

Report
54th Executive Committee Meeting
Teleconference, 16-17 March 2021

As accepted at the 55th Executive Committee Meeting.

EXECUTIVE SUMMARY

Chair: Patrick Child, European Commission .

1 SESSION 1: GENERAL BUSINESS

1.1 Welcome from Lead Co-Chair, Co-Chairs, and Secretariat Director

1.2 Adoption of Agenda (Document 54.1 (Rev.1) – for decision)

Outcome: The agenda was adopted as distributed. A request from the United Kingdom to speak in Any Other Business was noted.

1.3 Draft Report of the 53rd Executive Committee Meeting (Document 54.2 – for decision)

Outcome: The document was approved as distributed.

1.4 Review of Action Items from Previous Meetings (Document 54.3 – for decision)

Outcome: The document was approved as distributed.

1.5 Secretariat Operations Report (Document 54.4 – for information)

Outcomes: The Executive Committee thanked the Secretariat for the excellent progress that was achieved in engaging stakeholders and in implementing the GEO Work Programme.

2 SESSION 2: PLANNING AND STRATEGY

2.1 Lead Co-Chair Goals and Objectives (Document 54.5 – for decision)

Outcomes: The Executive Committee approved the 2021 Lead Co-Chair Goals and Objectives document, with the revisions presented on the second day.

2.2 GEO and the UN Decade of Ocean Science for Sustainable Development (Document 54.6 – for decision)

Outcomes: The Executive Committee:

- Thanked Emily Smail for her presentation;
- Supported in principle the proposal for GEO to contribute to the UN Decade of Ocean Science for Sustainable Development; and
- Adopted the document as distributed.

3 SESSION 3: FINANCE RESOURCES MOBILIZATION

3.1 Report of the Budget Working Group (included in Document 54.7 – for information)

Outcomes: The Executive Committee:

- Thanked the Budget Working Group for their work and Patricia Geddes for her presentation; and
- Noted the ongoing need for the Pledge Campaign to ensure there are sufficient funds available to support Secretariat activities.

4 SESSION 4: 2020-2022 GEO WORK PROGRAMME

4.1 Resilient Cities and Human Settlements Engagement Plan (Document 54.8 – for decision)

Outcome: The Executive Committee:

- Expressed their support for Resilient Cities and Human Settlements as a fourth GEO engagement priority;
- Approved the engagement plan with a suggestion that it include a reference to Local Governments for Sustainability (ICLEI); and
- Approved the terms of reference for the Resilient Cities and Human Settlements Working Group, while recommending that attention be given to avoiding overlaps and identifying synergies with the existing Working Groups.

Action 54.1: Programme Board to oversee preparation of a document for the GEO-17 Plenary seeking approval for Resilient Cities and Human Settlements as a fourth GEO engagement priority. **Due: GEO-17 Plenary document deadline.**

4.2 Draft GEO Statement on Open Science (Document 54.9 – for decision)

Outcome: The Executive Committee:

- Thanked Markus Konkol, the drafting team, and the Capacity Development Working Group for their preparation of the document;
- Expressed support for the concept of open science; and
- Recommended that further consultations within the GEO community be undertaken including, in particular, with the Data Working Group regarding alignment with the GEOSS Data Sharing Principles and Data Management Principles.

4.3 Draft GEO Statement on Equality, Diversity and Inclusion (Document 54.10 – for decision)

Outcomes: The Executive Committee:

- Expressed support for the recommendations;
- Approved the document for further consultation within the GEO community, ultimately leading toward presentation of an updated statement to the GEO-17 Plenary; and
- Suggested that attention be given to historically and geographically disadvantaged and under-represented communities.

4.4 Update on Knowledge Hub Implementation (Document 54.11 – for information)

Outcomes: The Executive Committee:

- Took note of the progress achieved and thanked the GEO Knowledge Hub team for their efforts; and
- Encouraged the team to continue its collaboration with the GEOSS Infrastructure Development Task Team and with GEO Work Programme activities.

4.5 Update on CEOS Analysis-Ready Data Strategy

Outcomes: The Executive Committee thanked Adam Lewis for his presentation and welcomed the important work on analysis-ready data that is being led by CEOS.

4.6 Report of the Programme Board (Document 54.12 – for information)

Outcomes: The Executive Committee:

- Thanked Andiswa Mlisa for her report and expressed their appreciation to Programme Board members for their efforts in keeping the momentum going in the GEO Work Programme;
- Suggested that the Programme Board monitor the effectiveness of the structure of Engagement Teams, Subgroups, and Working Groups to avoid possible overlaps and inefficiencies;
- Requested that a specific item on the Lead Co-Chair Goals and Objectives be added to the agenda of the next Programme Board meeting; and
- Requested that the Programme Board reconsider the matter of an institutional check on the GEO Awards process.

5 SESSION 5: GEO WEEK 2021

5.1 GEO Week 2021 (Document 54.15 – for discussion)

Outcome: The Executive Committee:

- Thanked South Africa for their preparations and expressed their understanding of the decision to withdraw from hosting GEO Week 2021;
- Agreed that GEO Week 2021 will be a fully-virtual event;
- Established a Plenary Working Group to organize the event; and

- Requested that the Plenary Working Group consider how to address time zone differences as part of their planning.

Action 54.2: The Plenary Working Group to prepare a paper for Executive Committee discussion describing options for GEO Week 2021. **Due: 55th Executive Committee meeting.**

6 SESSION 6: ANY OTHER BUSINESS AND REVIEW OF ACTION ITEMS

6.1 Any Other Business

Outcomes: The Executive Committee welcomed the proposal that GEO work with the organizers of the 2021 G7 meeting to investigate the possibility of including language on Earth observations in G7 statements.

- Encouraged GEO Members and others in the GEO community to contribute to the campaign.

6.2 Closing Remarks

Outcome: The Executive Committee:

- Thanked Gilberto Camara for the leadership, knowledge, passion, and energy he brought to GEO and the GEO Secretariat; and
- Thanked Gilles Ollier for his contributions to GEO over many years.

Draft Report

54th Executive Committee Meeting

Teleconference, 16-17 March 2021

FULL REPORT

Tuesday, 16 March 2021

Meeting convened at 13:00

Chair: Patrick Child, European Commission.

1 SESSION 1: GENERAL BUSINESS

1.1 Welcome from Lead Co-Chair, Co-Chairs, and Secretariat Director

Patrick Child, European Commission Co-Chair and Lead Co-Chair, opened the meeting with an acknowledgement that the Executive Committee was once again holding its meeting virtually and recognized the struggles of many in dealing with the pandemic. Mr Child thanked the Executive Committee members and the Secretariat for their work to continue to advance the aims of GEO. He observed that GEO had made remarkable progress in 2020, particularly in the implementation of the GEO Knowledge Hub, and thanked those who had contributed to this. Mr Child also noted the success in establishing important links with other organizations on the GEO engagement priorities in 2020, including links with United Nations organizations, the Intergovernmental Panel on Climate Change (IPCC), and the United Nations Framework Convention on Climate Change (UNFCCC), among others. Progress was also being realized with the engagement of industry actors. Mr Child pointed to the selection of a new Secretariat Director and said that he looked forward to a smooth transition later in the year.

Pengde Li, China Co-Chair representative, thanked the Secretariat for organizing the meeting, noting that the March Executive Committee meeting acts as the starter for the year. Mr Li stated that China is committed to supporting the Lead Co-Chair and the implementation of the 2021 Goals and Objectives. Mr Li drew attention to the Third Asia-Ocean GEO (AOGEO) Workshop held in Changzhou, Jiangsu, China in October 2020, which also included international training opportunities. He also noted the 13th AOGEO Symposium hosted by Japan and convened online on 3-5 March 2021. Mr Li stated that AOGEO will continue to address global agendas in the Asia-Oceania region, observing that Earth observation, geospatial data, and big data have all played important roles during the pandemic.

Mmboneni Muofhe, South Africa Co-Chair, observed that 2020 was a strange and difficult year for GEO and for many on a personal level. He thanked all those who worked to make GEO an effective organization despite the challenges. Mr Muofhe also said that much lies ahead for 2021, with the Lead Co-Chair Goals and Objectives suggesting it will be a busy year. Mr Muofhe noted that GEO is now moving toward the next ministerial summit and so there is a push to achieve the targets we have set for ourselves. He also thanked

Executive Committee colleagues for their commitment, especially those who have had to take calls very early or very late. He stated that South Africa is working to build the GEO brand on the African continent and is diversifying its relationships with other organizations. He concluded by thanking the GEO Secretariat for its work under difficult circumstances, having made significant gains and establishing new partnerships.

Stephen Volz, United States Co-Chair, stated that GEO had made great progress over the last year. The team had shown excellent focus and attention to the most important activities. GEOGLAM has celebrated its 10th anniversary and has demonstrated a good model of how to implement a sustained activity within GEO. The Secretariat has built good engagement with the UNFCCC, noting the work of Sara Venturini, which shows how the Secretariat can be a driving force to engage others, as well as how GEO can deliver climate adaptation services around the world. Mr Volz said that these and many other examples show how GEO is providing positive change to the communities we serve. He concluded by thanking Mr Child for his leadership.

Gilberto Camara, GEO Secretariat Director, noted that the 54th Executive Committee meeting would be his last as Director and thus it was natural to look back. He said that his involvement in GEO began 18 years earlier at the first Earth Observation Summit in Washington, D.C. He remained involved strongly in GEO during its first years while he was the GEO Principal for Brazil. In all, he said that he had been involved for 14 years in GEO. Mr Camara stated that it gave him great pleasure to see where GEO has come in that time, perhaps not as far as we had dreamed, but maybe further than others expected. Still, GEO has more road ahead. He drew attention to some aspects of GEO which have made it what it is today: the participation of the Co-Chairs, reform of the GEO Work Programme, adherence to the open data policy, engagement of GEO Members in GEO Work Programme activities, the importance of the Secretariat. Mr Camara stressed that while the Director is the voice, the Secretariat staff are the ones who keep things moving. He declared that there would be a smooth transition to the new Director, noting their many discussions and the involvement of the new Director in all decisions that will affect her tenure. He concluded by expressing his desire to remain involved in GEO in some way following his term as Director.

