

Pacific Geospatial and Surveying Council (PGSC)

Mr Vaipo Mataora, Chair - PGSC

Ms Meizyanne Hicks, Vice Chair - PGSC

Supported by: SPC Partnership Desk

Email: pgsc_desk@spc.int

<http://pgsc.gem.spc.int/>



Pacific
Community
Communauté
du Pacifique



What is the PGSC?

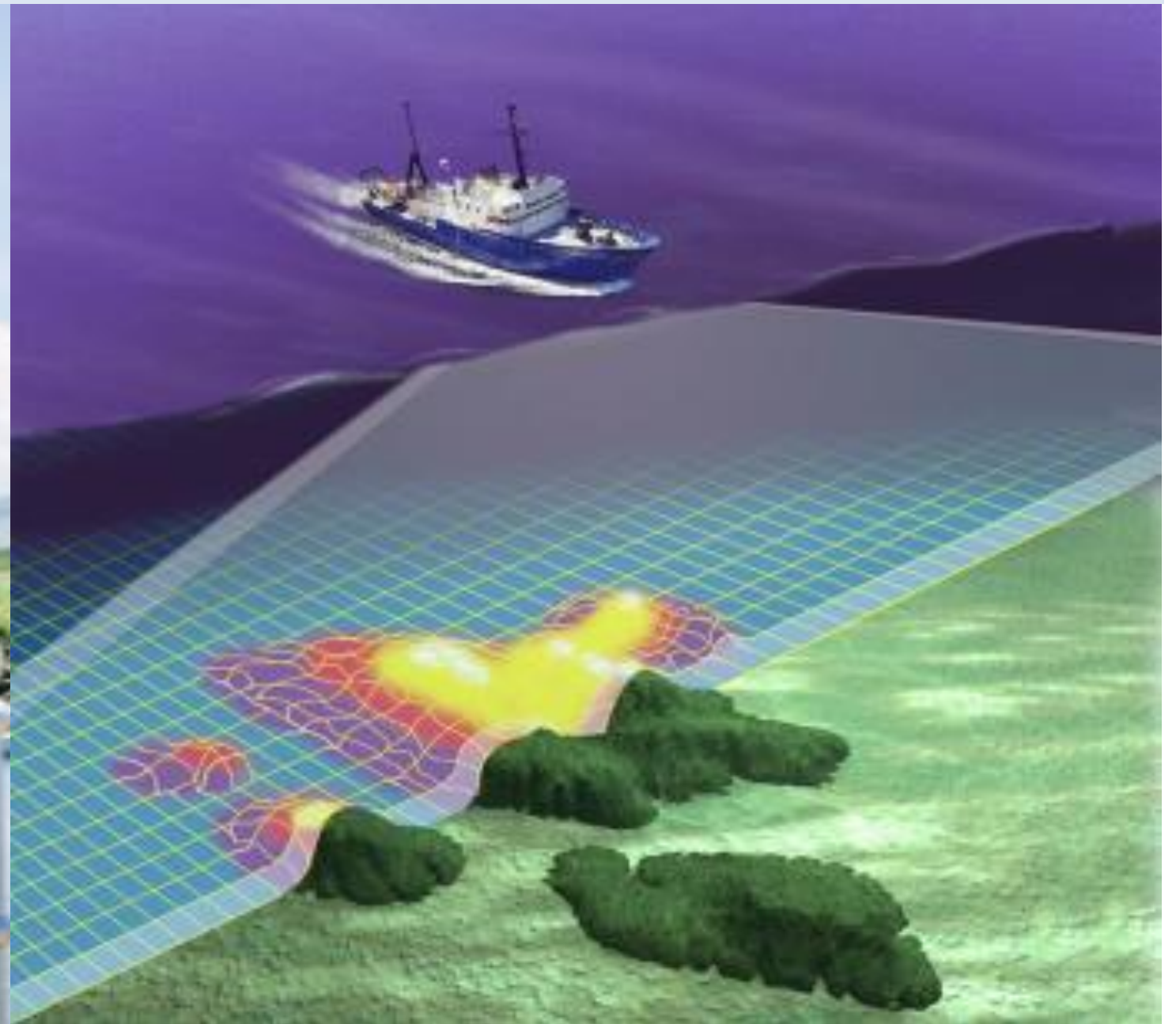
Pacific Geospatial & Surveying Council

- **Independent regional body** advancing geospatial and surveying standards and capacity
- Established in the margins of the Pacific GIS/RS User Conference in November 2014
- Governed by the **PGSC Charter**
- Implementing and monitoring progress against the **PGSC Strategy (2017-2027)**
- Supported by **PGSC Partnership Desk** (GEM Division of SPC)
- **Recognised** Nationally, Regionally and Globally



