

Report from the Pacific Islands Advisory Group

*This document is submitted by the Pacific Islands Advisory Group
to the Programme Board for information.*

1 INTRODUCTION

Pacific Island Countries and Territories (PICTs) have significant and increasing exposure to disaster risk, climate change and sustainable development challenges. In 2020, the GEO Executive Committee convened the Pacific Islands Advisory Group (PIAG) to advise the GEO Programme Board and the GEO Executive Committee regarding the implementation of elements of the Canberra Declaration for the PICTs.

Since the last report from the PIAG to the Programme Board in August 2022, the PIAG held nine teleconferences for the full membership, including one hybrid GEO Track event which was held in person and online in Noumea, New Caledonia on 1 December 2023. A meeting of PIAG Co-leads was held a week prior to each full meeting.

2 PROGRESS

Since the previous PB meeting, the PIAG has implemented the PIAG Engagement Strategy (Annex A) and actioned activities and outputs that support the five key areas of engagement (outlined in Table 1). PIAG also maintains the status of current activities in its detailed Work Plan, which exists as a living document to allow members to easily track and update progress to individual items. The detailed Work Plan document is available on request to the PIAG Co-Leads or the GEO Secretariat.

2.1 Summary of the Oceania Geospatial Symposium (OGS)

The OGS was a 7-day event held in Noumea, New Caledonia (28 November to 4 December 2022) for the Pacific Earth Observation Community. The event involved keynote talks from more than 70 speakers, as well as round-table discussions, conferences, training, hackathons and workshops for the purpose of providing a week dedicated to the community to share knowledge and explore sustainable development across the Pacific. The GEO Track was a dedicated day within the OGS agenda that was organised and facilitated by the PIAG and enabled direct discussions between GEO and the PICTs.

2.1.1 GEO Track

The GEO Track was held on 1 December 2023 at the Pacific Community Headquarters in Noumea, New Caledonia. Additional information and agenda can be found [here](#). All PIAG members were invited to attend the event, either in person or virtually via Microsoft Teams. The Director of the GEO Secretariat, Yana Gevorgyan attended the event in person, along with the GEO Capacity Development Coordinator Ernest Acheampong. Key outcomes of the event included:

- Strong consensus towards continued support towards Pacific-led solutions.

- Renewed support and commitment from PICT Governments to work closely with GEO in future events, including the 2023 GEO Ministerial Summit.
- Continued efforts to strengthen links with the Pacific Island Forum to achieve wider regional endorsement towards EO-related activities.

2.1.2 PIAG – Committee on Earth Observation Satellites (CEOS) Duplex

Together with CEOS Chair 2022 (French *Centre National D'études Spatiales*, CNES), GEO PIAG facilitated a special joint session between the OGS event (Noumea) and the CEOS Plenary held in Biarritz (France) on 1 December 2022. This one-hour live session was a unique opportunity for international satellite data providers to hear directly from the Pacific Islands about OGS outcomes including priorities and regional needs, and for CEOS to raise awareness about their work and potential support to the regional users. The PIAG was instrumental in delivering the hybrid session which was positively received by both organisations. Follow-up actions from the session were to maintain the connection between key stakeholders (CEOS and regional organisations such as The Pacific Community (SPC), Secretariat of the Pacific Regional Environment Programme (SPREP) and others) and improve data access, availability and uptake to serve local and regional needs.

2.1.3 Outcomes of the Synthetic Aperture Radar (SAR) Workshop

During the OGS week, CSIRO has partnered with the French Institute Research for Development (IRD) and New Caledonia to undertake two core activities around SAR Capacity Development in the region.

CSIRO co-led a dedicated Plenary session '*Pacific projects based on radar (SAR) satellite imagery*' including presentations of applications of SAR technology in the region (e.g. semi-automated detection of oil slicks in SAR imagery of the Great Barrier Reef and its applicability to the New Caledonia region). This triggered interest and led to ongoing business development interactions with local partners including the *Observatoire de l'Environnement en Nouvelle-Calédonie* (OEIL). Further information can be found.

