

2022 AOGEO Statement

September 28th - 30th, 2022

The 15th Asia-Oceania Group on Earth Observations (AOGEO) Symposium was held online from 28 to 30 September 2022 with the theme of “*New horizons for Earth observation in Asia Oceania Region: Seeking engagement*”. The symposium was hosted by the Ministry of Education, Culture, Sports, Science and Technology-Japan (MEXT) with support from the GEO Secretariat and brought together 142 participants in total and 7 countries presented their reports.

Each thematic Task Group (TG) held sectorial meetings and reported its achievements and next implementation plans for 2023-2025 at the plenary. While seeking further engagement with newer stakeholders such as youth, Special Sessions highlighted regional challenges, opportunities, and actions in session topics such as water-resilience and biodiversity for sustainable economies. These are key elements of thematic integration taking place in the development of a post-2025 GEO.

Through the interactive discussion at the plenary, the participants:

1. Highlighted AOGEO’s unique regional role in driving and catalyzing cooperative actions and decision-making by members to achieve our vision of a world where decisions and actions are informed by coordinated, comprehensive and sustained Earth Observations (EO).
2. Welcomed the progress made by TGs and AOGEO community to implement the AOGEO Implementation Plan for 2020-2022 GEO Work Programme, and ongoing work towards realizing the vision of AOGEO in the 2023-2025 GEO Work Programme.
3. Welcomed continued efforts to strengthen the engagement with diverse stakeholders along the EO value chain, through innovative partnerships including countries, civil society, youth, local communities, private and finance sector. This will include identifying new opportunities to use EO in key areas such as biodiversity for sustainable economies, while building on past successes.
4. Recognized that young generations play critical roles in addressing regional and national challenges and encourages AOGEO to support and catalyze youth empowerment and engagement in priority areas.

5. Encouraged AOGEO to proactively formulate concrete ideas and topics for strengthening cross-sectoral and thematic partnerships between local, national, and regional stakeholders, by catalyzing additional financing for key AOGEO initiatives.
6. Provided input in informing the directions for GEO post-2025.
7. Acknowledged efforts by the GEO community for regional capacity development:
 - i. The 5th AOGEO Workshop, with the theme of Harmony and Empowerment—Accelerate Action and Development for Local Needs, emphasizing for capacity development on the use of EO data and knowledge in June 2022 in Beijing, China. The 2022 AOGEO international training workshop on Earth observations for sustainable development in developing countries focused on Earth observations for carbon and ecology monitoring in the Himalayan region in July 2022 online.
 - ii. TGs fostering “facilitators” who will bridge the science community and society to support decision-making, policy-making, public investment, and local practices utilizing EO data and scientific knowledge.
8. Encouraged AOGEO to accelerate its response to the demands from political leaders, e.g. at the 4th Asia-Pacific Water Summit in 2022, to support speedy evidence-based decision-making of policy-makers in cross-sectoral themes, such as water-resilience.

Achievements and way forward for 2023-2025 GEO Work Programme

9. Welcomed the progress and achievements of TGs, and their concrete implementation plans for 2023-2025 as presented in detail in the Annex.
 - i. **Asian Water Cycle Initiative (AWCI)** established the Platforms on Water Resilience and Disasters in Indonesia, the Philippines, and Sri Lanka developed the OSS-SRs and fostered Facilitators and demonstrated their achievements at the Showcase special session of the 4th Asia-Pacific Water Summit. AWCI will continue to support the Platforms and their cross-sectoral decision making at local to national levels in order to promote transformation into quality-oriented societies that are resilient, sustainable, and inclusive.
 - ii. **Asia-Pacific Biodiversity Observation Network (APBON)** has made progress in observations of biodiversity changes and assessments of the impacts of climate change and human activities in terrestrial, freshwater, coastal and marine areas

to address conservation needs. Its strategic plan will be implemented to respond to the growing needs to biodiversity observations.