Vision

Sustainable development in the Pacific enabled by world class geospatial information and surveying services



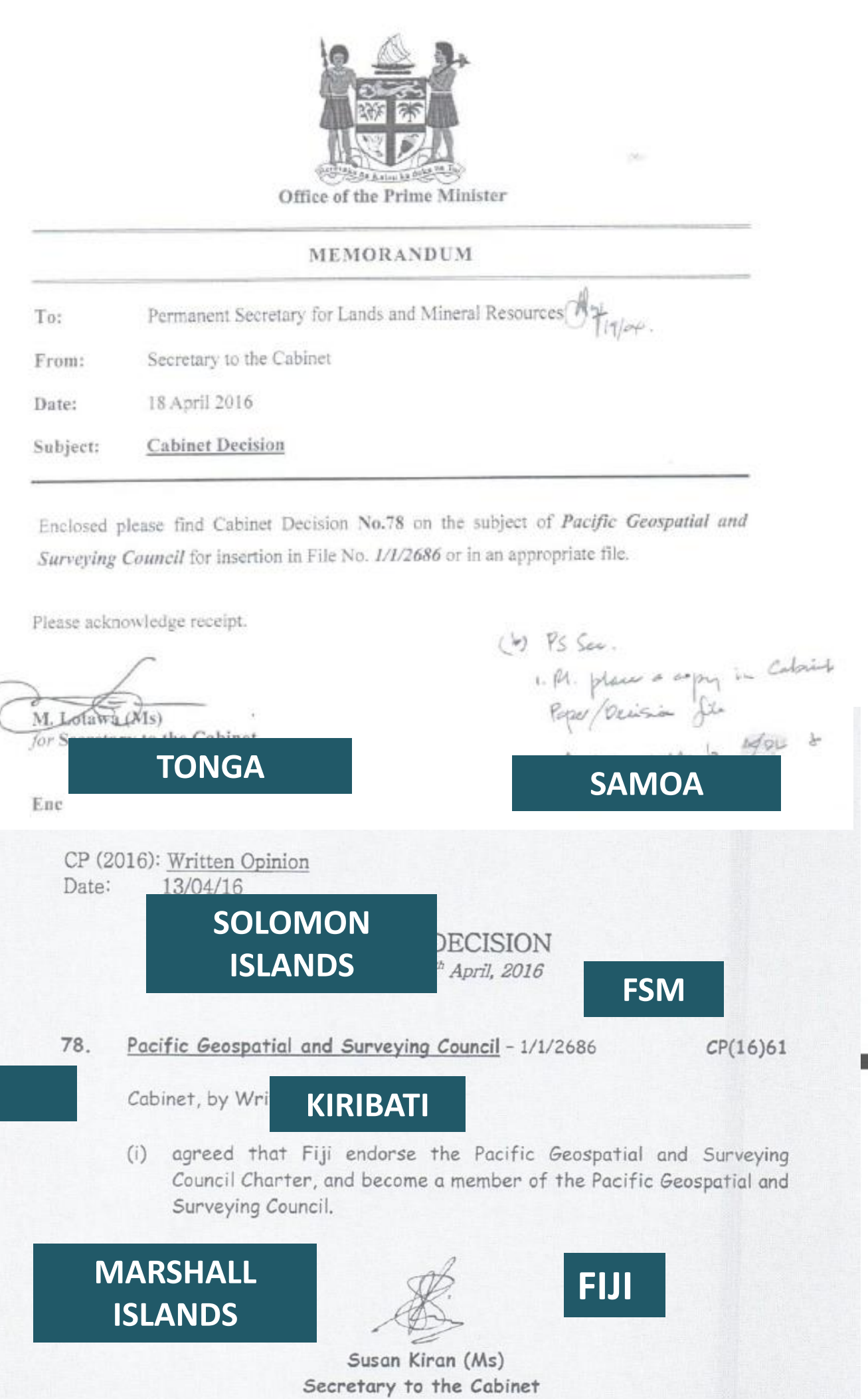
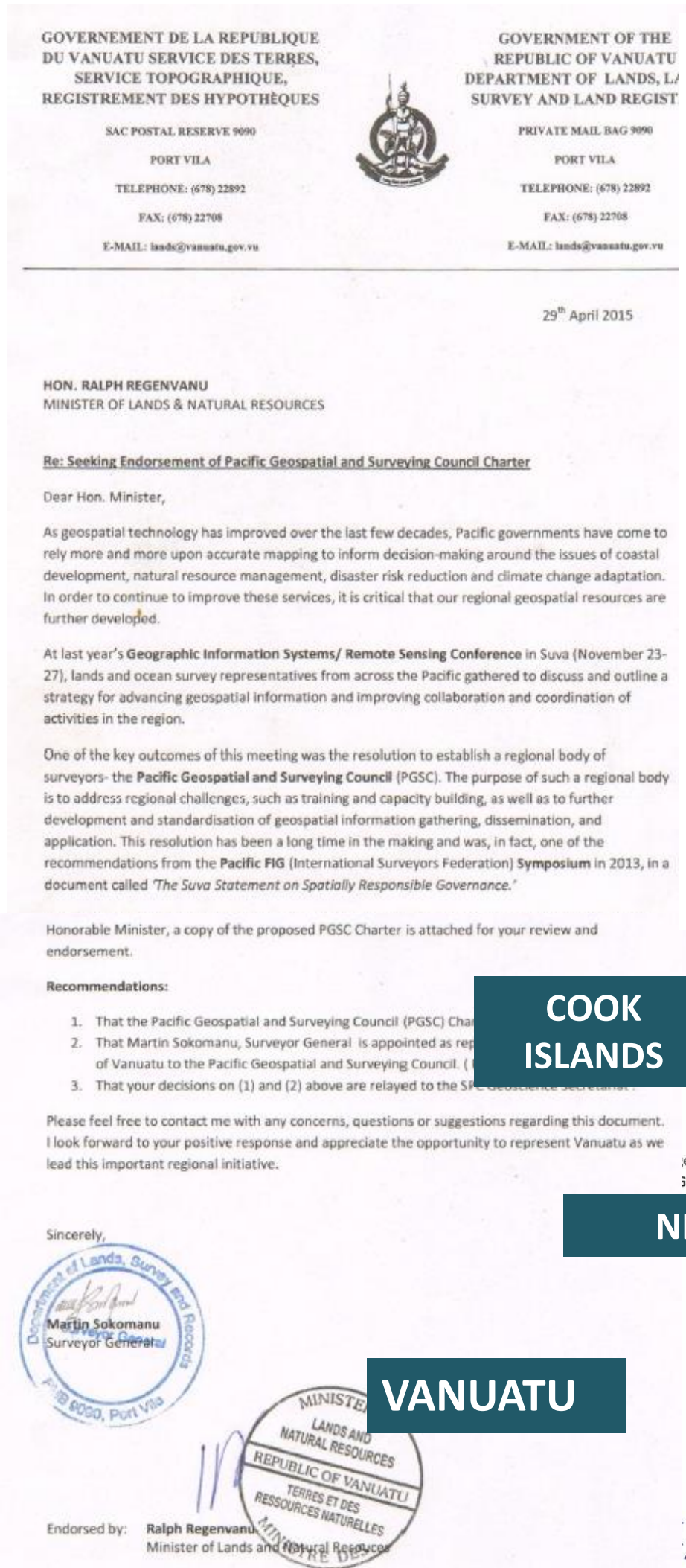
Mission

Pacific Island survey and geospatial services, including hazard mapping, urban planning, cadastre mapping, hydrography, and other geospatial requirements for sustainable development, are sufficiently resourced to respond to member country priorities.