1.2 Adoption of Agenda (Document 54.1 (Rev.1) – for decision)

The Chair reviewed the agenda and asked if there were any other changes. None were raised.

Outcome: The agenda was adopted as distributed. A request from the United Kingdom to speak in Any Other Business was noted.

1.3 Draft Report of the 53rd Executive Committee Meeting (Document 54.2 – for decision)

No requests for changes were made.

Outcome: The document was approved as distributed.

1.4 Review of Action Items from Previous Meetings (Document 54.3 – for decision)

No requests for changes were made.

Outcome: The document was approved as distributed.

1.5 Secretariat Operations Report (Document 54.4 – for information)

The Secretariat Director presented the report, reminding members that it covered the period since the previous Executive Committee meeting the previous November. He thus started with a brief summary of GEO Week 2019, which had been held virtually for the first time. Mr Camara thanked South Africa and the Secretariat for organizing the events, which included an industry track. He then recalled the GEO Indigenous Summit, which was held the following month and included a very broad range of participants from indigenous communities around the world and said that he was encouraged by how seriously they were taken Earth observations. Mr Camara also noted that the Indigenous Summit also included a hackathon, in which the winning team was a team from Brazil whose project focused on the impacts of COVID-19 on communities of descendants of former slaves. Continuing on the topic of GEO events, Mr Camara congratulated the organizers for the successful 13th AOGEO Symposium.

Turning to action on the climate engagement priority, Mr Camara described a joint event of the United Kingdom Office of the High-Level Global Action Champion, Climate TRACE, GEO Secretariat, the World Geospatial Industry Council and the GEO Secretariat on “Innovation in Remote Sensing Technologies for Accelerated Climate Action” on 14 December 2020. As part of the UNFCCC Climate Dialogues 2020, the GEO Secretariat organized a panel on “Recent advances in Earth observation technology and data processing to support decision making”, which included representatives from GEOGLAM, GEO Blue Planet, and GFOI. Steven Ramage from the Secretariat also moderated one of the dialogues. Continuing on the theme of climate action, Mr Camara stated that a key issue the Secretariat is working on with the IPCC and CEOS is the Global Stocktake. This activity addresses the state of greenhouse gas emissions, actions being taken by countries, and the overall progress being achieved. One of the crucial issues for the Stocktake is Agriculture, Forestry and Other Land Uses (AFOLU). This is very important for GEO since Earth observations are critical in assessing changes. Finally, GEO has proposed a GEO-GFOI expert meeting on new tools to improve reporting of land representation, which was inspired by a recent IPCC report on climate change and land. Mr Camara also drew attention to a relevant recent paper on Earth observation-based land cover products which was co-authored by several long-standing contributors to GEO.

Mr Camara informed Executive Committee members that the Secretariat is rebuilding the relationship with WMO and the two organizations are working together in several areas. He noted that WMO is a changed organization in many ways, with a new structure and many new personnel. GEO was invited to participate in the recent WMO Data Conference, which was very well attended. The Secretariat has ongoing discussions with WMO on where they are going and how GEO can contribute. Mr Camara noted the ambitions of WMO to be the UN climate agency. The Secretariat has proposed working with them in the area of nature-based solutions. He observed that these are important discussions as support to climate adaptation requires Earth observations at the level that GEO can provide; this is recognized by WMO and it is not their core contribution.

Mr Camara stated that there has also been much activity on Disaster Risk Reduction. GEO was invited to participate in the Risk-informed Early Action Partnership, an international partnership of countries and organizations hosted by the International Federation of Red

Cross and Red Crescent Societies (IFRC). GEO is also involved in a second new initiative related to DRR, the Anticipation Hub. This is a joint initiative of the German Red Cross, the IFRC, and the Climate Centre and includes over 50 other partners. The Anticipation Hub is intended as an online knowledge and exchange platform for practitioners, scientists and policymakers to help reduce disaster risk and adapt to climate change.

Regarding Resilient Cities and Human Settlements, Mr Camara briefly mentioned the support of the Secretariat to the efforts to recognize the topic as a fourth GEO engagement priority, while noting the issue would be addressed separately in the meeting.

Mr Camara highlighted several recent developments in the GEO Work Programme. He thanked Germany for its support to GEOGLAM, which will ensure that the GEOGLAM Secretariat is able to continue operating for the next several years. GFOI received a contribution of high-resolution satellite data over tropical forest regions, funded by Norway's International Climate and Forests Initiative (NICFI) with the Kongsberg Satellite Service (KSAT) and its commercial sector partners Planet and Airbus. Mr Camara noted that the resolution is sufficiently high that it may be able to serve in place of in situ data for ground-truthing lower resolution data. Two webinars were organized to introduce the NICFI data programme and showcase innovative use cases. A separate webinar was also organized jointly by the Secretariat and GFOI on forest monitoring using methods developed by Brazil. The Secretariat is also working with GFOI to enhance FAO's SEPAL platform by adding tools for wall-to-wall mapping of forests. Mr Camara noted the recent launch of the SDG Toolkit for Sustainable Cities and Human Settlements, which was led by EO4 SDG and involved other urban-related GEO Work Programme activities and other GEO contributors. The Secretariat supported a recent GEO-LDN competition to build a land-use planning tool to address land degradation. Digital Earth Africa (DE Africa) is on the track toward recognition as a GEO Initiative. Mr Camara drew attention to a recent World Economic Forum report "Unlocking the potential of Earth observation to address Africa's critical challenges" which used water management information from DE Africa. Finally, Mr Camara mentioned that a distinguished group of scientists had presented to CEOS a protocol for measurement of biomass using satellite and in situ data. The GEO Secretariat contacted this group and invited them to join the GEO Work Programme, to which they agreed.

Mr Camara also spoke about progress on several technical matters, including a discussion paper prepared by the Secretariat "On the possible contribution of open source software for the private sector in Earth observation" for the GEO Industry Track 2020. The Secretariat has also been addressing issues raised previously by the Executive Committee regarding the possible risk of vendor lock-in with private sector providers of cloud computing services. The Secretariat is working with the Open Geospatial Consortium (OGC) to develop new open geospatial standards to support analysis and interoperability across platforms. Mr Camara also reviewed the successful bilateral meeting between CEOS and the GEO Secretariat, which focused on collaboration on analysis-ready data, the AFOLU roadmap, biomass protocol, and open science. Mr Camara observed that the relationship with CEOS was working very well. On cloud computing, he noted that a new call for project proposals with Microsoft would be forthcoming, this time targeting GEO Work Programme activities. As an example of the impact that is beginning to be realized from earlier GEO cloud computing programmes, Mr Camara drew attention to a statement on the website of the President of Costa Rica that mentioned a project under the GEO-

Google Earth Engine programme. He also drew attention to the recent decision by the Belmont Forum to fund 14 projects under the Transdisciplinary Research for Pathways to Sustainability call, which was supported by the GEO Secretariat. Two of the successful proposals were submitted by researchers active in the GEO community.

Mr Camara concluded his presentation by thanking France, Germany, Japan and ITC for their current and upcoming secondments to the GEO Secretariat.

Germany stated that this was a very impressive report of progress and successes and that they were especially happy to see the progress on climate and on collaboration with WMO. Regarding the plans for the second GEO climate workshop, Germany noted that the Global Climate Observing System (GCOS) is planning a conference around the same timeframe and suggested the two groups work together to avoid overlaps. Germany also requested that the Secretariat systematically inform GEO Principals when contacting official agencies in their countries.

South Africa said that the presentation displayed the excellent progress made under difficult circumstances and that they appreciated the work of the Secretariat. While many activities had been convened virtually out of necessity, the contact with the GEO community was being maintained.

China thanked the Secretariat and noted that many efforts were being made. China also announced their plans to launch a synthetic aperture radar satellite in the next two years to support disaster risk reduction; the data from this satellite would be made open to GEO members. China also reminded Executive Committee members that they are continuing to share their 2-metre resolution optical data and are developing access nodes on a country by country basis. China will also host the 15th Conference of the Parties to the Convention on Biological Diversity in Kunming in October 2021. It was also noted that the United Nations would like to hold a conference on geospatial information under the United Nations Statistical Commission this year and China encouraged GEO to be deeply involved in this event.

The European Commission welcomed the efforts and the progress by the Secretariat, especially in engaging United Nations organizations and on climate change. More progress is also expected with the IPCC. As the GEO agenda extends to the urban environment, the European Commission would like to see participation of GEO Principals. The Commission also welcomed the closer relationship that is developing with the WMO and indicated their intent to work with the Secretariat to promote the Copernicus and Horizon Europe programmes.

The United States acknowledged the impressive summation of the excellent work being done by the Secretariat and the GEO community.

Outcomes: The Executive Committee thanked the Secretariat for the excellent progress that was achieved in engaging stakeholders and in implementing the GEO Work Programme.

2 SESSION 2: PLANNING AND STRATEGY

2.1 Lead Co-Chair Goals and Objectives (Document 54.5 – for decision)

Patrick Child presented the document. He reminded members that a presentation was given on the proposed priorities for the year at the 53rd Executive Committee meeting and that a previous version of the table of goals and objectives had been circulated to Executive Committee members in late 2020, thanking them for the comments provided at that time. Mr Child observed that it is a primary role of the Lead Co-Chair to facilitate agreement in Executive Committee on the priorities for the sound implementation of the GEO Work Programme and to achieve that by focusing Executive Committee agendas on the real priorities that GEO is facing.