- iii. **Asia-Oceania Greenhouse Gas Initiative (AO-GHG)** harmonizes various observation platforms for GHGs, reduce uncertainties in sources and sinks, and cooperate among relevant institutes/agencies to support reporting GHG budgets for the Global Stocktake Processes.
- iv. **Oceans, Coasts, and Islands (OCI)** further develop access to marine coastal data through interoperability on cloud computing, and also promote better use of satellite data products for coastal and open ocean regions, in particular from optical remote sensors.
- v. **Agriculture and Food Security (Asia-RiCE)** formulated a platform for agrometeorological information and rice crop monitoring, and continues to provide an outlook for rice production using validated multi-source EO data.
- vi. **Drought monitoring and evaluation (DME)** has been continuously developing the web-GDMAP (Web-based Global Drought Monitoring and Analysis Platform) using various EO data, and will realize the operation of web-GDMAP to provide timely free information and products for drought monitoring, evaluation and management.
- vii. **Environmental Monitoring and Protection (EMP)** released datasets and reports focused on sustainable ecosystems, inland water quality, global carbon source and sinks; EMP will keep close connection with other related Activities, Initiative for IPS to support SDGs, Climate Action etc, in 2023-2025.
- viii. **Himalayan GEOSS** continued its focus on promoting EO applications in the HKH and regularly engaged in capacity development. Leveraged through SERVIR, contributions were made to drought, disaster and land cover monitoring. It will actively build partnerships with global and GEO initiatives to promote data and information sharing, and science and knowledge cooperation.

Findings from Special Sessions

Special session 1

10. Acknowledged that EO on multiple platforms including in-situ, satellites and modeling analysis can provide critical information to respond to the growing

stakeholder needs from biodiversity conservation and ongoing economic initiatives such as the Task Force on Nature-related Financial Disclosures (TNFD);
Recognized the importance of the information infrastructure and tools which serve as a platform for bridging between the biodiversity and ecosystem observation community and users; and
Encourages seeking further collaborative actions between the biodiversity and ecosystem observation community and service providers to fill biodiversity data, knowledge, and technical gaps to create the data value chain in the region.

Special session 2

11. Acknowledged that young generations play significant roles in addressing the complex challenges facing the region;
Recognized that AOGEO can be a key enabler for engaging and empowering youth in earth observations in the Asia Oceania region;
Encouraged strengthened consideration of youth perspectives and needs in a post-2025 GEO; and
Recommended that a plan of action for effective youth engagement be designed in close coordination with existing youth networks so that synergies are leveraged, which could include the elements contained in Annex II.

Special session 3

12. Welcomed the process of the development of a GEO post-2025 as an excellent opportunity for AOGEO and its members to engage and share their vision and priorities;
Reiterated the importance of GEO to harness the potential of technological innovations and to convene and connect EO communities (institutions, academia, individual scientists, citizens) with governments and other stakeholders to achieve its vision, and emphasized the continued need for partnership, knowledge sharing, capacity development, and resources;
Emphasized for GEO to use a combination of bottom-up and top-down approaches, including for capacity development, acknowledging that there rarely the same solutions work for all;
Encouraged the post-2025 working group to position GEO as a catalyst for innovative solutions for environmental and societal challenges, as well as a promoter of the power and potential of EO; and
Invited the post-2025 working group to take the comments made during this special

session into consideration in its further deliberations of a GEO post-2025.

Special session 4

13. Highlighted the important and complementary roles that community-led EO networks are playing in supporting the Pacific Island Countries and Territories with their geospatial needs;

Announced regional conferences in 2022-2023 that will provide valuable forums for sharing information and building collaboration on EO use and applications; and

Highlights potential synergies from working together and encourages collaboration as a diverse EO community in the Pacific Island Countries and Territories to jointly address EO regional needs.

Special session 5

14. Acknowledged that AOGEO has developed and continues to develop EO solutions for transformation into quality-oriented societies that are resilient, sustainable and inclusive to respond to the mandate given by political leaders at the 4th Asia-Pacific Water Summit to support EO solution for evidence-based and cross-sectoral decision making of leaders; and

Encourages the AOGEO community to accelerate efforts on identifying concrete steps and actions.

