



GROUP ON
EARTH OBSERVATIONS

GEO-XI

13-14 November 2014

Draft Report of GEO-X

Document 5

As approved at GEO-XI.

**Draft Report of GEO-X
15-16 January 2014
Geneva, Switzerland**

Wednesday, 15 January 2014

Plenary began at 9:05 am.

1 OPENING OF THE SESSION

The GEO-X Plenary Meeting was chaired by **Dr Kathryn Sullivan**, Acting Under Secretary of Commerce for Oceans and Atmosphere and Acting NOAA Administrator, Department of Commerce, United States of America. She opened the Plenary and gave the floor to **Dr Karine Siegwart**, Vice Director of the Federal Office for the Environment (FOEN), and GEO Principal, Switzerland.

1.1 Welcome from Switzerland

Dr Siegwart welcomed Ministers and Delegates to Geneva, and noted that the GEO Secretariat's proximity to many of the UN agencies relevant to the objectives of GEO makes it possible to develop synergies and collaboration among the various organizations. Siegwart remarked that Switzerland is involved in many aspects of GEO-related work, including hydrology, through MeteoSuisse and FOEN. She noted that the GEO-X Plenary and Geneva Ministerial Summit have the highest number of participants and Ministers in the history of GEO. She concluded by stating that, for GEO to create a better future for society, the community will need to complete the first Implementation Plan by 2015; enhance the availability of products and services; and continue the work of GEO for another decade.

1.2 Opening Remarks

(All speakers thanked the Swiss Confederation for hosting the conference.)

The **GEO Co-Chair for the United States of America, Dr Kathryn Sullivan**, in her capacity as Chair of the Session, thanked the Swiss Confederation for making the meeting possible. She lauded the efforts of all participants to increase the benefits to society through GEO's high-impact activities. Dr Sullivan stated that the week's meetings were all about the future, building on GEO's previous successes. She noted that society has seen evidence of how open, accessible data and information can drive business applications and innovation. In this era, good, publically available data can save lives, speed relief to disaster victims, provide information to decision makers, and drive sustainability, employment, jobs and profitability. Overall, open data has led to better governance and new and improved products. Dr Sullivan indicated that GEO's achievements to date have established a baseline. The two days of Plenary were to focus on important decisions to put GEO on a launch pad for a second decade. Plenary will ask the Ministers to approve GEO's continuation based on preparations by the Post-2015 Working Group, Ministerial Working Group, GEO Secretariat and many volunteers. She thanked Plenary for joining to help close out Chapter One of GEO, and open Chapter Two.

The **GEO Co-Chair for the People's Republic of China, Dr Jianlin Cao**, stated that Plenary allows the community to assess GEO's progress since last Plenary, and also confirm the future of GEO. He

noted the successes of GEONETCast, AfriGEOSS and GEOGLAM, and stated that Asian nations are building national and regional GEOSS structures. Construction of these resources has been greatly enhanced by needs, citing floods in the Northeast Region of China and the Australian bushfires. For example, research in countries such as China, India and Mongolia have established Early Warning Systems through GEOSS. The first training workshop of the China Space Agency at the Asia-Pacific Symposium in India was a major success. Dr Cao also introduced the latest developments China GEO, which includes 19 ministries, adding that national-scale data sharing is increasing. For example, China has begun to publish studies on biodiversity and ecosystems, and global land cover data sets have been contributed to GEOSS. He noted that the Chinese CO₂ satellite will be launched in 2015 which will contribute to CO₂ monitoring in connection with global warming research.

The **GEO Co-Chair for the European Commission, Dr Rudolf Strohmeier**, anticipating that a green light would be given to GEO to carry on for another 10 years said that it will be crucial to develop the details of the next Implementation Plan. For this, the European caucus has supported the inclusion of a point in the Ministerial agenda giving the opportunity to Ministers to provide guidance on the level of ambition of the next phase of GEO. Dr Strohmeier raised the question of how the Implementation Plan can be prepared to assure sound organisation of GEO into the future. Yet, he stressed that it would be a mistake to focus only on the future. Rather, it is necessary to emphasize both GEO's success up to now and the continuation of its work during the remaining two years of the current Implementation Plan. The EC will continue to support the further development of GEOSS, as well as new initiatives that emerge. Dr Strohmeier noted that, under the European Commission's new seven year Framework Programme for Research - Horizon 2020 - significant support will be provided to the research and innovation component of the GEO initiative until 2020. One example is the EUR 20.000.000 earmarked to support a project which will contribute to the deployment of an Integrated Atlantic Ocean Observing System, building on existing capacities on both sides of the Atlantic. He stated further that the Copernicus Programme, including the five Sentinel satellites, will be a unique global space infrastructure contributing to GEOSS.

The **GEO Co-Chair for Republic of South Africa, Dr Philemon Mjwara**, indicated that South Africa will continue to pursue AfriGEOSS and will work to coordinate activities to contribute to GEOSS under this framework. He noted the need to restore the high political profile GEO enjoyed at its inception. He concluded by thanking his fellow Co-Chairs, the GEO Executive Committee and GEO Secretariat for the collegial environment in which GEO performs its work.

The **GEO Secretariat Director, Ms Barbara Ryan**, noted that Plenary is an event that acknowledges the contributions of hundreds of organizations and thousands of individuals around the world. She indicated there would be opportunity for Plenary to provide guidance for the future of GEO, stating that the more guidance GEO receives, reflective of the successes and failures of the past, the better GEO will be able to chart its future.

1.3 Administrative Announcements

Conference Coordinator Mr Elhoussiene Gouaini made several announcements regarding administrative arrangements for the meeting.

1.4 Adoption of Agenda (Plenary Document 1)

Plenary adopted the Agenda with no modification.

1.5 Recognition of New Members (Plenary Document 2)

The **Chair** stated that Georgia applied for Membership in early 2013, and since any nation that is a Member State of the United Nations may become a Member of GEO, the application for Georgia's Membership was graciously acknowledged.

The **GEO Principal for Georgia** addressed the Plenary on behalf of the Minister of the Environment and Natural Resources Protection. Georgia expressed its appreciation to Plenary and the GEO Secretariat for endorsing its application to become GEO's 90th Member, especially on the occasion of GEO's 10th anniversary. Georgia also acknowledged the support of the European Commission's Seventh Framework Programme for Research and of the University of Geneva in funding the EnviroGRIDS project. The country is working to provide public access to data now under the administration of the Ministry of the Environment. Georgia pledged to be active in GEO and will work to establish a single coordinating mechanism within the country to improve data management.

1.6 Recognition of Participating Organizations and Observers (Plenary Document 3)

The **Chair** noted that Revision 3 of Plenary Document 3 had been released on 14 January and then recalled the criteria to become a Participating Organization (PO) (i.e., an applicant must be an intergovernmental, international or a regional organization with a mandate in Earth observations). She noted that the Executive Committee recommended that all applicants listed in Revision 3 be accepted as POs. The Chair indicated that the Secure World Foundation (SWF) had applied to move from an Observer to a full PO. The Executive Committee had recommended that the application for Observer status from the International Committee on the International Global Monitoring Aerospace System (IGMASS) Project Implementation (ICPI) await the results of bilateral discussions between China and the Russian Federation. The Chair indicated that the Executive Committee held a fruitful discussion about the role of, and GEO's philosophy toward POs, focusing on whether GEO wants to be expansive or more restrictive. In agreeing to support the applications for the status of Participating Organisations and Observer, ExCom determined that a process to review the contributions of all Members and POs to GEOSS should be developed and implemented. The Chair concluded by stating that all of the PO applicants are strong contributors, in some cases more than current POs, and that the Executive Committee recommended all Participating Organization applicants and Observer applicants be accepted by Plenary. The [Executive Summary Report of the 30th Executive Committee Meeting](#) provides a complete list of new Participating Organizations.

Plenary approved the slate of applicants.

1.7 Approval of GEO-IX Report (Plenary Document 4)

Plenary approved the document without comment.