In addition, CSIRO and IRD delivered a successful hands-on workshop on SAR technology to 15 participants from Oceania. This capacity development project, SAR for Oceania Community (SAROC), was partly funded by the Pacific Fund to promote international collaborations with French partners in the region to develop joint projects addressing key challenges or pressing needs (e.g., climate change, disasters risk management or illegal maritime traffic).

OGS was another opportunity to highlight the need for training in using SAR data: 1) the technology is essential for cloud-covered territories which require rapid responses to disasters, 2) very few EO data users of SAR technology and 3) free and open radar datasets are limited over the region. The workshop was well received by participants who requested for further training to develop their national and regional skills to improve decision making. Australia (CSIRO and Geoscience Australia) is now assessing the possibility of developing more activities in partnership with regional partners to build technical and science SAR capability in the region (which could include webinars and/or in-person workshops).

2.1.4 On-line Training on “Natural Resources Satellite Remote Sensing Technologies and Applications”

Asia-Pacific Space Cooperation Organization (APSCO) Secretariat and LASAC (Land Satellite Remote Sensing Application Center, Ministry of Natural Resources of P.R. China) and GEO PIAG as a co-lead, jointly organized the Short Training Course on “Natural Resources Satellite Remote Sensing Technologies and Applications” on virtual format, supported by International Society for

Photogrammetry and Remote Sensing Technical Commission I (ISPRS TC1) during 29 August-2 September and 5-9 September 2022.

The lecturer team consisted of 10 distinguished professors from worldwide, who developed 30 hours of informative lectures related to Ocean Satellite Development, Land Satellites Technologies and Applications, Satellite Remote Sensing of Ocean & Islands, Marine Ecology and Environments Accurate Geometric Correction and Applications of CBERS Satellite Images, Application of Comprehensive Remote Sensing Image Processing, Hyperspectral Remote Sensing, and Crop Classification Based on High-resolution Satellites. In total, 91 participants from 11 countries showed interest and registered for the courses.

2.2 Membership Status Update

The PIAG continues efforts to engage with, and increase, membership from communities and organisations across the PICTS to promote engagement between the Pacific and the international EO Community. This nexus must be led by Pacific Islanders, which will be linked to the cultural and geopolitical networks within Oceania and reflect the Pacific EO ecosystem including EO service providers, users and capacity. An outcome of this may result in increased GEO membership by PICTs, integration into GEO Work Programme elements, engagement with the Indigenous Alliance, engagement with capacity building activities, or supported by regional GEOs through true dialogue and co-production of value-added EO products. A full list of current members is listed in Annex B. The PIAG is pleased to announce the following new members:

- Sachindra Singh attended the PIAG GEO Track in December 2023 as a representative of the SPC. The invitation for monthly attendance has been extended and accepted by Sachindra.
- Joeli Varo has joined the PIAG in March 2023 in his capacity as an Assistant Lecturer at the University of the South Pacific.
- John Marra agreed to join the PIAG in February 2023 in his capacity as Regional Climate Services Director from the National Oceania and Atmospheric Association (NOAA).

2.3 Engagement Strategy progress

Progress for each of the PIAG Engagement Strategy’s five key areas of engagement is listed in Table 1.