The European Commission has highlighted a few new areas that they would like to focus on, though the objectives generally fit comfortably within the GEO strategic framework adopted in 2015 and the directions agreed in the Canberra Declaration. Mr Child drew attention to a new cross-cutting objective to look at the contributions that Earth observations can make to the response to the COVID-19 pandemic and the subsequent recovery. Under Goal 1, there is a confirmation of the importance of the three existing engagement priorities, while taking forward the new agenda on resilient cities and human settlements and the addition of indicators to stimulate further cooperation with WMO and other United Nations organizations, including those involved with the UN Decade of Ocean Science. Under Goal 2, Mr Child noted the importance of consolidating the achievements in implementation of the GEO Knowledge Hub but highlighted two new areas: the development of a GEOSS infrastructure evolution roadmap including the development of metrics to monitor the usage of the GEOSS infrastructure, and secondly to improve the access, coordination and sharing of in situ data through development of an in situ data strategy. Under Goals 3 and 4, the Commission proposes to continue the engagement with developing countries, including the focus on Pacific Island Countries and Territories (PICTs), and engagement with the commercial sector. For the latter, Mr Child stated that they were aware of the potential for such engagement to focus on a small number of larger actors and thus they suggest putting a particular emphasis on engagement of small, medium, and micro-sized enterprises (SMMEs). Under Goal 5, it is expected that the active communication of the added value of GEO to the wider GEO community will continue. Mr Child noted that these efforts have started to yield results including some welcome new commitments of secondments of staff to the Secretariat. Finally, the Commission intends to support a smooth transition of the Secretariat Director in the coming months.

The United States suggested that, to make the cross-cutting objective more actionable, a semi-permanent space on the GEO website be created to show contributions from the GEO community to COVID-19 response and recovery. Regarding the in situ data strategy, there was agreement with the focus on barriers to in situ data sharing but suggested that approval of Plenary was not required, with the indicator being the presentation of outcomes and progress. On cloud computing, the United States would like more definition of what is meant by GEO ethical guidelines. Given the broad scope, it might be better to have the discussion within the Executive Committee first rather than delegating it to a Working Group.

South Africa congratulated the European Commission on the effort that had gone into the document. It was noted that to make progress it was necessary to balance continuity and relevance, as well as to understand the challenges and how to react to them. The document had achieved this balance. Regarding the references to SMMEs, South Africa observed that there are differences in the definitions of the term between regions; though this should not hinder engagement, there would be a need to tune the approach to the audience.

Japan stated that AOGEO can support the goals and objectives, citing recent discussions at the AOGEO Symposium. For example, on Goal 1, AOGEO is strengthening connections with the statistical community and on Goal 3 it is working closely with the Pacific Islands Advisory Group. Japan noted that the AOGEO Symposium received eleven country reports, including some from GEO Members not active at the global GEO level. Japan noted that the Regional GEOs have important roles to play in implementing the goals and objectives and would like to help pull together such contributions.

China expressed their agreement with the goals and objectives. Regarding Objective 1.5, China requested that the indicator reflect the need for engagement with ECOSOC and UN-GGIM. Objective 3.1 should be revised to add “organizations”.

Germany fully agreed with the goals and objectives, noting the continuity as well as the new accents. They appreciated the stronger emphasis on in situ data.

Mr Child observed that there was general support and agreement, subject to a few minor adjustments. Regarding the cross-cutting objective, he noted the GEO webpage on the COVID-19 response. On the in situ strategy, it would be possible to tweak the wording such that the item would be “presented” to Plenary. On the ethical guidelines, Mr Child noted that this is a discussion that is emerging very strongly in some regions, including in Europe. He stated that he was willing to adjust the text on this point if necessary. Mr Child agreed with South Africa that the work on engagement with the commercial sector should not be diverted due to differing definitions; the main issue is that GEO should not limit its engagement to large organizations. Regarding the comment from Japan, Mr Child asked if changes to the text were proposed, but Japan indicated that this was not necessary. On the suggestions from China, he said that they would be happy to revise the text to be more inclusive of United Nations organizations where GEO wished to deepen its connections. Mr Child concluded the item by proposing that the Secretariat and the European Commission team prepare a revised document for presentation to the Executive Committee at the start of the second day.

At the beginning of the second day, Mr Child presented a revised document and described the proposed changes. Executive Committee members concurred with the new version.

Outcomes: The Executive Committee approved the 2021 Lead Co-Chair Goals and Objectives document, with the revisions presented on the second day.

2.2 GEO and the UN Decade of Ocean Science for Sustainable Development (Document 54.6 – for decision)

Emily Smail (United States) presented the item on behalf of the GEO Blue Planet Initiative. She began by observing that the United Nations Decade of Ocean Science (Ocean Decade) is a once-in-a-lifetime opportunity for nations to work together to generate the ocean science needed to support sustainable development. Ms Smail noted that ocean science supports not only SDG 14 “Life below water”, but all seventeen SDGs. For example, she

pointed to the significant role of oceans in climate regulation. Ms Smail drew attention to seven “Societal Outcomes” to be furthered by the Ocean Decade, including “A Clean Ocean” and “A Healthy and Resilient Ocean”. She then spoke about ten “Ocean Decade Challenges” which will be addressed through “Decade Actions” which will be identified, implemented, and resourced by a wide range of stakeholders. At least seven of these challenges are relevant to the work of GEO.

Ms Smail then reminded Executive Committee members that GEO Blue Planet is the key GEO Work Programme activity focused on oceans and coasts and it is well-aligned to the Ocean Decade Societal Outcomes. However, many other GEO Work Programme activities undertake work that is relevant to the Ocean Decade. GEO Blue Planet seeks to coordinate contributions to the Ocean Decade from the GEO community and has already taken some actions in this direction. For example, GEO Blue Planet organized a side event on the topic at GEO Week 2019 in Canberra. Other GEO Work Programme activities are also engaging with the Ocean Decade, including GEO BON, which has submitted a request for endorsement of their MarineLife 2030 action. The Executive Secretariat of the Intergovernmental Oceanographic Commission (IOC) sent a letter to GEO encouraging support to the Ocean Decade. In response to the letter, several GEO Executive Committee members prepared document ExCom-54.7 to indicate their support for GEO action. Ms Smail concluded by stating that GEO Blue Planet is willing to support the Ocean Decade and is open to suggestions from the Executive Committee on how to do this.

The Lead Co-Chair reminded Executive Committee members that the decision before them was whether to approve the document, including the recommendation to issue a call to the GEO community for contributions to the Ocean Decade.

The United States stated that there is a clear and compelling case that oceans are implicated in many areas of concern in GEO, including the SDGs. Clarification of the nature of the endorsement was requested.

South Africa said that they were supportive of the document and would like to contribute to the activity. They also hoped that the involvement of GEO would help with national actions.

China agreed that GEO and the Ocean Decade would make great partners and they hoped that more GEO Work Programme activities will be able to participate. China also suggested that more ocean scientists should be encouraged to join GEO.

The European Commission noted that the Ocean Decade would provide many opportunities for international cooperation, including on access to data. The European Commission itself has proposed a contribution on ocean observations, which is linked to the work at Mercator and funded by Commission research programmes. The European Commission is fully behind the initiative and would like to hear specific ideas on how to mobilize the GEO community.

Emily Smail asked if there were other countries who might be willing to host staff members of GEO Blue Planet. Also, a secondment to the GEO Secretariat would assist with cross-GEO Work Programme coordination. Ms Smail also welcomed support from GEO Members and Participating Organizations in specific projects.

The Lead Co-Chair encouraged Executive Committee members to spread the word about the Ocean Decade and GEO’s involvement within their communities.

Outcomes: The Executive Committee:

- Thanked Emily Smail for her presentation;
- Supported in principle the proposal for GEO to contribute to the UN Decade of Ocean Science for Sustainable Development; and
- Adopted the document as distributed.

3 SESSION 3: FINANCE RESOURCES MOBILIZATION

3.1 Report of the Budget Working Group (included in Document 54.7 – for information)

Patricia Geddes, Senior Administrative Manager in the Secretariat, presented the report on behalf of the Budget Working Group, whose members are: China, the European Commission, Finland, South Africa, Switzerland, and the United States. Ms Geddes presented an interim financial statement for 2020, noting that, as in previous years, the final statement would only be available following the audit, which would be completed in April or May. Cash income to the GEO Trust Fund in 2020 was approximately CHF 3.4 million. After expenditures, there was a surplus of about CHF 600 000, which was mainly due to the inability to travel, host meetings, or sponsor travel for developing countries. Ms Geddes then provided an update on the GEO Pledge Campaign, reminding members that the Campaign was intended to bridge the gap between the budget in the Concept of Operations document approved at the 49th Executive Committee meeting and the current contribution levels. This gap is approximately CHF 2.4 million as compared to the average contribution level from 2005-2019. She noted that the Budget Working Group was not, at this time, considering revisiting the indicative scale of contributions or the role of secondments. All of the options suggested by the Budget Working Group conform to the GEO Rules of Procedure and to prior decisions of the GEO governance bodies. The 2021 Pledge Campaign was launched at GEO Week 2020 and is centred on a webpage on the GEO website that is continually updated with the pledges received. Pledges received at the time of the meeting totalled CHF 2.6 million, with additional known forthcoming pledges expected of about CHF 1.2 million, thus bringing the total to about CHF 3.8 million. While this is significantly higher than the revenue in 2020, thus showing the success of the Pledge Campaign, a shortfall of CHF 1.8 million remains. The auditors also noted that 2020 was a particularly difficult time to raise funds given the economic impacts from COVID-19 in many countries. The Budget Working Group, therefore, has recommended the continuation of the Pledge Campaign, including sustained communications to GEO Members. The Secretariat Director is also continuing to send personalized letters to request to GEO Members and Associates.

Germany stated that they were pleased with the status of the finances, however asked about the impending completion of the contract of the in situ data coordinator. The Secretariat Director replied that the contract was being renewed and was with WMO for processing.