The **Chair** recessed the meeting for the official opening of the GEO-X Exhibition.

2 GEO TO 2025

2.1 Introduction to the GEO Summit by the Ministerial Working Group

The **Secretariat Director** recognized the Ministerial Working Group (MWG) Co-Chairs, **Dr Jose Romero, Switzerland; Dr Stephen Briggs, European Space Agency; Professor Ezio Bussolletti, Italy; and Dr Leonard Hirsch, United States**. The GEO Secretariat staff support was provided by **Dr Giovanni Rum**. The MWG was comprised of approximately 20 members from the GEO community, and was responsible for developing the documents contained in the Ministerial Folder.

2.2 Geneva Ministerial Summit Draft Agenda and Content of Ministerial Folder

Documents for Ministerial Summit (Document MS 1)

MWG Co-Chair Dr Romero noted that the GEO-IX Plenary in Brazil gave the MWG its mandate. He expressed the hope that the Ministers would adopt the draft Declaration and reviewed each document, noting their dual purpose of highlighting GEO's numerous achievements, as well as the work ahead. He pointed out that once the Ministers decide to continue GEO and begin its second

phase, then a number of elements will require guidance from them, including drafting of the new Implementation Plan to articulate the future vision and hoped for achievements of GEO. Dr Romero reminded Plenary that the draft Declaration had been distributed to the GEO Principals and the broader GEO Community on several occasions. He acknowledged that slight changes or modifications to the document may be required, but the MWG felt that the draft achieved a good balance, as the text had been refined several times.

2.3 Vision for GEO 2025 - Document for Ministerial Summit (Document MS 2)

The **Chair** explained that this document was the end product of the work of the Post-2015 Working Group (PWG) which consulted closely with the GEO Community. She acknowledged the PWG Co-Chairs (**Mr Gilles Ollier, European Commission; Mr Mmboneni Muofhe, South Africa; and Mr Peter Colohan, United States**), the full PWG, and **Dr Douglas Cripe, GEO Secretariat**, all of whom helped develop the document.

PWG Co-Chair Mr Muofhe introduced the document and moved directly to comments from Plenary.

Plenary thanked the authors of the *Vision for GEO 2025* and generally endorsed all the Recommendations. Plenary made particular mention of the importance of: the coordination of space-based, airborne and *in situ* networks; forging links with users of networks; providing ongoing support to incubators for business; encouraging adoption of data sharing principles; increasing coordination of networks themselves; and coordinating interaction with other global organizations. Plenary indicated the importance of highlighting the economic benefits of EO to help increase national EO budgets. Plenary also urged that future projects contain concrete and measureable activities and suggested leaving open for discussion the future definition of Societal Benefit Areas (SBAs), noting, for example that a merging of the Ecosystems and Biodiversity SBAs could open up new synergies, and that there were other potential nexuses that could frame GEO's future strategy (e.g., water-energy-food). Plenary also noted that the Implementation Plan should address increased engagement with the private sector, as well as issues of governance, while still maintaining GEO's intergovernmental character. Plenary agreed to the following modification:

4.3 Engagement with Developing Countries

.....To promote the advancement of Earth observation technologies and the further development of national and regional capacity to absorb and use these technologies *and apply associated data*, GEO will take the lead in mobilizing appropriate resources through partnerships with relevant governmental, non-governmental and multilateral development institutions.

A revised version of *Vision for GEO 2025*, incorporating this modification, was provided to Plenary on Thursday, 16 January.

2.4 GEO Progress Report - Document for Ministerial Summit (Document MS 3)

Mr Robert Samors, GEO Secretariat, presented the *Report on Progress 2011-2013* noting that it was designed to be a brief, non-technical overview of GEO's progress since the last Ministerial. The report highlights the extraordinary contributions from the GEO community and builds on the 4-page *Highlight Fact Sheet*. The *Report on Progress* will provide the basis for a more comprehensive compendium of GEO's accomplishments in its first decade that will be released at the next Ministerial.

2.5 Ministerial Guidance on the Evolution of GEOSS – Document for Ministerial Summit (Document MS 4)

Preliminary Guidance for GEO 2025 (Plenary Document 5)

The **South Africa Co-Chair, Dr Philemon Mjwara**, expressed appreciation to **Ms Yana Gevorgyan, United States**, and the entire drafting team. He explained that the group interpreted its

mandate from the Executive Committee as examining the evolution of GEO. Dr Mjwara reminded Plenary that GEO was born out of the 2002 World Summit on Sustainable Development in Johannesburg and, at the time, the concept of GEO had a great deal of political support, which remains the benchmark of the type of political support that should be maintained. At the time, GEO was asked to do two things: first, develop a system of systems to help us understand how the entire Earth system works; and, second, to provide data for informed decisions.

Dr Mjwara reviewed the documents, stating that regarding GEO's political support there are mixed reviews. There have been some successes, but political support has dwindled to a certain degree. For example, GEO was not "at the table" at the United Nations Conference on Sustainable Development Rio+20 talks; the EC, Japan and others negotiated GEO's presence in a Side Event. GEO needs to get back to the main table. On the other hand, GEO has been asked by the G20 Agriculture Ministers to answer questions of food security, and deliver the data necessary to do so. GEO needs to find a way to advocate the value of EO and the need to improve global capacity to observe the Earth. How GEO advocates the added value it brings needs to be articulated carefully. Global initiatives can help with this.

Dr Mjwara then spoke of the importance of data sharing principles, asking, what does this really mean? Data availability has improved, but does the developing world have the capacity to use it to inform decision-making? How do we make sure this data is turned into useful information? He also commented on the rapid evolution of the GEOSS Common Infrastructure (GCI), indicating that it will become a very large system. Yet, has the GEO community fully comprehended the scale of GEOSS and whether we have the capacity, as primarily public sector organizations, to fully develop GEOSS or should we also draw on expertise in other communities? In addition, what are the human resource implications of this infrastructure? What are the financial implications for construction and maintenance of GEOSS? What partnerships with the private sector and others should we be considering?

Dr Mjwara stated that there were three scenarios laid out in the documents, especially regarding resources: 1) stay at the same level of financial, human and other contributions (although he noted this is not in keeping with the vision of GEO he had described); 2) make a moderate increase in resources; or 3) increase contributions to the GEO Trust Fund for a more ambitious scope. Dr Mjwara asked Plenary to: 1) give the Executive Committee a mandate to think about the ideas presented in the document and return to the next Plenary with a narrower set of options and an evolution of additional ideas; and 2) conduct a session where the comfort level of Ministers around these three paths could be tested, as well as allow Ministers to provide a mandate to identify concrete proposals about how GEO should evolve that could be brought forward at the next Ministerial.

Plenary noted its appreciation of the documents and referenced again the need to increase GEO's political support across its Member countries, and to raise its profile in the international arena. The emerging Sustainable Development Goals were highlighted as a possible opportunity. Plenary stressed the need for GEO to move forward from gathering data to transforming data into information that decision makers can use. Plenary also emphasized the importance of GEO engaging with the private sector, beginning with defining its value ("value proposition") to this community. Plenary noted that any acceleration of GEOSS implementation will require sustained commitments from Members and POs, more concerted collaborations on a regional scale, and strategic engagement with broader stakeholder communities to identify data gaps and user requirements. Plenary observed that data sharing continues to be an important foundation of GEO, but sufficient attention must also be paid to ensuring developing countries have the capacity to access, analyze and use the data.

2.6 GEO Highlights Fact Sheet – Document for Ministerial Summit (Document MS 5)

The **Chair** noted this document is for information.