Achievements and way forward for 2023-2025 GEO Work Programme AOGEO Task Groups

1. TG1 Asian Water Cycle Initiative (AWCI)

Achievements in GEO Work Programme 2020-2022

AWCI contributed to the Platforms on Water Resilience and Disasters in each member country by integrating the “Online Synthesis System for Sustainability and Resilience (OSS-SR)” as a key knowledge base of each Platform and by fostering “Facilitators” as trustable human resources through effective use of e-learning. The achievements in Indonesia, the Philippines, and Sri Lanka were introduced at the Showcase special session of the 4th Asia-Pacific Water Summit and reflected in the Summit Chair’s summary.

Way forward for GEO Work Programme 2023-2025

By enhancing the functions of the OSS-SR and the Facilitators and promoting water cycle resilience, AWCI will continue to support the Platforms and their cross-sectoral decision making at local to national levels in order to promote transformation into quality-oriented societies that are resilient, sustainable, and inclusive. AWCI will present its plans, on-going activities, and achievements at high-level meetings, e.g., the UN Water Conference to be held in New York in March 2023, and expand its activities to various countries.

2. TG2 Asia-Pacific Biodiversity Observation Network (APBON)

Achievements in GEO Work Programme 2020-2022

APBON has shared knowledge on biodiversity and its services, threats due to climate change and human activities, and expanded networks regionally and globally through collaborative projects and webinars even under the constraints due to COVID-19 pandemic. APBON’s new strategic plan towards 2030 was developed by regional cooperation which will engage the scientists, relevant stakeholders, and the next generation to address biodiversity issues.

Way forward for GEO Work Programme 2023-2025

Addressing Nature-based Solutions through delivering scientific knowledge is key locally and regionally. In-situ and satellite observations of status and changes of

biodiversity and its services must be progressed to contribute to the Post-2020 Global Biodiversity Framework and to deliver appropriate data and knowledge for societal and economic actions such as TNFD¹. APBON will contribute to society through comprehensive observations developed through national and regional collaboration, capacity development and youth engagement.

3. TG3 Asia-Oceania Greenhouse Gas Initiative (AO-GHG)

Achievements in GEO Work Programme 2020-2022

AO-GHG developed a multi-data integration system, harmonizing the increasing number of platforms, such as remote sensing, in-situ observations, and inventories, to reduce uncertainties in GHG sources and sinks to support the ultimate goal of reaching net zero emission required by Paris Agreement. In particular, GHG observation satellites have been advanced to meet the requirement of accounting GHG budgets. Synthesis of multiple models and methods were advanced to obtain robust GHG budget estimation.

Way forward for GEO Work Programme 2023-2025

AO-GHG will further develop the multi-data integration system, and harmonize the increasing number of platforms, such as remote sensing, in-situ observations, and inventories, to reduce uncertainties in the sources and sinks to support the ultimate goal of reaching net zero emission required by Paris Agreement. The system will be advanced to provide yearly and speedy regional GHGs budgets to contribute the Global Stocktake Process.

4. TG4 Oceans, Coasts, and Islands (OCI)

Achievements in GEO Work Programme 2020-2022

OCI continues further development of the AOGEO ocean data networking system based on GeoNetwork built on Amazon Web Services (AWS) as the data portal site. TG4 also started to examine development of scientifically based datasets from satellites for coastal and open ocean regions, focusing on optical sensor observation for coastal water ocean color monitoring.

¹ Taskforce on Nature-related Financial Disclosures

Way forward for GEO Work Programme 2023-2025

For the in-situ data portal, OCI will set up the GeoNetwork metadata site in each individual site if desired, and identify marine parameters for which we can exchange data inventory. TG4 will develop and expand the network of ocean color experts for co-working with in-situ groups, then help the collaboration between ocean color and phytoplankton experts for developing ocean color algorithms.