China said that they had participated in the Pledge Campaign activities and will apply for increased funding for the GEO Trust Fund from their government authorities. China announced that they have also launched a GEO cooperation initiative that will provide travel funding for participants in training and research activities. The second round of

such funding will be RMB 16 million for 15 projects (which are still under assessment), and partners in the projects include researchers from Japan, Brazil, and the United Kingdom. These projects are expected to support several GEO Work Programme activities.

Outcomes: The Executive Committee:

- Thanked the Budget Working Group for their work and Patricia Geddes for her presentation; and
- Noted the ongoing need for the Pledge Campaign to ensure there are sufficient funds available to support Secretariat activities.

Meeting adjourned at 15:30

Wednesday, 17 March 2021

Meeting convened at 12:00

4 SESSION 4: 2020-2022 GEO WORK PROGRAMME

4.1 Resilient Cities and Human Settlements Engagement Plan (Document 54.8 – for decision)

Evangelos Gerasopoulos (Greece) presented the item on behalf of the Programme Board (PB) and its Urban Resilience Subgroup. He reminded Executive Committee members that they had given provisional approval of urban resilience as a fourth GEO engagement priority at their 54th meeting but had requested that an engagement plan for the priority be prepared. A draft engagement plan was prepared by the Urban Resilience Subgroup and the Secretariat and presented to the PB at its meeting in January 2021. Mr Gerasopoulos drew attention to the title of the document, in which the title of the proposed engagement priority was changed to “Resilient Cities and Human Settlements” to make clear that it would address the full spectrum of human settlements and not only large urban areas.

Mr Gerasopoulos then reviewed the structure of the engagement plan, the engagement objectives, and the expected impacts of GEO’s engagement. He then described the four priority stakeholder categories: cities and human settlements (primarily through intermediary organizations); United Nations agencies with policy responsibilities related to human settlements; the GEO community (including GEO Members, Participating Organizations, Associates, and GEO Work Programme activities); and small, medium, and micro-sized enterprises (SMMEs). GEO actions to implement the priority would be led by a new GEO Working Group, to be launched in early 2022, and by the GEO Secretariat. Mr Gerasopoulos stated that the Secretariat support would initially be provided by the Senior External Relations Manager until such time as a dedicated coordinator position could be filled. He emphasized that the experience with the other GEO engagement priorities has demonstrated that the approval as an engagement priority was a precondition to obtaining the funding for a coordinator position and not the reverse. Mr Gerasopoulos then briefly reviewed the key milestones, deliverables, and events that have already been identified for the next two years. He drew particular attention to the opportunity for GEO to support the four-year review process for the New Urban Agenda by providing Earth observation data and information related to human settlements. Mr Gerasopoulos concluded by requesting that the Executive Committee approve the engagement plan and approve the terms of reference for the new Working Group.

The Lead Co-Chair opened the floor for comments, remarking that the group had made evident progress and noted the clear presentation. He said that the change of name was helpful.

The United States also appreciated the developments since the previous meeting and the progress achieved. They supported the request to make Resilient Cities and Human Settlements an engagement priority.

Germany reminded members that they had supported the proposal at the previous Executive Committee meeting and had advocated more engagement at the local level, where Earth observations are under-utilized. Germany had requested preparation of the

plan, which they noted is a very good document. It was suggested that Local Governments for Sustainability (ICLEI) be specifically mentioned as a key stakeholder. Regarding the Working Group, Germany noted many potential areas of interface with the existing Working Groups and with the SDGs, recommending that the new Working Group find synergies with the others and look for ways to avoid overlaps. This may require changes to the terms of reference. Germany also emphasized the need for a full-time coordinator, though recognizing the role of the External Affairs Manager in the early stages.

The Secretariat Director expressed the Secretariat's satisfaction with the proposal and the commitment of the Executive Committee members to this new engagement priority. He stated that GEO was fortunate to have Mr Gerasopoulos as the proponent of this priority and that, while there was potential for overlaps with the other engagement priorities, the likelihood of this was low under Mr Gerasopoulos' leadership.

China endorsed the document, including the terms of reference for the Working Group. They noted that China is the world's most populous country and that urbanization is a critical issue for them. Several Chinese government ministries are heavily engaged in these efforts. China would like to share its experience with others through the Working Group and would like to see it become operational as soon as possible.

South Africa expressed its appreciation and support for this initiative.

The European Commission said that they were happy with the document and supported Resilient Cities and Human Settlements as a new GEO engagement priority. They agreed that GEO should explore all possible synergies with the other priorities.

Evangelos Gerasopoulos thanked Executive Committee members for their support of the proposal. He also thanked Germany for their comments and suggestions, saying that they would be taken into account in revising the document. He noted that ICLEI will be mentioned in the document and that the Urban Resilience Subgroup is already working with them. Regarding the potential for synergies and overlaps, Mr Gerasopoulos said that this demonstrated why the Working Group is so important. He thanked the Secretariat Director for his confidence in the scientific background of the participants, though noting that the challenge is to enable this scientific knowledge to be used to address the needs of cities and settlements.

Outcome: The Executive Committee:

- Expressed their support for Resilient Cities and Human Settlements as a fourth GEO engagement priority;
- Approved the engagement plan with a suggestion that it include a reference to Local Governments for Sustainability (ICLEI); and
- Approved the terms of reference for the Resilient Cities and Human Settlements Working Group, while recommending that attention be given to avoiding overlaps and identifying synergies with the existing Working Groups.

Action 54.1: Programme Board to oversee preparation of a document for the GEO-17 Plenary seeking approval for Resilient Cities and Human Settlements as a fourth GEO engagement priority. **Due: GEO-17 Plenary document deadline.**

4.2 Draft GEO Statement on Open Science (Document 54.9 – for decision)

Markus Konkol (ITC) gave the presentation on behalf of the statement drafting team and the Capacity Development Working Group. He began by describing the scope of the concept of open science which, based on the UNESCO definition, includes not only open access and open data, but also software, infrastructure, societal action, and diversity of knowledge. Mr Konkol then briefly recounted the collaborative process used to prepare the draft statement. The draft was then presented to the PB, where it was endorsed with recommendations for several changes, which were incorporated into the present version.

The United States stated that it strongly supports advocacy of open science. It also wants GEO to maintain a high standard regarding open data. While supporting the extension to aspects beyond data, in their view the section on data is too narrow. The United States suggested that the statement should keep to the terms of the current GEOSS Data Sharing Principles (DSPs), including the statement that data should be “open by default”. It was recommended that the statement be shared with the Data Working Group for their review, and that they be asked to consider how the FAIR, CARE, and other complementary sets of principles may be reconciled with the DSPs.

Japan asked for clarification of the purpose of issuing the statement and how it would be applied. What is the relation of this statement with the Strategic Plan and the DSPs? What would the impact be on the GEO community? Japan noted that there was an existing action by the PB for the Data Sharing Working Group to look at the relationship between the FAIR principles and the DSPs. It was also important to consider the views of scientists who develop software and code. While Japan supported the general direction of the statement, more consultation was needed.

France appreciated GEO’s work on the topic, stating that open science is very important; however, it may be too soon to adopt this document. It was observed that the UNESCO statement on open science is still under discussion and it was the preference of France that it be approved before the GEO statement is finalized. France also inquired about how the statement would be used in GEO and its intended audience.

The European Commission stated that they very much welcomed the paper, but that they concurred with Japan that the objective was unclear. They said that more review by GEO bodies was needed.

Chile agreed with Japan and France.

Greece said that they appreciated the discussion and the progress that had been made. They noted that similar discussions were starting in many countries, including within the Greek GEO office. Greece opined that a GEO statement on open science might contribute to discussions at the national level.

China said that this was a very good topic, but it was important to distinguish between science, technology, and intellectual property. Science should be open, but technology is associated with industry. Raw data should be publicly available.

Germany concurred with the general support for the issue but agreed with the concerns raised by the United States, Japan, and the European Commission. They recommended that the Data Working Group should be engaged to address the issues mentioned, noting that there are also GEOSS Data Management Principles in addition to the DSPs.

The United States agreed with the comment from Greece that GEO is able to influence discussions on the topic happening at national levels, saying that GEO should work quickly on this.

Markus Konkol replied to the comments, saying that he made notes during the discussion and would go back to the group and revise the document accordingly.

The Secretariat Director responded to the questions from Japan, saying that the document is addressed to the GEO community. As to why such a statement is needed, while GEO has made great progress on open data, it is behind on openness of results. Many researchers are still not providing access to all of the components needed to replicate and reproduce their results. He stated that GEO should aim to be not just a leader on open data, but also on open science, noting that GEO's leadership on open data had a major impact.

Outcome: The Executive Committee:

- Thanked Markus Konkol, the drafting team, and the Capacity Development Working Group for their preparation of the document;
- Expressed support for the concept of open science; and
- Recommended that further consultations within the GEO community be undertaken including, in particular, with the Data Working Group regarding alignment with the GEOSS Data Sharing Principles and Data Management Principles.

4.3 Draft GEO Statement on Equality, Diversity and Inclusion (Document 54.10 – for decision)

Nathalie Pettorelli (United Kingdom) presented the item on behalf of the PB and its Equality, Diversity, and Inclusion (EDI) Subgroup. She began by noting that the Subgroup was formed in April 2020 to support the strategic aim of developing GEO as an organization that provides a fair, supportive, and encouraging networking environment. She stated that the Subgroup defined “diversity” as referring to variability in any dimension that can be used to differentiate people from one another; noting that the Subgroup was currently focused on the dimensions of gender, geography, and generation. The term “inclusion” refers to behaviours and social norms found in an organization that ensure that people feel welcome. Ms Pettorelli said that the Subgroup is comprised of 12 members who are based in five continents.

Ms Pettorelli set the context for the draft statement by referring to the three aims of the Subgroup. First, the Subgroup intended to compile available information on diversity within GEO. Second, the Subgroup would use this information to develop an action plan. The EDI statement emerged from the work on the action plan as a way to articulate GEO's vision and commitments regarding EDI. Regarding the compilation of information on diversity, Ms Pettorelli briefly summarized the key results of an assessment prepared by the Subgroup based on available data. The evidence points to a high proportion of male participants in GEO governance bodies (for example, over 80% of GEO Principals and Principal Alternates are male) and in the GEO Work Programme (more than 70% male and more than 50% from Europe and the Americas). Similar patterns were also seen in GEO event speakers and panellists, award nominees, and Secretariat Director applicants.