2.7 Preparation of the next GEOSS Implementation Plan (Plenary Document 6)

European Commission Co-Chair, Dr Strohmeier explained that the anticipated adoption of the Ministerial Declaration would set in motion a process for renewing GEO for a further ten years. The text of the Declaration specifically refers to the need to prepare a new 10-Year Implementation Plan (IP). The design of this process is critical to ensure GEO's success. Translating the outcome of the Summit into reality required prompt action. The Co-Chairs had prepared a proposal tabled at this meeting. GEO Plenary and the Executive Committee needed to move quickly to establish the drafting team. Dr Strohmeier indicated that the cornerstone of the proposal was that the GEO community must be in control of the Implementation Plan development and in control of the process. The proposal is that Plenary (acting in anticipation of the adoption of the Declaration) mandates that the GEO Co-Chairs and ExCom begin the process to establish a Working Group immediately following the Ministerial. The group would be composed of 'distinguished experts' from each Caucus and supported by a writing team. The idea is to take advantage of best practices in GEO in the formulation of an Implementation Plan Working Group (IPWG). He requested that Plenary accept that the Executive Committee and the GEO Co-Chairs, on behalf of Plenary, steer and supervise the process, but that the preparation and delivery of the Implementation Plan would be the responsibility of the Working Group. It was intended to ask for nominations immediately following the Ministerial. The mandate of the Working Group would end after the GEO-XII Plenary when the Implementation Plan would be put forward for acceptance. A draft Implementation Plan would be presented to the GEO-XI Plenary.

Plenary accepted the proposal for the establishment of the IPWG and urged inclusion of a wide range of experts to reflect the full range of GEO's stakeholders. Plenary noted the Implementation Plan must include three important elements: a clear articulation of the expected outcome at the end of 10 years; recognition that GEO's progress is based, in no small part, on PO contributions and should consider how to better integrate POs into GEO; and determine the most effective membership on the Executive Committee, given the current size of GEO community. Plenary discussed the composition of the IPWG and clarified that each Caucus could nominate *up to 3 distinguished experts* and *up to 2 writing team members*.

Plenary approved the document.

3 DRAFT GENEVA DECLARATION – DOCUMENT FOR MINISTERIAL SUMMIT (Document MS 6)

MWG Co-Chair, Dr Ezio Bussoletti introduced the document stating that the draft Declaration had been distributed to the GEO community, but, personally, he still had some concern regarding the sub-title, stating that it did not fully describe what is in the content.

Plenary discussed two possible changes to the document: adding *and information* to the sub-title; and substituting *environmental* for *Earth* (Page 1 Paragraph 6). The second modification was withdrawn.

Discussion of the Declaration was held over until Thursday, 16 January.

Plenary recessed at 13:00 and reconvened at 14:30.

The **Chair** noted that regarding the development of the next Implementation Plan, there clearly were a number of substantive questions that Plenary needed to consider carefully, including how to incorporate what has been learned from the Monitoring & Evaluation Working Group and other GEO structures, as well as from various delegations. She urged the Caucuses to emphasize identifying distinguished experts who could be from universities, research institutions, etc., to make sure the quality of the debate is of the same caliber as that engaged in by the founders of GEO in 2002. The Chair stated this would be a deep and important intellectual exercise. Plenary will be relying on the Executive Committee as the steering group to orchestrate the various pieces so that they all come together.

4 GEOSS IMPLEMENTATION AND HIGHLIGHTS

4.1 Assessment of Progress – Target and Task (Plenary Document 7)

Dr Stuart Marsh, United Kingdom presented the report, noting that the Boards made their first assessment in Brazil in 2012, which was very well received. He emphasized the Boards are using the same structure as previously, but the process is evolving and improving, resulting in more information being used for the assessment. He stressed that the assessment is a measure of whether the Board believes a target will be met. A green notation indicates a target will be achieved without major intervention; yellow indicates some intervention is needed; and red signifies that the target will not be achieved without major intervention. Also, red at a lower level in the pyramid does not necessarily translate into problems higher up, and vice-versa. Dr Marsh strongly urged all Task Leads to complete Component Sheets. He indicated that a good deal of information comes from the annual Work Plan Symposium.

Plenary noted the usefulness of the report and indicated a need for better indicators of data quality. Plenary discussed whether the Work Plan should include targets that are *aspirational* even if they are not *achievable*. Plenary also discussed the relation between observations and modelling. A Working Group on Data Management was proposed to address data quality issues.

Plenary approved the document.

4.2 Monitoring and Evaluation

Fourth Evaluation of GEOSS Implementation (Plenary Document 8)

Mr John Adamec, Co-Chair, Monitoring & Evaluation Working Group (M&E WG): presented the evaluation of the Disasters, Energy and Health Tasks, reminding Plenary that evaluations are conducted by teams comprised of nominations from Members and POs. He indicated that the evaluation was conducted between September 2012 and June 2013. Sources of evidence included interviews and surveys, reviews of documents and literature, and three case studies. Evaluators found some successes, but also gaps in documentation and activities, and disconnects in how pieces would create a unified GEOSS. The evaluation team made five recommendations relating to: 1) missing components in the Disasters and Energy SBAs; 2) improving the system to meet reporting requirements; 3) improving coordination across SBAs, across Tasks and within SBAs (citing GEO BON as a best practice); 4) removing barriers to stakeholder understanding of and capitalizing on GEOSS; and 5) improving documentation of the engagement of users and other stakeholders, and strengthening existing user engagement techniques and practices. The Evaluation team also recommended that the final GEOSS Evaluation begin earlier; that it be provided financial resources to support the evaluation and evaluators; and that Task performance indicators be developed.

Plenary heard a Management response from the Executive Committee acknowledging that the M&E WG evaluation highlighted a number of issues GEO needs to examine more closely in preparation for the post-2015 era. The Executive Committee will work with the GEO Secretariat and various components of the GEO structure to address the recommendations. The Executive Committee noted that planning for the final GEOSS Evaluation must begin immediately and acknowledged the need for clearer performance indicators, noting that the Implementation Plan development process will include a review of Strategic Targets and Objectives. Plenary noted the disparity between implementing Tasks and achieving goals, and suggested creating a Disaster Coordination Working Group to prepare inputs into the next IP for disaster management.

Plenary approved the document.

Progress on Implementation of Recommendations from GEOSS Evaluations (Plenary Document 9)

Mr John Adamec, Co-Chair, Monitoring & Evaluation Working Group (M&E WG) presented a recap of evaluations completed to date, noting that 38 recommendations had been made through Plenary IX – 33 rated Positive; and 5 rated Negative. He stated that the ratings are not static or permanent; they will be revisited periodically. The M&E WG hoped that issuing the Report would generate more responses. Mr Adamec outlined the schedule of upcoming Evaluations with the Fifth Evaluation (Water, Weather and Climate) to be completed in May 2014. The M&E WG has tried a new approach with this evaluation, sending a letter to all GEO Principals asking for recommendations of user communities that could be queried for information related to the Tasks. Unfortunately, the WG has not received many responses and Mr Adamec stressed the need for better response rates to make the evaluation process more useful and instructive. He also stated that the final comprehensive Evaluation will occur in 2014-2015, with a call for Nominations in early 2014 and the evaluation process beginning in May 2014.

Plenary welcomed the improvements to the document, noting that it was easier to understand and track recommendations. Plenary requested that the rating for the **GEOSS Common Infrastructure (GCI)** be revised upward to reflect the significant progress made during the Sprint to Summit in the latter half of 2013.

Plenary approved the document, pending the modification to the rating of the GCI (from red to yellow to reflect the recent rapid progress in the GCI's development, particularly in the last quarter of 2013) as proposed by the European Commission and endorsed by the European Space Agency and the United States.

4.3 GEO 2012-2015 Work Plan Update (Plenary Document 10)

Dr Alexia Massacand, GEO Secretariat, presented the main changes to the Work Plan as including six new Task Components: two under Blue Planet; one under Land Cover for Africa; two under Disasters; and the Global Network for Mountain Environments. Four Task Components have been moved or merged.