Table 1. PIAG Engagement Strategy Progress

AREA OF FOCUS	STATUS
SCOPE	<ul style="list-style-type: none"> • SPC and SPREP have designed a survey to develop a request to CEOS on satellite data requirements and use to improve data access and update across the Pacific (ONGOING). • Drafting of a capability statement of the PIAG / GEO for the PICTs (ONGOING).
CONSULT	<ul style="list-style-type: none"> • OGS and CEOS duplex session (COMPLETE - 1 December 2022). • University of South Pacific (USP), as a multinational university, applied to become a GEO PO. Renewed membership from USP via Joeli Varo.
CONNECT	<ul style="list-style-type: none"> • Development of a LinkedIn Community as an outcome of the OGS to virtually connect EO communities across the Pacific to a single online forum (ONGOING). • Support engagement with GIS User Groups across the Pacific (ONGOING). • Maintain and grow networks and relationships with the Pacific

	Geospatial and Surveying Council (PGSC) (ONGOING).
ALIGN	<ul style="list-style-type: none"> • SAR workshop to build capacity and raise awareness of the use of the technology to advance the 2030 Agenda and support the Sendai Framework (COMPLETE). • Opportunities to explore with New Caledonia (OEIL / Australia) and New Zealand (ONGOING). • Provided technical inputs (Australia) to the first Space for Islands Nations Conference (SINC) 2023 Maldives (COMPLETE). • OGS Session addressing global agendas, including SDG monitoring and assessment (COMPLETE)
ADVISE	<ul style="list-style-type: none"> • GEO Track Day organised during the OGS to further promote and agree on the role of PIAG for the PICTs and GEO.

3 NEXT STEPS

3.1 Upcoming work and activities

3.1.1 REACT: A new Geoscience and Remote Sensing Society (GRSS) Technical Committee for Earth Observation Supporting Pacific Islands and Territories

In November 2022 a new technical committee of the IEEE GRSS was formed with the name Remote Sensing Environment, Analysis, and Climate Technologies (REACT).

The focus of REACT is on methods and algorithms, satellite systems and data-driven solutions to advance EO information products. REACT will advance the use of information products derived from remote sensing, making them available to support sustainable management at the local, regional and international level in the different environmental domains by contributing to the understanding of climate change and supporting the Sustainable Development Goals (SDGs).

Currently the PICT is one of four focus areas chosen to support using remote sensing for EO applications. Although Pacific Island nations have had the least involvement in causing anthropogenic climate change, they will experience the most extreme consequences. Recently, climate change has compounded an already vulnerable situation by increasing the frequency and intensity of extreme climatic events that pose a significant threat to the safety of people, their communities and the environment.

REACT will undertake the following tasks:

- Building a community through collaborative efforts within the PICT region.
- Exploring different environmental domains utilizing a variety of methods techniques to derive EO products.
- Help meet the SDGs and climate issue targets using spatial information.
- Finding and dealing with local outcomes transferable to regional and global situations.

3.1.2 Support for Pacific Pilot Initiative Programs

IEEE GRSS recently approved seed funding and technical support for two Pacific projects submitted by local Pacific groups. These will become Pilot Initiatives in the GEO 2023-2025 Work Programme:

- Pilot Earth Observation Projects on Mitigating Pacific Islands Climate and Sea Level Change Impacts Involving Local Scientist and Organisations. \$16,000 funding provided, USA.

- Building Local Capability for Drone-based Remote Sensing to Assist With Adaptation to Climate Change in The Cook Islands, \$15,000 funding provided, USA.

3.1.3 Expanding membership of PIAG

As part of PIAG's efforts to increase membership across the Pacific EO community, two Academic Institutions have been invited to attend the monthly membership meetings:

- Dr. Delwyn Moller is an adjunct Professor in Engineering at the University of Auckland as well as works in private industry. Before returning to her native New Zealand she worked at the NASA's Jet Propulsion Laboratory (JPL) in Pasadena, USA on radar technology, primarily with a focus toward Earth science. Her research interests are on developing imaging radars and interferometry for mapping terrain, water, ocean surface and snow and ice-covered surfaces with high-resolution SAR at accuracies that enable new areas of applications discovery. She is currently a Co-Chair of the GRSS Instrumentation and Future Technologies Technical Committee.
- Dr. Alejandro C. Frery is Professor of Statistics and Data Science in the School of Mathematics and Statistics at the Victoria University of Wellington in New Zealand. He has an extensive research background working in the physical sciences in Latin America and Europe. His research areas include statistical computing and stochastic modelling, with strong interests in Signal, Image, and Network Analysis; Data Analysis and SAR imagery. He is currently Vice President of GRSS Publications and a Member of the GRSS Administration Committee.