5. TG5 Agriculture and Food Security (Asia-RiCE)

Achievements in GEO Work Programme 2020-2022

Asia-RiCE developed systems of collection, validation and integration of Earth observation data for agrometeorological information and rice crop monitoring in the Asia-Oceania region. To align with the CEOS² and APRSAF³, Asia-RiCE strengthened the partnership with national and regional agricultural sectors.

Way forward for GEO Work Programme 2023-2025

Cross-validation, data fusion by machine learning and cloud-based cooperation of Earth observation among various institutes are planned to improve the agrometeorological information and the quality of rice crop monitoring, as well as rice yield estimation and its forecasting by integrating remote sensing and crop models. This will actively involve capacity building activities.

6. TG6 Drought monitoring and evaluation (DME)

Achievements in GEO Work Programme 2020-2022

DME has developed the prototype system of the web-GDMAP (Web-based Global Drought Monitoring and Analysis Platform) by building data quality control processes, drought indicators and drought severity alert approach using various EO data. Particular attention was paid to identification and monitoring of flash drought, and assessment of drought impact on crop primary production. EO based products related to water availability and consumption were shared with the public.

² Committee on Earth Observation Satellites

³ Asia-Pacific Regional Space Agency Forum

Way forward for GEO Work Programme 2023-2025

DME will continuously improve the web-GDMAP and realize the web-GDMAP toward operation for pilot countries or regions, and will continuously dedicate to data sharing of EO products. DME will strengthen cooperation with member countries and users of the drought monitoring system, and will work more closely with other AOGEO TGs and IPS, GEO Initiatives and Communities, and other regional and international programs.

7. TG7 Environmental Monitoring and Protection (EMP)

Achievements in GEO Work Programme 2020-2022

EMP advocated Analysis-Ready Open Data, by integrating multiple EO data to generate common products for EMP; released four Annual Reports and 41 datasets for ecosystem and environmental monitoring to support the GEO priorities; and organized more than 10 AOGEO symposium task group sectorial meetings, GEO Week side events, training and other activities.

Way forward for GEO Work Programme 2023-2025

EMP will promote development of an international cooperation network; establish an international verification network for Earth observation products; develop in-depth cooperation between various working groups and links to Integrated Priority Studies (IPS); strengthen cooperation with GEO4SDG; and support data sharing and end-user decision-making.

8. TG9 Himalayan GEOSS

Achievements in GEO Work Programme 2020-2022

Himalayan GEOSS continued its focus on promoting EO applications in the Hindu Kush Himalaya region. With the formation of AOGEO Regional Centre for Capacity Development (RCCD) by ICIMOD, AIRCAS and NRSCC, two trainings were organized in 2022 on the theme “*Earth Observations for Sustainable Development in Developing Countries*” with TG12. With GEO Mountains, an online workshop on “*Inter- and Transdisciplinary Mountain Data Across the HKH: Identifying User Requirements and Access Preferences*” was organized in June

2022. Leveraging from SERVIR-HKH efforts, specific contributions were made relating to SDG Goal 2 (drought early warning), Goal 13 (climate change and disasters), and Goal 15 (land cover monitoring).

Way forward for GEO Work Programme 2023-2025

Himalayan GEOSS will continue to work on capacity building through AOGEO-RCCD. It will actively build partnerships with other GEO initiatives and global partnerships to address the data gaps on SDG indicators and promote EO applications in coherence with needs of the regional countries on data and information sharing, and science and knowledge cooperation.

Recommended plan of actions for youth engagement

- Provide mentoring programmes for young researchers and practitioners
- Support young applicants apply for funding and small grant
- Upscale communications and outreach on the value and possibilities for youth in AOGEO, especially through joint events or blog posts with other active youth networks in the region
- Curate a database of possible youth speaker active in earth observations from the region so that they can be contacted for public speaking opportunities at international conferences
- Ensure a link with start-ups and young entrepreneurs that are very active in designing operational solutions the region