Plenary approved the document as a living document, pending two modifications requested by POGO and the United States. POGO requested two modifications be made in Oceans and Society: Blue Planet/Services for the Coastal Zone (SB-01-C4): 1) reinstate a priority item regarding the assessment of observational requirements for decadal forecasts of coastal sea-level and the development of a related demonstration forecasting service; and 2) include a more robust statement regarding the assessments of climate change in the Caribbean islands. The United States requested to be listed as a Lead in Global Land Cover/Land Cover for Africa (SB-02-C4); requested to be added as a Lead in Global Carbon Observation and Analysis/Integrated Global Carbon Observation and Analysis System (CL-02-C1); and volunteered to be Lead Point of Contact for Climate Information for Adaptation/Easy Access to, and Use of, Climate Information (CL-01-C4).

4.4 GEOSS Implementation Highlights

Dr Alexia Massacand, GEO Secretariat, presented the document highlighting GEO's progress over the past year, reflecting the many contributions of Members and POs. She noted that GEO membership is growing, but gaps still exist, most notably in Africa and the Middle East. Dr Massacand indicated that GEO will continue to build connections and synergies among POs to optimize their contributions. She stressed the beginning of a new era in the evolution of GEOSS through the continued improvements made to the GEOSS Portal, further development of the GCI infrastructure, and the capability created by the Discovery and Access Broker (DAB). Through the DAB, users can access entire data systems (clouds) from the public sector. At present, through the GEOSS Portal, the DAB brokers access to more than 20 data systems containing more than 7 million data collections/sets, translating into 65 million data fields. 50 million of these files are tagged as

Data-Core, meaning full compliance with the current GEOSS Data Sharing Principles and, thus, full and open access to the data. She noted that the Data Sharing Working Group (DSWG) is working on clarification of the concept of “full and open” and is constructing a redefinition of the GEO Data Sharing Principles. Dr Massacand noted that the DSWG needs more representation from South America, Middle East and Asia-Pacific regions. She also provided numerous examples of how GEOSS is providing data and information for decision making, including GEOGLAM (Crop Monitoring), EnerGEO (Renewable Energy), EOMiners, GMOS (Mercury/Minamata Convention), Carbon (Global Carbon Budget, GEO Carbon); GFOI (Forest Monitoring and capacity-building), GEO BON (Biodiversity/Map of Life), Health (Malaria/Meningitis), Urban (Urban Supersites), Disasters (Geohazard Supersites), Weather (TIGGE/High impact weather), Climate (Climate change adaptation/GCOS/ESV), Water (Rainfall), Cold Regions (new initiative), and Oceans (Blue Planet). She also noted GEO activities in capacity-building and user engagement, indicating that GEO will seek better coordination of these efforts by developing a capacity building inventory. Dr Massacand also noted the continued success of GEONETCast and discussed the need to mobilize resources for GEOSS development, citing the EU’s contribution of more than EUR 220.000.000 through the FP7 Research Programme. She commented further on the emerging connections of GEO, Future Earth and the Belmont Forum – noting that all of the countries involved in the Belmont Forum are also GEO Members. Dr Massacand concluded by introducing a video produced by Japan and the Water Cycle Community of Practice.

Plenary appreciated the presentation and noted the importance of further validation of high resolution global land cover datasets. Plenary heard a brief report on the Data Sharing Working Group which included a request for more Co-Chair participation from underrepresented areas, including South America, the Middle East and Asia-Pacific.

4.5 Featured Initiatives

Global Network for Observations and Information in Mountain Environments (GEO-GNOME)

Dr Antonello Provenzale, Italy: presented the emerging initiative, explaining that mountains are a global environment which provides important resources, including water resources, ecosystems services, global biodiversity, cultural heritage, and food, energy and income to local populations. He noted that mountain regions contain more than 10% of the global population and provide important resources to downstream regions. They have been recognized by international initiatives (e.g., Rio+20) as important areas where sustainable development should be supported and encouraged. Dr Provenzale stressed that mountain regions are sensitive to global climate changes and other environmental changes, and must be better understood through monitoring and modelling. Monitoring mountain regions is difficult, and even the best models contain many uncertainties. Therefore, society needs to invest in measuring more and understanding more, but through application-driven research that is guided by the needs of society. He stated that GEO can make progress by sharing models, data and information; answering specific questions and filling gaps on specific issues, citing existing regional networks (e.g., ICIMOD, Pyrenees), but noted they should be better coordinated through a global network which would support different GEO Targets. GEO-GNOME will capitalize on existing research and make results available through the GEOSS Portal, and develop new initiatives based on data/information gaps, with a special focus on protected areas of international relevance – Mountain Supersites. Dr Provenzale stressed the need to create a network of stakeholders, define important questions and provide support to the development of adaptation measures. He also stressed that capacity building at the local, technical and citizen level is an important aspect of the initiative. GEO-GNOME will create highly visible outputs – websites, documentaries, exhibitions and booklets - that can raise awareness of the importance of these environments and their protection. The first international workshop will be held later in 2014.

AfriGEOSS (Plenary Document 11)

Ms Andiswa Mlisa, South Africa (pending her secondment to the GEO Secretariat): made the presentation, noting that the African community within GEO has been taking stock of its current involvement and its post-2015 engagement, identifying both the contributions Africa can make and what benefits Africa can realize from greater participation in the development of GEOSS. The objectives of AfriGEOSS include the coordination of all relevant stakeholders in Africa – the institutions and agencies working within the Earth observation arena – and providing a platform for countries to participate in GEO and contribute to building GEOSS. AfriGEOSS is looking to assist in knowledge sharing and global collaborations, recognizing it must work collaboratively to build sustainable solutions for Africa and contribute to global solutions. Ms Mlisa reminded Plenary it had endorsed AfriGEOSS in 2012. The initiative was launched in November 2013. AfriGEOSS has been incorporated in the agenda of the Africa Union Commission’s African Ministers of Science and Technology, which will serve as the coordinating face for all EO activities in Africa. AfriGEOSS has a two-pronged implementation approach: a bottom-up strategy that considers how existing national initiatives informed by country priorities can contribute most to GEO/GEOSS; and a top-down approach looking at GEO global initiatives and how they can respond to Africa’s priorities and needs. Both strategies will focus on infrastructure and service applications, establishing sub-regional roadmaps; and re-establishing strong contacts with GEO Principals and increasing the number of African countries engaged in AfriGEOSS. She added that a Steering/Advisory Committee was being established and would include a range of stakeholders, including GEO Principals, the African Union Commission, African Development Bank and other international partners. The AfriGEOSS Working Group will establish Terms of Reference and, over the next couple of months, work both to strengthen existing, and develop new, relationships with the international community, as well as strengthen the African community itself in order to make AfriGEOSS a reality.

Plenary applauded both initiatives, highlighting specific Member and EO contributions to each one, and pledged to support them as much as possible. Plenary noted potential synergies of the initiatives with existing Tasks and the work of various Member agencies and Participating Organizations.

The **Chair** noted the high level of interest from Plenary for both GEO-GNOME and AfriGEOSS and indicated they both go forward with the full support and endorsement of Plenary.

4.6 GEOSS Common Infrastructure Demonstration

Dr Guido Colangeli, ESA presented a demonstration of the GEOSS Portal.

The **Chair** applauded the efforts devoted to the Portal over the past six months and encouraged Plenary to visit the GCI booth at the EC exhibition, participate in testing the GEOSS Portal and provide user feedback. She also noted the Portal can be accessed at www.geoportal.org.

Plenary adjourned at 18:00.

Thursday, 16 January

Plenary convened at 8:30 am.

The **Chair** reflected on the power of the new and improved GEOSS Common Infrastructure (GCI) and its expanded capabilities in searching and querying, and the increased flexibility of engaging with the interface, all of which will allow much easier and greater access to all of the available GEO resources. The Chair recognized the contributions of ESA, CNR, JRC, USGS and other providers to the GCI. She also reminded Plenary that the success of the GCI relies on the active participation of the GEO community. She urged data providers to increase their efforts to coordinate with GCI providers to make sure resources are integrated into and used through the GCI; and users of EO to actively explore, test and use the GEOSS Portal and give feedback to the GCI team.

