the development of standards. Additional funding would be required in order to properly synergise efforts. The original strategy had been to align activities with the strategies of individual members - with initiatives already being funded. He suggested a workshop focussed on digital twins would enable such discussions around strategy and synergies.

The Chair agreed that the OSSC should decide what the OneGeology platform should be. Should it host digital twins/3D models? She said there would need to be agreement if the consortium wished to go in that direction i.e. develop a vision of how the platform should evolve (See Action 03)

KV said being able to demonstrate value of geology to stakeholders – governments, policy and decision makers – would be key. How can geological data enable better decision making? What advantage would there be to stakeholders if we were to make this work at a global level? (see action 04)

DL said focus on predictive geoscience was fundamental in order to develop a vision for OneGeology. He pointed out that geoscientists understand the value of the data but are not very good at communicating this to others. Use cases would be key to demonstrate how geological data can be used to predict the future e.g. sea level rise, exploration. This concept would be powerful in explaining the value of geological data to users.

BC mentioned a USGS initiative called EarthMap with the aim of advancing prediction capabilities. He agreed that it would be important to identify what OneGeology can offer and what its vision is.

He suggested that OneGeology could support exchange of digital twins – this would represent a big step towards the vision of global digital twins.

CP agreed with the importance of digital twins and numeric tools/models. He said BRGM fully supported this direction. He suggested the China Geological Survey (CGS) may have valuable experience to share and that OneGeology should try to connect with the survey. MH said that CGS is involved in the IUGS initiative DDE. John Ludden, former Director of BGS, is now president of IUGS and a supporter of OneGeology and may help OneGeology connect with Chinese colleagues.

It was agreed that technical workshops be held early next year and to report back to the OSSC at a meeting towards the end of March 2021 – the first one to be focussed on digital twins. MH suggested external people should be invited e.g. ANDRA, who are talking about developing subsurface digital twins for their nuclear waste disposal facilities. KH suggested that the discussion start with, what OneGeology uniquely brings to digital twin initiatives and what would happen/not happen if OneGeology were not involved e.g. a discussion around standardisation would be important. MH agreed to re-work the digital twin information, specifically the flyer, so that the potential role of OneGeology is clearer in time for the workshop. (See action 05/06)

ACTION 03: OSSC to agree the future direction of the OneGeology platform during a future meeting/workshop

ACTION 04: KV to feedback to MH in terms of what quick wins GSI can contribute related to mineral exploration, coastal hazards and marine/offshore.

ACTION 05: MH agreed to work on the rewording of the current OneGeology Digital Twin flyer and share with the group for agreement.

ACTION 06: Admin will work on organising a virtual Digital Twin workshop in the New Year, which will report to the OSSC meeting in March

6. Forthcoming workshops – LOOP & Digital Twin:

A strategy for arranging future workshops was agreed at item 5.

7. Adopting a Digital Culture:

It was agreed to postpone this item until a future meeting

8. Any other Business

Nothing raised

09. Table of Actions

No.	ACTION	LEAD	DEADLINE
01	Admin will circulate the election process with these minutes.	Admin	Closed
02	KR agreed to coordinate the planning of a joint global event for OneGeology and WCOGS. The Admin will work with KR to arrange this and report progress at the next OSSC meeting in March.	KR/Admin	Report to next meeting in March
03	OSSC to agree the future direction of the OneGeology platform during a future meeting/workshop	All	March 2021

04	KV to feedback to MH in terms of what quick wins GSI can contribute related to mineral exploration, coastal hazards and marine/offshore.	KV	31/01/21
05	MH agreed to work on the rewording of the current OneGeology Digital Twin flyer and share with the group for agreement.	MH	31/12/20
06	Admin will work on organising a virtual Digital Twin workshop in the New Year, which will report to the OSSC meeting in March	Admin/MH	March 2021

10. Date and time of next meeting

Admin will work with the group to agree a date in March

ACTION 06: Admin will arrange another meeting of this group in March