3.2 Upcoming Training Opportunities

- The International Society for Photogrammetry and Remote Sensing (ISPRS) is hosting a workshop from 13 to 17 May 2024 in Changsha (China), co-organised by LASAC, with open invitation to PICTs for attendance. A meeting with PIAG members has been suggested as a possibility during the same week, which is something the PIAG is considering.

4 VISIONING – THE WAY FORWARD

- The PIAG Charter, scheduled to sunset in late 2024, continues to build momentum. Through the Engagement Strategy, PIAG has made substantial progress in communicating about GEO and EO applications. Moving forward, emerging collaborations aim to support opportunities for long term capacity building and EO-community building in the Pacific Islands.

Annex A – Outline of the PIAG Engagement Strategy

Goal: Support GEO Ministerial Summit Declaration, “Welcome new Members from the Pacific and other island nations to the GEO community, and recognise the significant capabilities they have to offer. Emphasise the importance of GEO being inclusive of these countries with their significant and increasing exposure to disaster risk, climate change and sustainable development challenges”, **in line with the priorities of the EO in the Pacific Talanoa Statement.**

PIAG TOR FUNCTION/DELIVERABLE	ACTIVITIES	OUTPUTS	OUTCOMES
<i>Objective, Action, Results, Outcomes</i>			
<p>SCOPE the EO needs and priorities of the Pacific</p> <p>CONSULT discuss needs, barriers, opportunities for engagement PICTs ↔ GEO</p> <p>CONNECT technical EO activities happening PICTs ↔ GEO</p> <p>ALIGN with relevant UN agendas</p> <p>ADVISE GEO governance on how to strengthen the links PICTs ↔ GEO</p>	<ul style="list-style-type: none"> Identify EO needs & end user priorities, connect to GEO WP Strengthen PICT-GEO engagement Promote PICT participation in activities to increase knowledge sharing, expertise and opportunities Promote UN Agenda alignment Advise EXCOM on strengthening GEO-PICT engagement 	<ul style="list-style-type: none"> Target GEO Work Program according to priorities Broker GEO member assistance to PICTs Establish a community of practice Increase GEO membership, engagement, participation Empower PICT leadership in GEO Technical training and development Increased knowledge transfer GEO ↔ PICTs Aligned activities GEO ↔ UN Agendas PIAG Strategy for long term PICT engagement in GEO 	<p>Support objectives of:</p> <ul style="list-style-type: none"> GEO Ministerial Summit Canberra Declaration 2019 Earth Observation in the Pacific Talanoa Statement 2019

Annex B – Current Membership of the PIAG

Organisation	Members
South Pacific Regional Engagement Programme (SPREP)	Vani Koroisamanunu
The Pacific Community (SPC) (Co-lead)	Andrick Lal, Sachindra Singh
The University of the South Pacific (USP)	Joeli Varo
Micronesia Conservation Trust	Tamara Greenstone Alefaio
Geoscience and Remote Sensing Society (GRSS), Australia	Tony Milne
United National Economic and Social Commission for Asia and the Pacific (UNESCAP)	Keran Wang, Mehmood
INSIGHT, New Caledonia (Co-lead)	Jean Massenet
LASAC China (Co-lead)	Fanghong Ye, Xinming Tang
Beihang University, China	Guifei Jing
University of Auckland	Delwyn Moller
Victoria University of Wellington	Alejandro C. Frery
Regional Climate Services, National Oceania and Atmospheric Association (NOAA)	John Marra
CSIRO, Australia (Co-lead)	Flora Kerblat
Geoscience Australia, Australia (Co-lead)	Megan McCabe, Megan Wiczorek, Rachel Horwood