PGSC Charter

- Drafted by committee in 2014 at inaugural PGSC meeting
- Endorsed by 11 Pacific Governments at Ministerial Level in 2015-2016
- Endorsed by Fiji at Cabinet Level in 2016
- PW, NR, PG & French Territories have shown interest after OGS: NC, PF



4th PGSC Meeting 2018 – Tonga



Chair Actg. CEO - Ministry of Lands and Natural Resources (Tonga)

Vice-Chair Ms Meizyanne Hicks, Director Geospatial - Ministry of Lands and Mineral Resources (Fiji)

5th PGSC Meeting 2020 – Virtual



The 5th Pacific Geospatial & Surveying Council Meeting

11-12 August 2020- Open Participation

- Formal opening
- Regional updates and emerging issues

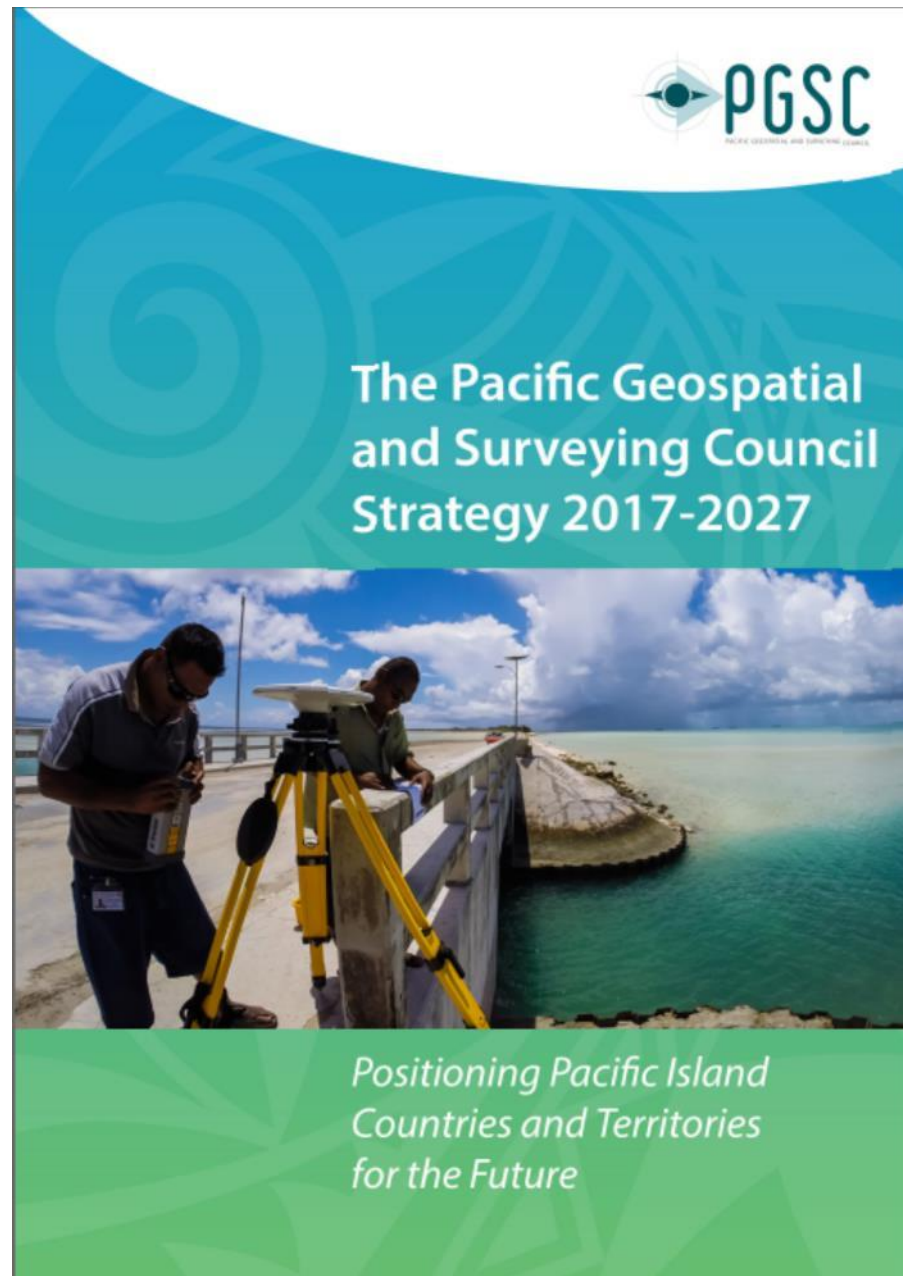
13-14 August 2020- Members Only

- PGSC business and governance

Invitations, agenda, and details to follow
Contact pgsc_desk@spc.int with queries