Ms Pettorelli then described the recommendations that were developed by the EDI Subgroup based on the data collection findings. These recommendations included improvements to systematic data collection, actions to improve the visibility of under-represented groups in GEO; actions to improve diversity in GEO leadership; and actions to include diversity in representation. The EDI statement was one of the specific actions within this last category. Ms Pettorelli then explained the diagram used to illustrate the five pillars of the EDI statement: oversight and accountability; community leadership and advocacy; creating a welcoming and supportive environment; outreach and engagement; and empowerment through accessibility. She noted that the statement includes a description of each of the pillars that provides concrete examples of the kinds of actions that will be promoted.

The United States thanked the team for their work on the statement, describing it as a very good start. The statement provides a good basis for further consultation with the GEO community, though they would be requesting a few specific edits. In particular, the United States noted the importance of attending to historically and geographically under-represented populations. They also remarked that the EDI Subgroup is an important resource for addressing issues of diversity in GEO, such as promoting career development.

Japan said that they appreciated the efforts of the PB to promote diversity and noted that Regional GEOs have the potential to play a key role in implementing the EDI framework. It was suggested that the EDI Subgroup consider what concrete actions could be implemented by the Regional GEOs. Japan indicated that they supported the statement.

South Africa thanked the Subgroup members and stated that it was time to do what the document proposed. For GEO to realize the impact it aims to make, it is essential that it encourage diversity and inclusion. GEO cannot afford to leave out many of our global citizens. South Africa strongly supported the statement.

France welcomed the work by the Subgroup, describing it as very important. France stated that they will be as supportive as possible. France also recommended that the Executive Committee also consider this topic. There are many smaller countries in GEO that rarely speak up, and perhaps GEO should make more effort in this direction. GEO needs to take proactive action.

The European Commission said that they welcomed the work and that the topic goes to the heart of GEO. The directions described align with many activities within the European Union. A question was asked regarding how GEO should strive to maximize diversity in all governance structures.

Nathalie Pettorelli thanked the Executive Committee for their comments, noting that the EDI Subgroup is a very new community in GEO. The issues that have been identified will not be solved in a few minutes. She welcomed the suggestions from Executive Committee members, saying that it would take some time to analyse the data and develop recommendations for specific actions. Ms Pettorelli stated that she hoped to bring these actions to the Executive Committee at some point in the future. She agreed that the Regional GEOs have a larger role to play in this area and said that the EDI Subgroup was working with the Symposium Subgroup, for example. She emphasized that the Subgroup was not trying to force GEO to be diverse, but to reward and celebrate actions to increase diversity.

Outcomes: The Executive Committee:

- Expressed support for the recommendations;
- Approved the document for further consultation within the GEO community, ultimately leading toward presentation of an updated statement to the GEO-17 Plenary; and
- Suggested that attention be given to historically and geographically disadvantaged and under-represented communities.

4.4 Update on Knowledge Hub Implementation (Document 54.11 – for information)

The Lead Co-Chair introduced the item noting that the Executive Committee had requested regular updates on implementation of the GEO Knowledge Hub (GKH).

Douglas Cripe from the GEO Secretariat presented the item on behalf of the GKH team. He noted that the presentation was derived from one given at the recent GKH Webinar Series. The starting point for the GKH is the concept of reproducibility; that is, to enable GEO Members and others to reproduce and adapt the results developed in the GEO Work Programme. Mr Cripe said that there are many reasons why Earth observation applications are not readily reproducible, including insufficient documentation, lack of access to the necessary data or software, and even which version of software to use. The concept behind the GKH is that all of the resources required to reproduce the results produced by GEO Work Programme activities would be made available in a “knowledge package”. This includes the scientific publications that describe the methods, the remote sensing and in situ data used, the open source software, a “sandbox” computing environment, training materials, and final outputs. As an example of a knowledge package, Mr Cripe referred to the Sen2-Agri system for near real-time agricultural monitoring. In addition to this example, the GKH team are working with several other GEO Flagships and Initiatives to prepare knowledge packages; these include the Global Observation System for Mercury (GOS4M), Global Wildfire Information System (GWIS), GEO Human Planet, and the land use / land cover classification system developed using the Brazil Data Cube.

In terms of the current status, Mr Cripe stated that the GKH development was on track to meet the deadline for release of the initial public version by the summer of 2021. An alpha (pre-release) version has been implemented and tested by the team and has been shown to be capable of handling the various types of content as described in the GKH Implementation Plan. It is expected that the summer 2021 version will include knowledge packages from six GEO Work Programme activities, plus the Brazil Data Cube, as well as support for using some of these packages in connection with Digital Earth Africa. Some delays in implementation have been experienced due to delays in the InvenioRDM releases and due to the effects of the COVID-19 pandemic; these delays have affected the ability of users to directly upload resources into the platform. These issues were expected to be resolved in March 2021.

The Lead Co-Chair stated that he appreciated the presentation and the clear discussion of the challenges faced, as well as the description of how the GKH fits into the GEO landscape.

The European Commission said that they were grateful to the Secretariat for leading the development of the GKH and engaging many stakeholders. It was noted that many functions in the GKH appeared to also be part of the GEOSS Platform. The Commission offered to bring together the various groups to ensure that the components of the GEOSS

infrastructure work well together. They also noted the funding being provided by the European Commission to the GEOSS Platform operations. Observing the very technical nature of the work being undertaken by the Secretariat, it was asked whether there is a need to set up a team from the GEO community to continue the work.

France thanked the Secretariat for the presentation and noted that the GKH seems to target advanced scientific users. They asked whether the team intended to open the GKH to a wider audience.

Germany said that the progress report was good, but that the GKH is still only a demonstrator. It is important that the launch clearly describe the demonstration character of the tool, and that the team does not oversell the scope of what is being provided. Germany asked how the tool would be maintained and developed further, stating that it is not within the scope of the Secretariat to provide an operational tool.

China remarked that the progress represented a very good achievement. They noted that the GKH was not intended to be a universal tool but was focused on the GEO Work Programme. It was suggested that the GKH consider structuring the content on a hierarchical basis and also that the GKH provide support for multiple languages. China asked whether all GEO countries should be asked to add their own information.

Mr Cripe responded that GEO Human Planet is being used as a test case for integration of the GKH and the GEOSS Platform. Regarding the technical nature of the work, Mr Cripe noted that, over time, the GEO Work Programme activities will be able to add new knowledge packages themselves, with minimal support required by the Secretariat. The Secretariat would act mainly as technical support. In response to France, Mr Cripe said that support for a broader range of users would be provided in the summer 2021 version. To Germany, Mr Cripe responded that the focus is on the GEO Work Programme activities. Finally, to the comment from China, Mr Cripe said that the GKH team would take into consideration the suggestion regarding language support.

South Africa stated that they supported the work and the progress achieved on the GKH and would like to build on those results.

Outcomes: The Executive Committee:

- Took note of the progress achieved and thanked the GEO Knowledge Hub team for their efforts; and
- Encouraged the team to continue its collaboration with the GEOSS Infrastructure Development Task Team and with GEO Work Programme activities.

4.5 Update on CEOS Analysis-Ready Data Strategy

Adam Lewis (Australia), CEOS Strategic Implementation Team (SIT) Co-Chair, presented the on behalf of CEOS. He began by reminding Executive Committee members that a strategy for Analysis-Ready Data (ARD) was identified as one of the priorities for CSIRO and Geoscience Australia for their term as SIT Chair, building on previous CEOS work in this area. A CEOS ARD Strategy paper was published in October 2019 with the intent of increasing the use and users of satellite data for decision making. Mr Lewis briefly described the specific actions in the ARD Strategy and their current status. He noted that four Product Family Specifications (PFSs) had been endorsed by CEOS, with several others in development. As well, the Landsat Collection level 2 processing was completed in

compliance with CEOS ARD for Land (CARD4L) for surface reflectance and surface temperature; other datasets, including for Sentinel-2, are in development or assessment. CEOS is also working with scientific communities in other areas beyond land and radar. CEOS is examining whether the existing framework is fit for other applications such as coasts, oceans, and atmosphere. It is unclear at this time what an overarching framework for ARD might look like. Mr Lewis also described various actions being undertaken by CEOS to communicate and promote the use of ARD products, including the ARD website, webinars, and participation in the IEEE International Geoscience and Remote Sensing Symposium (IGARSS). He noted that a key pilot for the ARD products will be in Digital Earth Africa, which is providing continental coverage of CEOS ARD. Mr Lewis observed that the user community is showing great interest in ARD, noting that some commercial organizations are now advertising their own ARD products. There is an emerging need for common standards on ARD, but CEOS is not planning to develop a standard itself at this point, noting that the Open Geospatial Consortium and other standards bodies are looking at this issue. Mr Lewis concluded by stating that CEOS views ARD as an important part of the process to reliably and efficiently create value from Earth observations.

Outcomes: The Executive Committee thanked Adam Lewis for his presentation and welcomed the important work on analysis-ready data that is being led by CEOS.