Administrative Announcements

Conference Coordinator Mr Elhoussiene Gouaini made several announcements.

3 DRAFT GENEVA DECLARATION CONT.

Plenary considered and rejected a proposal to include “and information” in the Declaration sub-title, citing the thorough process of selecting the title and the importance of presenting Ministerial with a “clean” document.

Plenary approved the Declaration for adoption by the Ministers with no modification.

5 2013 REPORT OF THE EXECUTIVE COMMITTEE (Plenary Document 12)

The **South Africa Co-Chair, Dr Philemon Mjwara**, presented the document, highlighting the Executive Committee’s oversight of preparations for the Ministerial Summit and providing guidance to the Post-2015 Working Group and Ministerial Working Group and related activities; substantial engagement in the further development of the GEOSS Common Infrastructure; executive oversight of the special initiatives (GEOGLAM, GFOI, Blue Planet and AfriGEOSS); and active engagement with the Monitoring and Evaluation Working Group. The Co-Chair noted the Executive Committee’s call to create a Budget subcommittee to work in partnership with the Secretariat to prepare a programmatic annex to the Budget (ref. 7.3 Secretariat Operations Budget for 2014).

Plenary approved the document pending completion of the Executive Committee’s evaluation of the Secretariat. The final document is available on the GEO website: [http://earthobservations.org/documents/geo_x/GEO-X_12_\(Rev2\)_Report_of_the_Executive_Committee.pdf](http://earthobservations.org/documents/geo_x/GEO-X_12_(Rev2)_Report_of_the_Executive_Committee.pdf)

6 FORMAL STATEMENTS

Members and Participating Organizations delivered Formal Statements to **Plenary** related to GEOSS Implementation. Statements may be found at the following web link <http://earthobservations.org/geo10.shtml>.

The **Chair** noted the significant contributions and accomplishments of Members in the realization of GEOSS. She made particular note of changes in data policies and practices to provide full and open data, including the provision of the SPOT Image archive (France), data from JAXA sensors (Japan), and national hydromet service data from 2014 (Sweden), as well as the establishment of new, national GEO structures in Chile, China and Spain.

7 FINANCIAL REPORTS

7.1 2012 Financial Statements and Report of the External Auditors (Plenary Document 13)

Luckson Ngwira, Chief, Finance Division, WMO, made the presentation, noting that WMO provides the financial administration for GEO. He indicated that GEO follows the IPSAS accounting guidelines which require the presentation of various types and categories of information. He further noted the challenge of aligning expenditures and income because of the unpredictable timing of GEO's income. He indicated GEO underspent its budget by 19% in 2012.

Hakim Hadjeres, Swiss Federal Audit Office, presented the findings of the audit. The results of the audit were positive; the quality of the financial statements was good; and there were no recommendations beyond those pertaining to the Financial Operations environment that were provided to, and accepted by, WMO. Mr Hadjeres stated that the audit team was well experienced and was satisfied that the audit results are reliable.

Plenary approved the document.

7.2 Interim Report on Income (Plenary Document 14)

Ms Patricia Geddes, GEO Secretariat, presented the Interim Report, indicating the information is provisional as the financial records for the year 2013 are not yet closed. She noted that all pledges have been received except two which are in process (Australia support for GFOI and Gabon's contribution to the Trust Fund). The preliminary report is showing an excess of income over expenditure of CHF 424,000.

Plenary made no comment on this document which was for information only.

7.3 Secretariat Operations Budget for 2014 (Plenary Document 15)

Ms Patricia Geddes, GEO Secretariat, presented the proposed budget, noting that the Executive Committee had requested additional details which the GEO Secretariat will provide moving forward. The document is in conformance with IPSAS standards.

The **Chair** stated that the Executive Committee commented very positively on, and with great appreciation of, the Secretariat's sound management of GEO's finances over the last year and a half, and indicated that the Executive Committee had made the following request of the Secretariat and asked Plenary to concur with the request.

"The Executive Committee (ExCom) appreciates the Secretariat's sound management of the GEO Trust Fund, and recommends the adoption of the GEO budget top line amount and major categories of expenditure for 2014 as prescribed by IPSAS. Plenary is asked to concur with the ExCom request that the Secretariat, with the assistance of a budget subcommittee, develop an annex that provides greater detail of the programmatic elements and strategic directions of the Secretariat's annual expenditures, both planned and actual. The 2014 budget annex should be presented to the Executive Committee at its March 2014 meeting. This budget annex is designed to further build donor confidence in the financial arrangements for, and management of, GEO, and ultimately strengthen GEO's financial position."

The **Chair** explained that the Annex would be a descriptive companion to the budget that would provide Plenary a clearer understanding of the programmatic uses to which finances are being applied, and the link of those program purposes to GEO's Strategic objectives. The Annex would become part of the materials presented to Plenary in the future.

Plenary commended the Secretariat's sound management practices and supported the creation of a Budget Subcommittee by the Executive Committee to develop a programmatic analysis of expenditures to accompany future budget reports. Plenary noted that it is important to provide more detail about the budget, including indications of strategic directions and how funds would be used, in

order to present more convincing arguments to support contributions to GEO. Plenary also urged that participation in the working group to develop the Annex be open to Members beyond the Executive Committee.

Plenary was advised that China will contribute USD 200,000 again in 2014 and will continue support of two secondees in the GEO Secretariat; South Africa will increase its 2014 contribution from ZAR 2,000,000 to ZAR 3,000,000 and will support one secondee in the GEO Secretariat; Australia pledged AUD 50,000, in addition to earlier contributions; and Switzerland pledged investments in Secretariat infrastructure.

Plenary approved the 2014 Budget and concurred with the request for additional programmatic detail. The committee developing the Programmatic Annex will be open to Members beyond the Executive Committee.

7.4 Management of GEO Trust Fund (Plenary Document 16)

Ms Barbara Ryan, Secretariat Director, presented the document and described the need to create a **Working Capital Fund (WCF)** of CHF 1,000,000 that would be used to fund the day-to-day operations of the Secretariat in advance of receiving annual contributions from Member governments. Trends over the last 5 years (2007 to 2012) show that 60% of the funds are received in the latter part of the calendar year. The WCF would be financed through any year-end savings, although additional contributions earmarked for the WCF would be accepted. Year-end savings would stop being placed in the WCF once the CHF 1,000,000 threshold is reached. It is expected that an initial installment of approximately CHF 200,000 from a 2013 budget surplus would provide the foundation for the WCF.

Ms Ryan also discussed a proposal to establish a 10 percent assessment on funds earmarked for **special initiatives** (e.g., Global Forest Observations initiative (GFOI)) to cover costs associated with Secretariat support services provided specifically for those special initiatives. The 10 percent assessment rate would be only on expenditures associated with those earmarked funds and apply to Executive oversight, External Relations, Work Plan Coordination, Finance and Administration, and IT Support. She noted that most Members who contribute to the GEO Trust Fund contribute to all SBAs, so there is a need to be clear about how Secretariat support of special initiatives is being funded.

The **Chair** noted that the special initiatives assessment has been discussed by the last two Plenaries and extensively by the Executive Committee. She stated that the Executive Committee feels the proposal strikes a balance between the interests of all parties, both to support special initiatives and to make sure the special initiatives do not drain the limited resources of the Secretariat and GEO budget generally. ExCom recommends acceptance of an assessment for special initiatives.

Plenary approved creation of the Working Capital Fund and the assessment on Special Initiative expenditure, and stressed the importance of clarifying the language concerning the assessment.

8 RULES OF PROCEDURE UPDATE

Renewal of Implementation Board Membership (Plenary Document 17)

Plenary approved the document.

Adoption of Rules of Procedure (Plenary Document 18)

The **Secretariat Director** presented modifications that would clarify language relating to the timelines of actions, and delete a duplicated reference to private sector engagement. She also described modifications to language regarding Working Groups and Implementation Boards, and clarification of language relating to Participating Organizations.

Plenary noted the need to examine the role of POs prior to GEO-XI and approved the document.