PGSC Strategy



The late Prime Minister, Hon. Samiuela 'Akilisi Pōhiva launched the world's first regional strategy for surveying & geospatial development on 10 April 2018 in Nuku'alofa, Tonga

Also pictured, the Australian High Commissioner, New Zealand High Commissioner, Japanese Consulate, UNGGIM, and the Pacific Community (PGSC Partnership Desk)

5th PGSC Meeting 2020 – Outcome Statement

Recognises the critical importance of the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM) Integrated Geospatial Information Framework (IGIF), and **support** the Council members in the operationalisation of the IGIF.

Encourages members to access the resources and tools of the UN-GGIM Secretariat for the IGIF and agree for the Council to establish a sub-regional collective modality for the IGIF to **support** the design, development and operationalisation of country action plans for the members.

Recognises the Moganshan Declaration “The Geospatial Way to a Better World” of 2018 and **adopts** the Talanoa Outcome Statement on Earth Observation Cooperation in the Pacific made on Tuesday 5th November 2019, Australia, during the Group on Earth Observations (GEO) Week 2019 in Canberra, Australia.

Encourages council members to become members of the GEO, and further **agrees** for the PGSC to be the collective regional voice for Earth Observations in the Pacific.

Recognises the United Nations Decade of Ocean Science for Sustainable Development (2021-2030) and encourage PGSC members to align the activities of geospatial and surveying to UN SDGs.

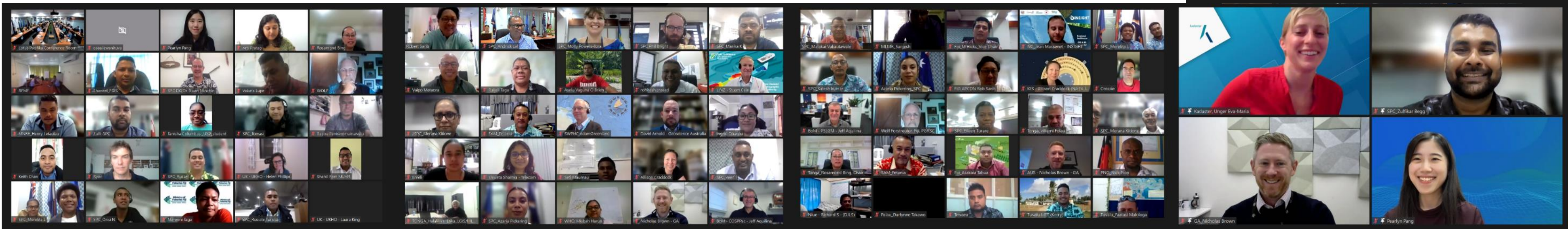
Recognises to commend the participation of the UN-GGIM, UN-GGIM AP, UN-GGIM ETCB, GA, FIG-APCDN, LINZ, SSSI, S+SNZ and NGS-NOAA for their support and resources available to PGSC.

Refer to [PGSC-5-Outcome-statement-and-declaration-Final-1.pdf \(spc.int\)](#)

PGSC Plenary Session 2022



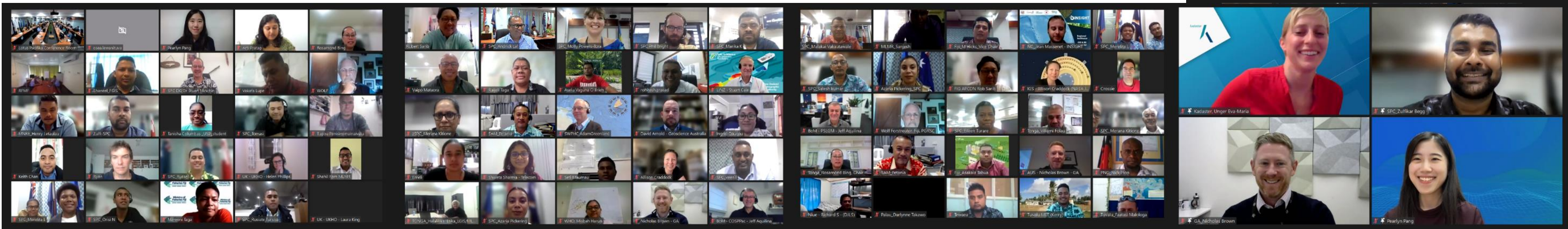
- PGSC Strategy (2017 – 2027)
- Pacific Geospatial Women Network
- PGSC Working Groups
- PGSC Support and the Partnership Desk
- UN-GGIM Integrated Geospatial Information Framework Country Action Plan
 - Fiji, Kiribati and Tonga