4.6 Report of the Programme Board (Document 54.12 – for information)

Andiswa Mlisa (South Africa), PB co-chair, presented the report on behalf of the PB. She began by noting the results of recent elections, with Anthony Milne (IEEE-GRSS) elected as PB co-chair, replacing Ivan Petiteville (ESA). The Participating Organization observers to the Executive Committee for 2021 will be CEOS, IEEE-GRSS, and the International Association of Geodesy (IAG). Ms Mlisa then described the PB plan of work for 2021, noting that engagement with Regional GEOs will be a key priority and will be led by the PB co-chairs, together with the Regional GEO engagement team. The PB will also regularly review alignment of their activities with the Canberra Declaration. On monitoring of the GEO Work Programme, there was positive feedback from PB members on the engagement team process which was initiated in 2020. Minor adjustments to the teams were made for 2021, in part to reduce the perception of overlap with the Working Groups. The PB also decided to reduce the number of topics addressed in the calls, to experiment with joint calls with multiple GEO Work Programme activities, and to strengthen the connections between the engagement teams and the Working Groups. Regarding the PB subgroups, the PB endorsed the draft engagement plan on Resilient Cities and Urban Settlements and endorsed the EDI statement. The PB also agreed that the 2021 GEO Symposium would follow an online format once again. The Awards subgroup presented a description of the awards process and the criteria used for selecting the recipients. There was considerable discussion regarding the need to revise the “institutional check” on the process, but no consensus was reached. On the Foundational Tasks, the PB endorsed the draft statement on Open Science, welcomed the GEO-Microsoft AI for Earth cloud computing programme (with six PB members volunteering to serve as proposal reviewers), and agreed to a proposal for a second GEO Climate Workshop in late September 2021.

Germany expressed the view that the most important job of the PB is to maintain contact with the GEO Work Programme activities. They also asked about the difference in roles between the engagement teams and the Working Groups. A concern was raised regarding

a possible conflict in dates between the GEO Climate Workshop and the GCOS / EUMETSAT conference scheduled near that time.

Japan thanked the engagement teams for their support of the GEO Work Programme, noting that 2021 will be an important year for implementation.

France thanked the PB for their great work and for the commitment of the subgroups.

China encouraged volunteers from outside the PB to participate in the subgroups. Regarding the Awards Subgroup, they noted that this is important but that a stronger institutional check is still needed.

The United States informed Executive Committee members that the Climate Change Working Group had met with GCOS and EUMETSAT to coordinate the timing of the events. They also noted the coordination that is occurring between the engagement teams and the Working Groups.

The European Commission observed that, over time, the PB has become a crucial part of GEO. They confirmed their continuing interest in the work of the PB and that they were glad to see that the European Environment Agency was once again a PB member, particularly given their expertise with in situ data. The European Commission supported China's remark regarding the need for a stronger institutional check on the awards process. The process should be as transparent as possible in the future. Regarding the GEO cloud computing programmes, these have been an enormous success, but GEO should ensure that the projects continue to be monitored through their implementation.

The United States noted that the complex nature of the GEO Work Programme justifies the various structures in the PB, noting that the Secretariat also has a key role in this. Greater coordination among the various elements will be beneficial.

Ms Mlisa responded to a point from Germany to clarify that the engagement teams are mechanisms to facilitate engagement of PB members with GEO Work Programme activities on a continuous basis. The Working Groups, by contrast, implement the GEO engagement priorities and other Foundational Tasks. She stated that the PB would take account of the comments on the awards process and will discuss the matter again at the next PB meeting.

Outcomes: The Executive Committee:

- Thanked Andiswa Mlisa for her report and expressed their appreciation to Programme Board members for their efforts in keeping the momentum going in the GEO Work Programme;
- Suggested that the Programme Board monitor the effectiveness of the structure of Engagement Teams, Subgroups, and Working Groups to avoid possible overlaps and inefficiencies;
- Requested that a specific item on the Lead Co-Chair Goals and Objectives be added to the agenda of the next Programme Board meeting; and
- Requested that the Programme Board reconsider the matter of an institutional check on the GEO Awards process.

5 SESSION 5: GEO WEEK 2021

5.1 GEO Week 2021 (Document 54.15 – for discussion)

Mmboneni Muofhe, South Africa Co-Chair, opened the discussion by explaining the circumstances that led to South Africa withdrawing their offer to host GEO Week 2020. He noted that South Africa had recently experienced a second wave of COVID-19, with the possibility of a third wave in the near future. Further, there remains considerable uncertainty regarding outbreaks of new variants that have resulted in travel bans in many countries. Based on these and other considerations, South Africa recommended that GEO Week 2020 be held in a virtual format or, should progress in vaccination allow for it in some parts of the world, a hybrid format. Mr Muofhe stated the desire of South Africa to host the GEO Plenary but, given the current challenges with the pandemic, proposed that it host the Ministerial Summit in 2023.

The Secretariat Director drew attention to document 54.15 and recommended that GEO Week 2021 be held as a virtual event that would include, in addition to the GEO-17 Plenary, various side events, an Industry Track, the 56th Executive Committee meeting, and a GEO Awards ceremony. He also proposed that an Executive Committee Working Group be established to organize the event.

The United States thanked South Africa for their efforts but said that they understood the conclusion they had reached. The United States concurred with the recommendation to hold a virtual Plenary and to create a GEO Week 2021 Working Group, in which they offered to participate.

France thanked South Africa and asked about the possibility of having a partially in-person event.

South Africa and France indicated their interest in participating in the Working Group.

Germany said they would also like to have a hybrid option but noted that this would have drawbacks for those unable to travel. There would be a clear advantage to those who would be on site over those connecting at a distance.

China suggested that a virtual Plenary could be held in three clusters based on continental time zones. Countries could be encouraged to share their national achievements as a digital poster.

The Lead Co-Chair said that Switzerland had indicated their openness to hosting a hybrid event.

The United States requested that the Executive Committee decide on the hybrid or virtual event issue at this meeting to avoid delays in the organization.

Patricia Geddes said that the Secretariat could look at examples of successful virtual meetings in other organizations. She noted that the Secretariat may need to put in place a formal procurement process for external support, which will take some time.

The United States said that even a hybrid approach will require elements of a virtual meeting; a strong conference system will be required in either case. However, a hybrid meeting will have uneven participation geographically, thus making some GEO Members less connected. The United States would vote against a hybrid.

Germany agreed with the United States.

China also agreed that a virtual-only event was preferable.

Outcome: The Executive Committee:

- Thanked South Africa for their preparations and expressed their understanding of the decision to withdraw from hosting GEO Week 2021;
- Agreed that GEO Week 2021 will be a fully-virtual event;
- Established a Plenary Working Group to organize the event; and
- Requested that the Plenary Working Group consider how to address time zone differences as part of their planning.

Action 54.2: The Plenary Working Group to prepare a paper for Executive Committee discussion describing options for GEO Week 2021. **Due: 55th Executive Committee meeting.**

6 SESSION 6: ANY OTHER BUSINESS AND REVIEW OF ACTION ITEMS

6.1 Any Other Business

Robert Bradburne (United Kingdom) intervened to present a question for consideration by the Executive Committee. He noted that, as a step on the road toward the next international climate agreement, the Group of Seven (G7) would be considering documents on many related issues. Mr Bradburne suggested that GEO could work through the G7 members to include mention of GEO in some of the documents coming out of this process. These would likely be through the G7 ministers process, rather than the main G7 process, as the latter are government documents whose content cannot be disclosed externally. Mr Bradburne noted that the discussions this year have a high level of ambition, especially with respect to linking the climate and nature agendas. The outcomes of the G7 ministers discussions will feed into the climate and biodiversity COPs. It is expected that there will be a strong and renewed emphasis on science, monitoring, and responding to changes. Earth observations have a strong role to play here, but it is not clear how it will fit exactly in the G7 process. The key question at this point is how GEO Members wish to be involved in this process.

The European Commission said that they could see potential benefits for visibility and coherence by bringing the work of GEO to the mainstream discussion on climate, SDGs, and so on. This proposal is fully consistent with the shared ambition to see GEO make an active contribution to the science on all of these issues. The Commission noted that few GEO Members are members of the G7, however.

The Secretariat Director welcomed the new climate of cooperation in the G7 on climate and other environmental issues. He said he believed that GEO could have an influence on the broader discussions, noting that the goals on carbon neutrality will not be feasible without action on nature-based solutions which, in turn, require a strong component of Earth observations to ensure accountability. Mr Camara said that involvement in this process would benefit all countries, not only the G7.

Outcome: The Executive Committee welcomed the proposal that GEO work with the organizers of the 2021 G7 meeting to investigate the possibility of including language on Earth observations in G7 statements.

6.2 Closing Remarks

The Lead Co-Chair drew attention to this as the last Executive Committee meeting in which Gilberto Camara would be serving as Secretariat Director. He noted Mr Camara's deep scientific knowledge, his distinguished career, and described him as influential and a passionate believer in GEO. He observed that Mr Camara often spoke from his heart, with a deep sense of responsibility and a passion that is not often found among international civil servants. He also described Mr Camara as a disruptive influence on GEO, challenging the Executive Committee to think in new ways. Mr Child said that he had come to appreciate Mr Camara's persistent enthusiasm for the GEO Knowledge Hub, his tireless energy, his search to realize a balanced relationship with the private sector, and his humanity.

Mr Camara responded by thanking Mr Child for his generous assessment. He referred to the saying about living in interesting times. Mr Camara noted that it would be wrong to give him too much credit, as he was less a bringer of new ideas than one receptive to ideas that were circulating in the broader community and who brought them into GEO. Mr Camara said that he sees GEO as reaching a "coming of age" through the combination of the opening of data, such as with the Copernicus programme, and through many technological changes that have made using this data easier. Mr Camara observed that he was fortunate to have the support of the Executive Committee and the Secretariat during his tenure. This was a time of paradigm change for GEO, but a fantastic future lies ahead. He said that GEO was lucky to have Yana Gevorgyan as the next Director, as she works hard and has a full commitment to GEO. Mr Camara concluded by thanking three individuals who were key supporters and advisors during his time as Director: Mmboneni Muofhe, Imraan Saloojee, and Andiswa Mlisa.

China observed that GEO is a big family and described Gilberto Camara as an outstanding scientist who made GEO more results-oriented and more user-oriented. He enabled GEO's regions to make better use of GEO knowledge. Mr Camara was faced with a difficult time due to the pandemic and yet the Secretariat continued to work well. This is a testament to his leadership, industrious work, and coordination.