9 PRESENTATION OF NOMINEES FOR THE EXECUTIVE COMMITTEE

Plenary acknowledged the slate of nominees (Appendix 1).

10 ANNOUNCEMENT OF GEO-XI

Plenary was advised that the country of **Gabon** offered to host GEO-XI in **November 2014**. (Dates have subsequently been identified as Thursday, 13 November and Friday, 14 November 2014).

The **Chair** asked **Plenary** for **Any Other Business**. **Plenary** was reminded of the importance of continued access to radio frequencies crucial to Earth observations. Members of the European Caucus expressed concern about the proposed extension of the mobile allocation for high density mobile RLANs to include this sub-band at the November 2015 World Radio Conference. **Plenary** was reminded that the potential loss of the frequency band currently assigned to SAR would be detrimental to the global and collective Earth observation capacity. Participants were invited to raise the issue in their own countries, particularly with national representatives to the International Telecommunications Union.

11 REVIEW OF SESSION OUTCOMES

Session Outcomes are found in Appendix 2.

12 CONCLUDING REMARKS

The **Co-Chairs** and **Secretariat Director** thanked **Plenary** for its contributions and perspective on the important matters facing GEO. The speakers acknowledged GEO's progress to date and potential for further accomplishments, as well as **Plenary's** guidance to the Implementation Plan Working Group on planning the future of GEO. Speakers expressed appreciation to the Swiss Government for its role as host.

Plenary adjourned at 15:15 pm.

A list of **Plenary** participants and an historical chart of attendance is found in Appendix 3.

APPENDIX 1

GEO Executive Committee 2014

Africa

- > Republic of South Africa*
- > Gabon

CIS

- > Russian Federation

Europe

- > European Commission*
- > Estonia
- > Italy

Americas

- > United States*
- > Argentina
- > Colombia

Asia/Oceania

- > China*
- > Australia
- > Japan
- > Korea

* indicates Co-Chair

APPENDIX 2

**Review of Session Outcomes of GEO-X
15-16 January 2014
Geneva, Switzerland**

Wednesday, 15 January 2014

1 OPENING OF THE SESSION

1.1 Welcome from Switzerland

1.2 Opening Remarks

- Kathryn Sullivan, Acting Under Secretary of Commerce for Oceans and Atmosphere and Acting NOAA Administrator, Department of Commerce, United States of America (Chair of the Session);
- Jianlin Cao, Vice Minister, the Ministry of Science and Technology of the People's Republic of China;
- Rudolf Strohmeier, Deputy Director General, Directorate-General for Research and Innovation, European Commission;
- Philemon Mjwara, Director-General, Department of Science and Technology, Republic of South Africa; and
- Barbara Ryan, Director, GEO Secretariat.

1.3 Administrative Announcements

1.4 Adoption of Agenda (Plenary Document 1) *(for approval)*

Approved.

1.5 Recognition of New Members (Plenary Document 2) *(for information)*

One new Member acknowledged – Georgia.

1.6 Recognition of Participating Organizations and Observers (Plenary Document 3) *(for approval)*

Approved (Rev 3). Creative Commons Organization (CC), Economic and Social Commission for Asia and Pacific (ESCAP), Federation of Earth Science Information Partners (ESIP), European Union Satellite Centre (EU SatCen), Interbalkan Environment Centre (IEC), International Astronautical Federation (IAF), International Institute for GEO-Information Science and Earth Observation (ITC), International Union of GEODESY and Geophysics (IUGG), The Marine Technology

Society (MTS) and Secure World Foundation (SWF), recognized as Participating Organizations.

Ecuador and University Corporation for Atmospheric Research (UCAR) recognized as Observers.

1.7 Approval of GEO-IX Report (Plenary Document 4) *(for approval)*

Approved.

2 GEO TO 2025

2.1 Introduction to GEO Summit by Ministerial Working Group

2.2 Geneva Ministerial Summit Draft Agenda and Content of Ministerial Folder – Document for Ministerial Summit (Document MS 1) *(for information)*

2.3 Vision for GEO 2025 - Document for Ministerial Summit (Document MS 2) *(for approval)*

Approved, with modification by Australia.

2.4 GEO Progress Report - Document for Ministerial Summit (Document MS 3) *(for information)*

2.5 Ministerial Guidance on the Evolution of GEOSS – Document for Ministerial Summit (Document MS 4) *(for consultation)*

- Preliminary Guidance for GEO 2025 (Plenary Document 5) *(for information)*

2.6 GEO Highlights Fact Sheet – Document for Ministerial Summit (Document MS 5) *(for information)*

2.7 Preparation of the next GEOSS Implementation Plan (Plenary Document 6) *(for approval)*

Approved (Rev 1).

3 DRAFT GENEVA DECLARATION – DOCUMENT FOR MINISTERIAL SUMMIT (Document MS 6) *(for consultation)*

4 GEOSS IMPLEMENTATION AND HIGHLIGHTS

4.1 Assessment of Progress – Target and Task (Plenary Document 7) *(for approval)*

Approved.

4.2 Monitoring and Evaluation

- Fourth Evaluation of GEOSS Implementation (Plenary Document 8) *(for approval)*;

Approved.

- Progress on Implementation of Recommendations from GEOSS Evaluations (Plenary Document 9) *(for approval)*;

Approved, with modification by EC, endorsed by ESA and US.

- Overview of the final Evaluation *(oral presentation)*.

4.3 GEO 2012-2015 Work Plan Update (Plenary Document 10) *(for approval)*

Approved, with modifications by POGO and US.

4.4 GEOSS Implementation Highlights (*oral presentation*)

4.5 Featured Initiatives

- Global Network for Observations and Information in Mountain Environments (GEO-GNOME) (*oral presentation*);
- AfriGEOSS (Plenary Document 11) (*for consultation*).

4.6 GEOSS Common Infrastructure (*demonstration*)

Thursday, 16 January 2014

3 DRAFT GENEVA DECLARATION – DOCUMENT FOR MINISTERIAL SUMMIT
(Document MS 6) (Cont'd) (*for consultation*)

5 2013 REPORT OF THE EXECUTIVE COMMITTEE (PLENARY DOCUMENT 12) (*for approval*)

Approved, pending completion of Executive Committee evaluation of GEO Secretariat.

6 FORMAL STATEMENTS FROM MEMBERS AND PARTICIPATING ORGANIZATIONS ON KEY EVENTS AND ACTIVITIES

(*Statements limited to maximum 3 minutes on subjects related to GEOSS Implementation*)

7 FINANCIAL REPORTS

7.1 2012 Financial Statements and Report of the External Auditor (Plenary Document 13) (*for approval*)

Approved.

7.2 Interim Report on Income and Expenditure 2013 (1 January to 26 November) (Plenary Document 14) (*for information*)

7.3 Secretariat Operations Budget for 2014 (Plenary Document 15) (*for approval*)

Approved.

• Creation of subcommittee for programmatic analysis of budget accepted.

• Membership open to Plenary; communicate nominees to Secretariat by 31 January 2014.

7.4 Management of GEO Trust Fund (Plenary Document 16) (*for approval*)

- Working Capital Fund

Approved.

- Management of contributions for Special Initiatives in the GEO Trust Fund.

Approved, with modification of title (Rev1).

8 RULES OF PROCEDURE UPDATE

- Renewal of Implementation Board Membership (Plenary Document 17) (*for approval*)

Approved.

- Adoption of Rules of Procedure (Plenary Document 18) (*for approval*)

Approved.

- **Executive Committee requested to explore expanded participation in Executive Committee, for presentation at GEO-XI Plenary.**

9 PRESENTATION OF THE NOMINEES FOR THE EXECUTIVE COMMITTEE

- **Africa: Republic of South Africa (Co-Chair), Gabon**
- **Americas: USA (Co-Chair), Argentina (2014), Columbia, Mexico (2015)**
- **Asia/Oceania: China (Co-Chair), Australia, Japan, Korea**
- **CIS: Russian Federation**
- **Europe: European Commission (Co-Chair), Estonia, Italy**

10 ANNOUNCEMENT OF GEO-XI

Gabon offered to host GEO-XI in November 2014. (Dates subsequently identified as 13-14 November, 2014.)