PGSC Plenary Session 2022



- PGSC Strategy (2017 – 2027)
- Pacific Geospatial Women Network
- PGSC Working Groups
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 - Fiji, Kiribati and Tonga



6th PGSC Meeting – Sydney Australia

PGSC Business Meeting (11th December 2023)

- Council Elections
- 5th PGSC Meeting Minutes
- PGSC Review of Charter
- Terms of reference: -
 - PGSC Women Network
 - PGSC Young Surveyors Geospatial Network
- PGSC Working Groups
- PIC Country Updates
- PGSC Action Items



6th PGSC Partners Meeting - 12th Dec 2023



Regional Updates

1. **SPC** Case study on Data Handling & Requirements
2. **SPC** Geospatial & Surveying Activities
3. **Bureau of Meteorology Australia** (COSPPac)
4. **GA** (Geoscience Australia)
5. **GCA** (Geospatial Council Australia)
6. **LINZ** (Land Information New Zealand)
7. **S+SNZ** (Survey and Spatial New Zealand)
8. **AHO** (Australia Hydrographic Office)
9. **SWPHC** (Southwest Pacific Hydrographic Commission)
10. **NIWA** (National Institute of Water & Atmospheric)
11. **GTEWS** (Global Navigation Satellite System Tsunami Early Warning Systems) – IUGG Initiatives
12. **Australian Consulting Surveyors Network**

Global Updates

13. **FIG AP CDN** (Asia Pacific Capacity Development Network)
14. **UN GGIM** (Working Group on Marine Geospatial Information)
15. **UN GGIM Sub-committee on Geodesy (SCoG)**
16. **NOAA** (National Oceanic and Atmospheric Administration)
17. **IGS** (International GNSS Service)
18. **IHO** (International Hydrographic Office)
19. **UN GGCE** (Global Geodetic Centre of Excellence)

Regional Initiatives

20. **Fugro**
21. **IIC Technologies**
22. **Land Equity International**
23. **Aaron Hicks** (under New Zealand Volunteer Scheme)

PGSC Working Groups

Positioning



Supporting countries to modernise their Geodetic Reference Frames and align to the Global model

Geospatial Policy & Data Management



Supporting countries to develop policies and tools for improved geospatial information and data management

Capacity Building



Supporting countries to build existing and future capacity through expanded professional development and educational opportunities

Strategic Partnerships

- **Donor** support from AU-DFAT, NZ-MFAT, UN-GGIM
- **Training and capacity support** from Geoscience Australia, LINZ, UN-GGIM-AP, FIG, UKHO, USP, UNOOSA, SPC
- **Equipment and infrastructure** support from GA, SPC
- **MoU** signed with S+SNZ (2018) and SSSI (2019)
- Links with key global and regional frameworks:
 - SDGs, UN-GGIM Roadmap, Sendai Framework, SAMOA Pathway, FRDP, FIG Suva Statement and Christchurch Declaration



Pacific and New Zealand surveying and geospatial professionals join forces for capacity development