CEOS thanked Mr Camara for his leadership in GEO over the past three years and noted that the relationship between GEO and CEOS has grown stronger and more friendly during this time. CEOS appreciated Mr Camara's technical strength and his help in guiding CEOS.

South Africa said that this had been a wonderful three years. It was hoped that Mr Camara will find ways to continue to contribute to the GEO community. They thanked him for the courage he showed and how he resolved some difficult issues.

The Lead Co-Chair concluded by noting the upcoming retirement of Gilles Ollier, an important figure in the GEO community. Mr Child said that he had benefited greatly from Mr Ollier's experience and advice and expected he would be missed by many.

Outcome: The Executive Committee:

- Thanked Gilberto Camara for the leadership, knowledge, passion, and energy he brought to GEO and the GEO Secretariat; and
- Thanked Gilles Ollier for his contributions to GEO over many years.

Meeting adjourned at 16:00

List of Participants 54 th GEO Executive Committee (remotely meeting)	
China	
Dr Pengde Li Deputy Director-General National Administration of Surveying, Mapping and Geoinformation of China No.28, Lianhuachi West Road Haidian District Beijing 100830 China	Phone: +86-10-63881788 Fax: +86-10-63882222 lipdgeo@sbsm.gov.cn lipd@sbsm.gov.cn lipengde@mail.cgs.gov.cn
Dr Qi'an Wang Director General National Remote Sensing Center of China (GEO China Secretariat) Ministry of Science and Technology P.R.CHINA Beijing China	geosec-china@nrsc.gov.cn
Dr Xinming Tang Deputy Director-General Land Satellite Remote Sensing Application Center Ministry of Natural Resources of the P.R. China China	tangxinming99@qq.com
Ms Jing Zhang Deputy Division Director National Remote Sensing Center of China Ministry of Science and Technology China	zhangjing@nrsc.gov.cn
Ms Chen Miao Project Officer National Remote Sensing Center of China Ministry of Science and Technology of the No. A8, Liulinguan Nanli Haidian District Beijing 100036 China	miaochen@nrsc.gov.cn
European Commission	
Mr Patrick Child Deputy Director-General Directorate-General for Research and Innovation	Phone: +32 229 59 891 patrick.child1@ec.europa.eu

List of Participants	
54 th GEO Executive Committee (remotely meeting)	
European Commission ORBN 03/006 1049 Brussels Belgium	
Mr Jan Ramboer Policy Officer Directorate-General for Research and Innovation European Commission CDMA 03/109 1049 Brussels Belgium	Phone: +32 229 679 68 jan.ramboer@ec.europa.eu
Mr Gilles Ollier Head of Earth Observation Sector Unit Climate Action and Earth Observation Directorate General for Research and Innovation European Commission CDMA 03/123 1049 Brussels Belgium	Phone: + 32 2 29 56630 Cell: + 32 476 20 42 88 Fax: + 32 2 29 50568 gilles.ollier@ec.europa.eu
Mr Philippe Tulkens RTD, Climate and Planetary Boundaries Unit	philippe.tulkens@ec.europa.eu
Mr Jean Dusart	jean.dusart@ec.europa.eu
Ms Marjan Van Meerloo Policy Officer Earth Observation Directorate General for Research and Innovation European Commission CDMA 03/185 1049 Brussels Belgium	marjan.van-meerloo@ec.europa.eu
South Africa	
Mr Mmboneni Muofhe Deputy Director General Science and Technology Department of Science and Technology Private Bag X 894 0001 Pretoria	Phone: +27 12 843 6341 Cell: +27 74 296 6244 Fax: +27 12 844 0396 mmboneni.muofhe@dst.gov.za mmbonenimuofhe@gmail.com buliswa.omodona@dst.gov.za

List of Participants 54 th GEO Executive Committee (remotely meeting)	
South Africa	
Mr Imraan Saloojee Manager Stakeholder and Business Development SANSA Earth Observation Enterprise Building, Mark Shuttleworth Street Innovation Hub Pretoria 0087 South Africa	Phone: +27 12 844 04 26 / +27 12 660 3035 Cell: +27 72 267 0583 Fax: +27 12 844 0396 isaloojee@sansa.org.za
United States	
Dr Stephen Volz Assistant Administrator Department of Commerce The National Oceanic and Atmospheric Administration (NOAA) 1335 East West Highway, Bldg. SSMC1 20910-3283 Silver Spring United States	Phone: +1-301-713-3578 Fax: +1-301-713-1249 stephen.m.volz@noaa.gov
Dr Virginia Burkett Chief Scientist Climate and Land Use Change U.S. Geological Survey 540 North Courthouse Street Many LA 71449 United States	Phone: +1 318 332 1828 virginia_burkett@usgs.gov
Ms Yana Gevorgyan Senior International Relations Specialist NOAA Satellite and Information Service Department of Commerce The National Oceanic and Atmospheric Administration (NOAA) 1335 East-West Highway Room 7317 20910 3226 Silver Spring United States	Phone: +1 301 713 70 54 yana.gevorgyan@noaa.gov
Mr Lawrence Friedl Director Applied Sciences Program Earth Science Division	Phone: +1 202 358 7200 Cell: +1 202 997 4812 Fax: +1 202 358 3098 lfriedl@nasa.gov

List of Participants 54 th GEO Executive Committee (remotely meeting)	
National Aeronautics and Space Administration (NASA) 300 E Street SW Suite 3U74 20546 Washington DC United States	
Ms Justyna Nicinska, Ph.D. Senior International Relations Specialist NOAA-Satellite and Information Service International and Interagency Affairs Division The National Oceanic and Atmospheric Administration (NOAA) 1335 East-West Highway Room 7317 20910 3226 Silver Spring United States	Phone: +1 301-713-7059 Cell: +1 301-367-1077 Justyna.Nicinska@noaa.gov
Ms Kerry Ann Sawyer Senior International Relations Specialist NOAA Satellite and Information Service Committee on earth Observation Satellites (CEOS) c/o National Oceanic and Atmospheric Administration (NOAA) NOAA/NESDIS 1335 East West Highway Room 7325, Room 7403 Silver Spring MD 20910 United States	Phone: +1 301 713 7074 +1 301 713 2024 Cell: +1 202 309 0399 kerry.sawyer@noaa.gov
Ms Angelica Gutierrez Hydrologist/Scientist, International activities Specialist National Weather Service Office of Water Prediction National Oceanic and Atmospheric Administration (NOAA) 1325 East West Highway Silver Spring MD 20910 United States	Phone: +1-301-427-9511 angelica.gutierrez@noaa.gov
Mr Neevy Van Laningham Department of State United States	Phone: +1 202 663 3893 vanlaninghamnp@state.gov

List of Participants	
54 th GEO Executive Committee (remotely meeting)	
Mr Derek Hanson The National Oceanic and Atmospheric Administration (NOAA) 1335 East-West Highway Room 7317 20910 3226 Silver Spring United States	derek.hanson@noaa.gov
Armenia	
Dr Shushanik Asmaryan PhD in Geography, Head of GIS and Remote Sensing Department GIS and Remote Sensing Department The Center for Ecological-Noosphere Studies NAS RA (CENS NAS RA) 68 Abovyan str. 0025 Yerevan Armenia	Phone: + 374 105 729 24 Cell: + 374 940 082 14 Fax: + 374 105 729 38 shushanik.asmaryan@cens.am shushanik.asmaryan@gmail.com
Australia	
Ms Maree Wilson Branch Head National Earth and Marine Observations Geoscience Australia (GA) Corner Jerrabomberra Avenue and Hindmarsh Drive Symonston ACT 2609 Australia	Phone: +61 26 249 9780 maree.wilson@ga.gov.au
Mr Jonathon Ross Director National Planning and International Relations National Earth and Marine Observations Branch Geoscience Australia (GA), Australian Government Cnr Jerrabomberra Avenue and Hindmarsh Drive GPO Box 378 Symonston ACT 2609 Australia	Phone: + 61 2 6249 5847 Fax: + 61 2 6249 9999 jonathon.ross@ga.gov.au
Ms Emma Luke Australia	emma.luke@ga.gov.au
Ms Andreia Siqueira European Technical Liaison	andreia.siqueira@ga.gov.au

List of Participants	
54 th GEO Executive Committee (remotely meeting)	
Geosience Australia Australia	
Chile	
Mr Luciano Francisco Parodi Minister Counselor Consulate General of Chile in Ushuaia Ministry of Foreign Affairs of Chile Teatinos 180 Santiago Chile	Phone: +54 29 01 43 09 09 Phone: +54 29 01 43 09 10 Cell: +56 9 96 53 86 96 lparodi@minrel.gob.cl parodilf@yahoo.com
Mr Luis Plaza Minister Counselor Deputy Permanent Representative Ministry of Foreign Affairs of Chile Permanent Mission of Chile to the United Nations Office and other international organizations in Geneva Rue de Moillebeau 58 (4th Floor) 1209 Geneva Switzerland	Phone: +41 22 919 88 00 Fax: +41 22 734 52 97 lplaza@minrel.gob.cl misginchile@minrel.gob.cl
Ms Magdalena Durán Assistant Ministry of Foreign Affairs of Chile Teatinos 180 Santiago Chile	mduranr@minrel.gob.cl
France	
Ms Isabelle Benezeth Copernicus and GEO Interministerial coordination DGRI MESRI 1 rue Descartes 75231 Paris cedex 05 France	Phone: +33 1 55 55 96 12 Cell: +33 6 76 02 82 80 Isabelle.benezeth@recherche.gov.fr
Prof. Thierry Ranchin Director Centre Observation, Impacts, Energy (O.I.E) Department for Energy and Processes	Phone: +33 4 93 95 74 53 Cell: +33 6 45 02 69 36 Fax: +33 4 93 95 75 35 thierry.ranchin@mines-paristech.fr