11 REVIEW OF SESSION OUTCOMES

AOB: Radio Frequency issue.

12 CONCLUDING REMARKS

APPENDIX 3

List of Participants of GEO-X
15-16 January 2014
Geneva, Switzerland

MEMBERS

Australia

Susan Barrell
Stuart Minchin
Michael Grundy
Alex Held

Austria

Liane Lippsky
Michael Staudinger
Rainer Stowasser

Bangladesh

Khondaker Asaduzzaman
Shamsuddin Ahmed

Belgium

Bertrand de Crombrughe
Pierre Brusselmans

Brazil

Leonel Perondi
Regina Cordeiro Dunlop
Hilcéa Ferreira
André Misi
Joao Lucas Quental Novaes De Almeida

Canada

David Grimes
Luc Brulé
Danielle Lacasse
Heather Aucoin
Mike Gill
Ian Jarvis
Michael Ott

Chile

Luciano Parodi
Jaime Moscoso
Cristián Streeter

China

Jianlin Cao
Xiaohan Liao
Zhiping Cai
Zhongxin Chen
Jun Chen
Linhao Chen
Xi Chen
Hongbing Chen
Xiao Cheng
Rui Cheng
Yan Cui
Peng Gong
Huadong Guo
Guoqing Li
Deren Li
Jiahong Li
Zengyuan Li
Shunlin Liang
Chuang Liu
Jie Liu
Yi Liu
Yi Luan
Ling Shi
Wei Wang
Liming Wang
Lixin Wu
Jungang Yang
Xianwu Yang
Qi Yu
Huanyin Yue
Xingying Zhang
Caisheng Zhao
Ershun Zhong

Colombia

Pablo Vieira Samper
Edersson Cabrera

Carlos Alfredo Carretero
Nicolas Avila Vargar

Cote d'Ivoire

Kouadio Adjoumani
Assi Laurent Ebakoue
Martin Yeboua Kouassi
Tiemoko Moriko

Croatia

Ivan Cacic
Branka Ivancan-picek
Vesna Vukovic

Czech Republic

Katerina Sequensová
Radim Tolasz
Martin Bulánek
Jana Klanova

Denmark

Lars Prahm

Egypt

Leila Iskandar
Amr Elsamak
Mohamed Nasr
Ahmed Shehabeldin

Estonia

Anu Reinart
Reet Talkop

European Commission

Rudolf Stromeier
Philippe Brunet
Volker Andres
Alessandro Annoni
Boris Antic
Yannick Arnaud
Pierre Bahurel
Lucy Bastin
Alan Belward
Michael Berger
Noemie Bernede
Florence Beroud
Arne Berre
Maria Betti
Lorenzo Bigagli
Palma Blonda
Jon Blower
Francesca Borga
Tristan Brauchli
Lieven Bydekerke
Terry Callaghan
Hervé Caumont

Luigi Ceccaroni
Fabio Ciravegna
Massimo Craglia
Eric Delory
Daniel Diaz
Catherine Doldirina
Mark Dowell
Alan Edwards
Pascal Evano
Mauro Facchini
Annette Filges
Elizabeth Gil-Roldan
Gregory Giuliani
Yaniss Guigoz
Christoph Häuser
Thomas Heege
Chris Higgins
Hendrik Huwald
Tim Jacobs
Simon Jirka
Nuria Julia
Astrid Koch
Pierre Lacroix
Philippe Ledent
Anthony Lehmann
Stanislaw Lewinski
Eliana Li Santi
Hai-Ying Liu
Roberta Lupis
Chris Lush
Victoria Lush
Gonzalo Carlos Malvarez
Joan Maso
Josiane Masson
Andreas Matheus
Milosz Mazurek
Stefania Mazzeo
Miquel Ninyerola
Daniel Nust
Gilles Ollier
Nicola Osborne
Florian Pappenberger
Jean-Daniel Paris
Roberto Pastres
Petros Patias
Juan Pedro Perez
Andreas Petzold
Vincent-Henri Peuch
Daniel Quintart
Nicolas Ray
James Reid
Charles Roberts

Jose Rubio Iglesias
Peter Salamon
Hannele Savela
Dick Schaap
Manuela Schlummer
Nadine Schneider
Michel Schouppe
Ivette Serral
Jane Shiel
Harald Skinnemoen
Bob Su
Simon Thum
Wim Timmermans
Maud van den Broek
Kurt Vandenberghe
Christoph Waldmann
Kym Watson
Steven Weijs
Jamie Williams
Stuart Wrigley
Yijian Zeng
Silvo Žlebir

Finland

Mikko Strahlendorff
Yrjö Sucksdorff

France

Dominique Marbouty
Claude Boucher
Claudie Carnec
Daniel Cassard
Stéphane Chevrel
Steven Hosford
Gonéri Le Cozannet
Lionel Menard
Thierry Ranchin
François Robida
Aurelie Sand
Florian Thomas

Gabon

Tanguy Gahouma Bekale

Georgia

Ramaz Chitanava
Nino Tskhadadze
Nino Sharashidze

Germany

Paul Becker
Carsten Dettmann
Andreas Becker
Thorsten Büßelberg
Thomas Fitschen

Markus Heene
Jörn Hoffmann
Werner Kutsch
Michael Nyenhuis
Björn Oriwohl
Gunter Schreier
Helmut Staudenrausch
Adrian Strauch

Ghana

Musheibu Mohammed-Alfa
Daniel Amlalo

Greece

Evangelos Livieratos
Vasileios Tritakis
Ifigenia Ceramitsoglou
Eleni Christia
Dimitris Ioannou
Haris Kontoes
Canaris Tsinganos

Indonesia

Henry Bastaman
Laksmi Dhewanthi
Trizono Wibowo
Adi Winarso

Italy

Ezio Bussoletti
Maria Dalla Costa
Maurizio Biasini
Antonio Bombelli
Giorgio Boni
Nico Bonora
Stefano Bruzzi
Martina Bussettini
Sergio Cinnirella
Paolo Mazzetti
Sandra Moscone
Stefano Nativi
Silvano Pecora
Nicola Pirrone
Antonello Provenzale
Roberto Rudari
Mattia Santoro
Amedeo Trambasolo
Stefania Traverso
Elisa Vuillermoz

Japan

Keisuke Isogai
Yoshiaki Kinoshita

Toshio Koike
Ryosuke Shibasaki
Eric Dupuy
Masao Fukasawa
Yukio Haruyama
Yasushi Horikawa
Chu Ishida
Yoshiaki Ishida
Koki Iwao
Satoko Kanazawa
Mariko Kato
Takeshi Kawano
Richard Lawford
Yu Matsunaga
Tsuneo Matsunaga
Shijuan Pang
Shinichi Sobue
Taro Ubukawa
Shizu Yabe
Akiko Yamada

Korea, Republic of

Yunhwa Ko
Won-Tae Kwon
Chang Sun Cho
Changwoo Hyun
Hyun-Ok Kim
Suho Lee
Seung Kyun Park
Chan-Ho Park
Jae-Gwang Won

Latvia

Inita Stikute
Raimonds Jansons
Peteris Podvinskis

Madagascar

Jean Omer Beriziky
Frederic Ramarolahivonjitiana
Annick Andriamampianina
Ambinintsoa
Noasilalaonomenjanahary
Claudia Rakotondrahanta
Onja Rasamimanana
Sadiah Irène Razafimandimby
Solofo Razafitrimo
Justin Tsofa