10 Apr 2018 | NukuʻAlofa



MoU signed with S+SNZ April 2018



MoU signed with SSSI Aug 2019



Country Members

Countries:-	Name and Organisation:-	Responsible for:-
Cook Islands	- Mr Vaipo Mataora, Director	- Geospatial and Hydrography
Federated States of Micronesia	- Mr Carlson Diopulos, Director - Mr Alfred Lebehn, GIS Manager	- Surveying - Geospatial
Fiji Islands	- Ms Meizyanne Hicks, Director - Mr Asakaia Tabua, Surveyor General - Mr Jervis Robinson, Chief Hydrographer	- Geospatial - Surveying - Hydrography
Kiribati	- Mr Tioti Taaitee, Director - Mr Tion Uriam, Hydrographer	- Geospatial and Surveying - Hydrography
Marshall Islands	- Mr Scadrie Mijjena , Actg. Chief Surveyor - Mr Benedict Yamamura, Chief Coastal Fisheries	- Surveying - Geospatial
Niue	- Mr Richard Siataga, Division Head	- Geospatial and Surveying
Nauru	- Mr Peniasi Nakautoga, Director	- Surveying
Palau	- Ms Sterlina Gabriel, Director - Mr David Idip, Director	- Surveying - Geospatial
Papua New Guinea	- Mr Michael Gideon, Director - Mr Nicholas Pion, Senior Hydrographer	- Geospatial - Surveying
Samoa	- Mr Petania Tuala, Principal Surveyor - Ms Telesia Sila, Principal Mapping Officer	- Surveying - Geospatial
Solomon Islands	- Mr Jimmy Ikina, Surveyor General - Mr Perry Rukale, TO-Cartography	- Geospatial and Surveying - Hydrography
Tonga	- Mr Viliami Folau, Deputy CEO - Mr Taaniela Kula, Deputy CEO - Ms Halalilika Etika, Deputy CEO	- Surveying - Natural Resources - Geospatial
Tuvalu	- Mr Faatasi Malologa, Director	- Geospatial and Surveying
Vanuatu	- Mr Tony Kanas, Surveyor General - Mr Toney Tevi, Director	- Geospatial and Surveying - Hydrography

PGSC Partnership Desk - SPC

- Surveying and Geospatial
- Remote Sensing
- Drone Operations
- Maritime Boundaries
- Geology
- Hydrography
- Oceanography

- Law and Policy
- Stakeholder engagement
- Training
- Communications
- Procurement
- Management
- Advocacy
- Capacity Development
- Resource Development



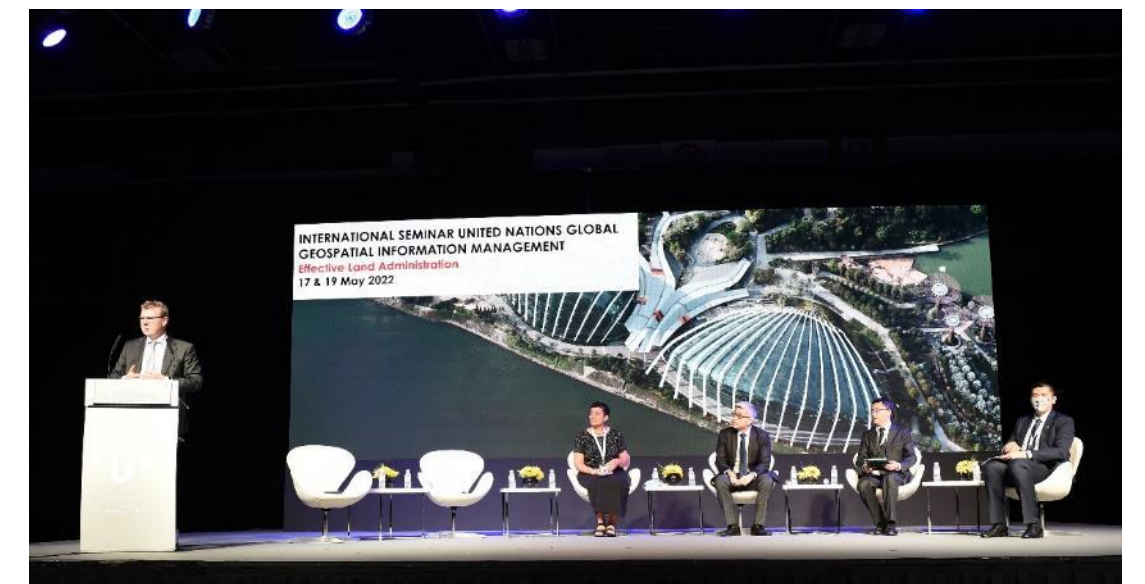
Pacific Geodetic Network
(GNSS CORS)