List of Participants	
54 th GEO Executive Committee (remotely meeting)	
MINES - ParisTech / PSL Research University Rue Claude Daunesse CS 10207 06904 Sophia Antipolis France	thierry.ranchin@ensmp.fr
Germany	
Mr Klaus-Juergen Schreiber Head of Department Climate Monitoring Deutscher Wetterdienst Frankfurter Str. 135 63067 Offenbach Germany	Phone: +49 69 8062 2758 Cell: +49 173 700 8798 Fax: +49 69 8062 3759 klaus-juergen.schreiber@dwd.de
Dr Helmut Staudenrausch Earth Observation / National GEO Secretariat Space Administration German Aerospace Center (DLR) Königswinterer Strasse 522-524 53227 Bonn Germany	Phone: +49 228 447 594 Cell: +49 172 297 1590 Fax: +49 228 447 792 helmut.staudenrausch@dlr.de
Ghana (did not participate)	
Greece	
Prof. Christos Stylianos Zerefos Professor, President Elect MKF Faculty of Geology Mariolopoulos - Kanaginis Foundation for the Environmental Sciences (MKF) Coubari 6 10674 Athens Greece	Phone: +30 210 362 38 61 Cell: +30 6944 5700 99 Fax: +30 210 362 38 62 zerefos@geol.uoa.gr zerefos@academyofathens.gr secretary@admin.noa.gr
Dr Evangelos Gerasopoulos Research Director Institute for Environmental Research and Sustainable Development National Observatory of Athens - Greek GEO Office Metaxa & Vas. Pavlou P. Penteli Athens GR-15236	Phone: +30-210-8109124 egera@noa.gr egeraso@gmail.com

List of Participants	
54 th GEO Executive Committee (remotely meeting)	
Greece	
Japan	
Mr Takashi Ishikawa Director for Environmental Science and Technology Environment and Energy Division Research and Development Bureau Ministry of Education, Culture, Sports, Science and Technology (MEXT) 3-2-2, Kasumigaseki Chiyoda-ku Tokyo 100-8959 Japan	Phone: +81 3 6734 4181 Fax: +81 3 6734 4162 t-ishika@mext.go.jp
Ms Risa Yasui Official Environment and Energy Division Research and Development Bureau Ministry of Education, Culture, Sports, Science and Technology (MEXT) 3-2-2, Kasumigaseki Chiyoda-ku Tokyo 100-8959 Japan	Phone: +81 3 6734 4181 Fax: +81 3 6734 4162 yasui-risa@mext.go.jp
Ms Atsuko Nakasone Administrative Researcher Environment and Energy Division Research and Development Bureau Ministry of Education, Culture, Sports, Science and Technology (MEXT) 3-2-2, Kasumigaseki Chiyoda-ku Tokyo 100-8959 Japan	Phone: +81 3 6734 4181 Fax: +81 3 6734 4162 atsuko-nakasone@mext.go.jp nakasone.atsuko@jaxa.jp
Korea, Republic of	
Mr Soojeong Park Director Space and Big Science Policy Division Ministry of Science and ICT (MSIT) 194, Gareum-ro 30121 Sejong-si	soojeong@korea.kr

List of Participants	
54 th GEO Executive Committee (remotely meeting)	
Korea, Republic Of	
Ms Kayoung Shin Assistant Director Space and Big Science Policy Division Ministry of Science and ICT (MSIT) 194, Gareum-ro 30121 Sejong-si Korea, Republic Of	Phone: +82 44 202 4631 Cell: +82 10 2558 0012 Fax: +82 44 202 6023 hara614@korea.kr
Dr.-Ing. Hyun-Ok Kim Senior Researcher Satellite Operation & Application Center, Satellite Application Division Earth Observation Research Team Korea Aerospace Research Institute 169-84 Gwahak-ro, Yuseong-gu Daejeon Korea, Republic Of	Phone: +82 42 870 3963 Cell: +82 10 4028 9526 Fax: +82 42 870 3909 hokim@kari.re.kr
Peru	
Mr José Jesús Pasapera Gonzalez Technical Director Ministry of Defense Science and Space Applications Space Agency of Peru - CONIDA Ca. Luis Felipe Villarán 1069 San Isidro 15046 Lima 27 Peru	Phone: +51 1 442 9973 Cell: +51 966 265 887 Fax: +51 1 441 9081 jpasapera@conida.gob.pe
Russian Federation	
Mr Vasily Valentinovich Asmus Director State Research Center for Space Hydrometeorology PLANETA Roshydromet 7 Bol. Predtechensky per. Moscow 123242 Russian Federation	Phone: +7 499 252 3717 asmus@planet.iitp.ru z.andreeva@meteorf.ru
Mr Sergey Uspensky Deputy Director Center on Space Hydrometeorology Planeta ROSHYDROMET	Phone: +7 499 795 21 12 Cell: +7 926 246 53 70 Fax: +7 499 252 66 10 uspenskys@planet.iitp.ru

List of Participants	
54 th GEO Executive Committee (remotely meeting)	
7, Bolshoi Predtechnsky Str. SRC Planeta Moscow 123242 Russian Federation	
Ms Zoya Andreeva Head of Laboratory State Research Center for Space Hydrometeorology - Planeta Roshydromet 7 Bo. Predtechensky per. 123242 Moscow Russian Federation	z.andreeva@meteorf.ru
Senegal	
Mr Amadou Moctar Dieye Technical Director-Earth Observation Specialist Ministry of Environment and Sustainable Development Centre de Suivi Ecologique (CSE) Rue L. G. Damas x Aimé Cesaire Fann Residence BP 15532 Dakar Senegal	Phone: +221 338 258 066 +221 338 258 069 Cell: +221 774 190 288 Fax: +221 332 858 168 dieye@cse.sn amdieye@yahoo.com
Mr Amadou Tahirou Diaw Director Ministère de l'Enseignement Supérieur et de la Recherche (Higher Education and Research) University Chaikh Anta Diop od Dakar (UCAD) Laboratoire d'Enseignement et de Recherche en Géomatique (LERG) BP 16 699 Dakar-Fann Dakar Senegal	Cell: +221 776 448 028 guede1914@gmail.com amadou.diaw@ucad.edu.sn
Mr Oumar H. Ka Director Minister of Local Governance and Regional Planning and Development National Agency for Spatial Planning and Territorial Development Directorate of Surveying and Mapping Route du Service géographique	Cell: +221 774 445 047 oumar.ka@anat.sn oumarka.anat@gmail.com

List of Participants 54 th GEO Executive Committee (remotely meeting)	
Hann Bel-Air Dakar Senegal	
Mr Mouhammad Abdallah Diallo Advisor Ministre des Postes et des Télécommunications Groupe Interinstitutionnel de Concertation et de Coordination en Géomatique Agence de l'Informatique de l'Etat (Government IT Agency - ADIE) Technopole, Pikine Dakar Senegal	Phone: +221 33 879 3485 Cell: +221 77 377 2199 abdallah.diallo@adie.sn abdallahdiallo@gmail.com
Ms Dieynaba Seck Head of Department of Geomatics Ministry of Environment and Sustainable Development Geomatics Centre de Suivi Ecologique (CSE) Dakar Senegal	Phone: +221 338 258 066 dieynaba.seck@cse.sn
OBSERVERS	
CEOS	
Mr Adam Lewis CEOS SIT Co-Chair Geoscience Australia (GA) Cnr Jerrabomberra Avenue and Hindmarsh Drive Symonston ACT GPO Box 378 Symonston ACT 2609 Australia	adam.lewis@ga.gov.au
GRSS	
Prof. Anthony Kinnaird Milne Professor School of Biological and Environmental Sciences Remote Sensing University of New South Wales c/-34 Coora Avenue	Phone: +61 2 945 146 28 Cell: +61 4 279 148 05 t.milne@unsw.edu.au

List of Participants	
54 th GEO Executive Committee (remotely meeting)	
Belrose 2085 Sydney Australia	
IAG	
Ms Allison Craddock Systems Engineer International Coordination and Partnership Office Tracking Systems and Applications Section NASA Jet Propulsion Laboratory 4800 Oak Grove Drive Mail Stop 238-600 Pasadena, CA 91109 United States	Phone: +1 818 354 1416 Cell : +1 818 237 0425 allison.b.craddock@jpl.nasa.gov craddock@jpl.nasa.gov
Programme Board co-chair	
Ms Andiswa Mlisa Managing Director Earth Observations South African National Space Agency (SANSA) Enterprise Building Mark Shuttleworth Street Innovation Hub (PO Box 484, Silverton, 0127) Pretoria 0087 South Africa	Phone: +27 12 844 0385 Cell : +27 74 296 6244 Fax : +27 12 844 0396 amlisa@sansa.org.za mlisa.andiswa@gmail.com
GUEST	
Ms Emily Smail Executive Director GEO Blue Planet Initiative Senior Faculty Specialist UMD Earth System Science Interdisciplinary Center NOAA Center for Weather and Climate Prediction (E/RA3) 5830 University Research Ct College Park, MD 20740-3818 United States	Cell: + 1 757 817 6774 emily.smail@noaa.gov esmail@umd.edu esmail@geoblueplanet.org
Mr Robert Bradburne UK GEO Principal Deputy Chief Scientific Adviser Office of the Chief Scientific Adviser	Phone: + 44 778 524 3597 Cell: + 44 778 524 3597 robert.bradburne@defra.gov.uk

List of Participants 54 th GEO Executive Committee (remotely meeting)	
Department for Environment, Food and Rural Affairs (DEFRA) First Floor, Seacole Block 2 Marsham Street London SW1P 4DF United Kingdom	
Ms Nathalie Pettoirelli Senior Research Fellow Zoological Society of London United Kingdom	nathalie.pettoirelli@ioz.ac.uk
Mr Markus Konkol	m.konkol@utwente.nl
GEO Secretariat	
7 bis, avenue de la Paix Case postale 2300 CH-1211 Geneva 2 Switzerland	Phone : +41 22 730 8505 Fax : +41 22 730 8520 secretariat@geosec.org