Malaysia

Che Gayah Ismail

Mexico

Enrique Pacheco
Julio Castillo Urdapilleta
Balan Gutierrez Herrera
Raul Heredia

Morocco

Faical Souissi

Netherlands

Ger Nieuwpoort
Frits Brouwer
Ruud Grim
Frank Lantsheer
Mark Noort

New Zealand

Rob Deakin

Niger

Ali Mahamadou
Ado Alhadji Abou
Issoufou Wata Sama

Nigeria

Ganiyu Agbaje

Norway

Per-Erik Skrøvseth
Øystein Nesje
Bente Bye
Dag Anders Moldestad
Kjersti Sommerset

Paraguay

Alberto Yanosky
Isabel Gamarra De Fox

Peru

Jorge Pacheco Linares

Philippines

Cecilia B. Rebong
Elizabeth Te
Marivil Valles

Portugal

Miguel De Castro Neto

Romania

Tudor Prisecaru
Marius Piso
Maria Ciobanu
Traian Filip
Ion Nedelcu
Antoaneta Popescu
Florin Tudorie

Russian Federation

Alexander Makosko
Valery Zaichko
Zoya Andreeva
Vasily Asmus
Aleksander Davidyuk
Lev Desinov
Andrey Emeliyanov
Tamara Ganina
Alexander Gusev
Aleksander Konyakhin
Sergey Kulichkov
Sergey Mityushin
Alexander Panfilov
Oleg Shamanov
Eugeny Vakulenko

Serbia

Vladan Kocic
Jugoslav Nikolic

Slovakia

Vlasta Janova

Slovenia

Vojislav Suc
Andrej Zitko

South Africa

Philemon Mjwara
Lee Annamalai
Lulekwa Makapela
Sandile Malinga
Andiswa Mlisa
Nurunessa Moolla
Humbulani Mudau
Mmboneni Muofhe
Terry Newby
Imraan Saloojee
Lerato Senoko
Michele Walters

Spain

Miguel-Ángel López-González
Carmen Rus
Antonio Arozarena
Carlos Casanova Mateo
Julio González Breña
Jorge Lomba
Joan Maso
Nuria Valcarcel

Sweden

Lena Häll Eriksson

Stefan Nilsson
Yifang Ban
Göran Boberg
Thomas Klein

Switzerland

Karine Siegwart
Gabriela Seiz
Natália Archinard
Salman Bal
Dominique Bérod
Emmanuel Eckard
Fabio Fontana
Nicolas Ray
José Romero
Gerhard Ulmann

United Kingdom

Ian Davidson
Katherine Bass
Ruth Boumphrey
Ruth Kelman
Stuart Marsh
Jim Penman
Carol Turley

United States

Kathryn Sullivan
Michael Abrams
John Adamec
Madelyn Appelbaum
Ann Bartuska
Kate Becker
Inbal Becker-reshef
Eric Bridiers
Bart Cobbs
Peter Colohan
David Crisp
John Crowe
Ivan Deloatch
Matthew Druckenmiller
Joy Durkin
Gary Foley
Kathleen Fontaine
Michael Freilich
Lawrence Friedl
Yana Gevorgyan
Steve Graham
Leonard Hirsch
Adrienne Hopper
Winnie Humberson
Libby Jewett
Suzette Kimball
Wendy Lubetkin

Denise McWilliams
Tracy Morgan
Douglas Muchoney
Douglas Nebert
Jean Parcher
Paul Patin
Debra Peters
Norie Phillips
David Reidmiller
Nancy Searby
Carrie Stokes
Juli Trtanj
Zdenka Willis
Greg Withee

Uzbekistan

Sergey Myagkov

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Olajide Kufoniyi
Tsehaie Woldai

ACMAD

Adama Diallo

CEOS

Alain Ratier
Pascale Ultré-Guérard
Robert Husband
Kerry Sawyer
Brent Smith

CMO

Tyrone Sutherland
David Farrell

COSPAR

Jean-Louis Fellous
David Halpern

DANTE

John Chevers

DIVERSITAS

Anne-Helene Prieur-Richard
Gary Geller
Henrique Pereira
Robert Scholes

ECMWF

Alan Thorpe
Jean-Noël Thepaut

EEA

Christian Steenmans
Tim Haigh
Mette Muller

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Silvia Filosa
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Giuseppe Puglisi
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ESA

Stephen Briggs
Mirko Albani

Ivan Balenzio
Jean-Charles Bigot
Simonetta Cheli
Guido Colangeli
Roberto Cossu
Ivan Petiteville
Michael Rast
Joost van Bemmelen

ESIP

Charles Hutchinson

EU SatCen

Andrea Patrono
Sergio Albani

EUMETNET

Frits Brouwer

EUMETSAT

Alain Ratier
Paul Counet
Vincent Gabaglio
Sally Wannop
Mike Williams

EuroGeoSurveys

Luca Demicheli
Gerardo Herrera
Celine Andrien
Peter Britze
Daniel Cassard
Stéphane Chevrel
Claudia Delfini
François Robida
Henry Vallius
Rob van der Krogt

FAO

John Latham

GBIF

Tim Hirsch

GCOS

Adrian Simmons
Carolin Richter
Jessica Holterhof

GEM

Fabio Dell'Acqua

GSDI

Carmelle Terborgh
Gabor Remetey-Fulopp

GTOS

Brice Mora

IAFChristian Feichtinger
Shuji Araki
Myriam Morabet
Kai-Uwe Schrogl**IAG**Hansjoerg Kutterer
Ruth Neilan**ICIMOD**David Molden
Basanta Shrestha**ICSU**Mustapha Mokrane
Robert Chen
Simon Hodson**IEC**Alfonso Bialetti
Tom Crisman
George Zalidis**IEEE**Rene Garello
Hans-Peter Plag
Richard Bernknopf
Steven Browdy
Andrew Coote
Osha Davidson
Gordon Day
Ed Gough
Siri Jodha Khalsa
Jay Pearlman
Françoise Pearlman**IHO**

Gilles Bessero

IIASAMichael Obersteiner
Steffen Fritz
Linda See**INCOSE**David Long
Lawrence McGovern**IOC**Albert Fischer
Bruno Combal
Sarah Grimes
Jan Newton
Maciej Telszewski**ISDE**Huadong Guo
Changlin Wang
Fang Chen
Mario Hernandez**ISDR**Pedro Basabe
John Haroing**ISPRS**Jun Chen
Maria Brovelli
Lijun Chen
Gottfried Konecny**ITC**Tom Veldkamp
Freek van der Meer
Andrew Skidmore**IUGG**

Alik Ismail-Zadeh

IUGS

Roland Oberhaensli

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David Arctur
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Marten Hogeweg
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Victoria Cheung**RCMRD**

Hussein Farah

SWFMichael Simpson
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Laura Delgado López**UNCBD**Robert Hoft
David Cooper**UNECA**

Andre Nonguierma

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Peter Gilruth
Jacob Duer
Jan Dusik
Claudia Have
Jacqueline Mcglade
Pascal Peduzzi
Isabelle Valentiny
Ronald Witt

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Wendy Watson-Wright
Richard Bellerby
Kirsten Isensee

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Rocio Lichte

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Francesco Pisano
Einar Bjorgo

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Valery Detemmerman
Michel Rixen
Mareike Burba
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Yusuke Muraki

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CIMA Research Foundation/ACROTEC

Adriano Fedi

Valentina Rebora
Rita Visigalli

EcoLomics

Noriko Yajima

GEOSPATIAL MEDIA

Sanjay Kumar

Green Cross

Adam Koniuszewski

IAEA

David Osborn

ICES

Bob Bishop

IPCC

Renate Christ

ISNET/SUPARCO

Arshad Siraj

QNRF

Rekha Pillai

Skoll Global Threats Fund

Sylvia Lee

The World Bank

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Emelie Larrodé
Tomoko Mano
Alexia Massacand
Osamu Ochiai
Yubao Qiu
Sofia Rodriguez
Robert Samors

Georgios Sarantakos
Chloé Tiberghien

Espen Volden

APPENDIX 3 CONT.

**Chart of GEO Plenary Attendance
Members & Participating Organizations
GEO-I – GEO-X**