Pacific Geospatial Women Network
(PGWM)



PGSC Partnership Desk receives SPC
DG Award for Member
Collaboration Dec 2018



Partnership and Collaboration
National, Regional and International
UN-GGIM Workshop, Singapore 2022

Recent Activities

Tuvalu Geodetic Surveys - Nine (9) atolls (2016-2019)

GA donates GNSS equipment to PGSC Partnership Desk (2019)

Pre-campaign GNSS Operational Training for Fiji Lands (2019)

Survey team support for Fiji Geodetic Modernization Campaign (2019-2020) - Operational

GNSS Data Processing & Analysis – Tonga Survey Office (2019)

Virtual AUSPOS Training – Tuvalu Survey Team (2020)

Fiji Institute of Surveyors Website (2019)

Tuvalu Geodetic Surveys Data Processing, Analysis and Reporting (2020-2021)

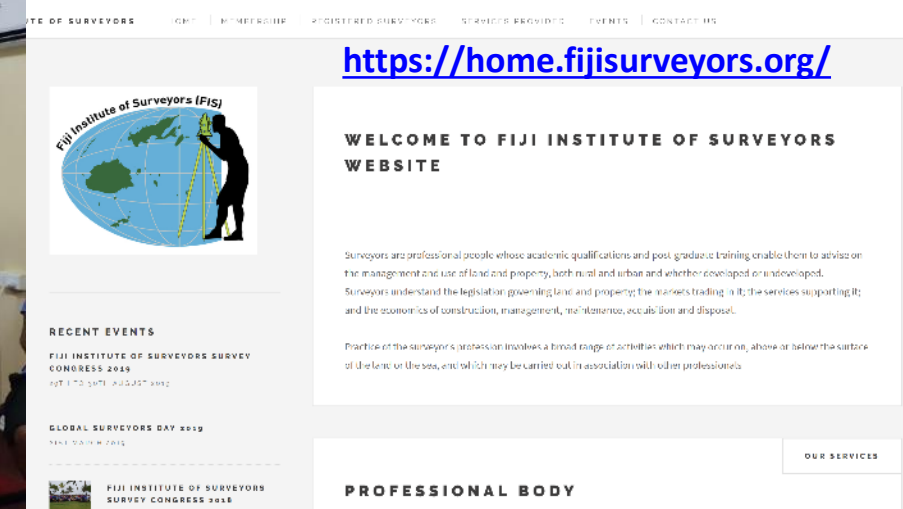
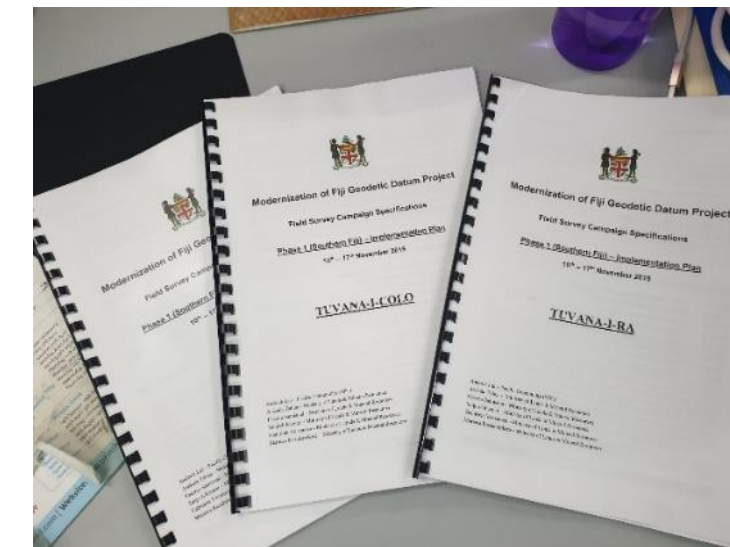
Fiji Geodetic Surveys Campaign Survey Data Compilation, Data Processing and Analysis (2020-2021)

Fiji Geodetic Datum Surveys Data Release (2022)

Tonga (Vava'u, Eua, Niuatoputapu) Geodetic Control Surveys – LiDAR (2022)

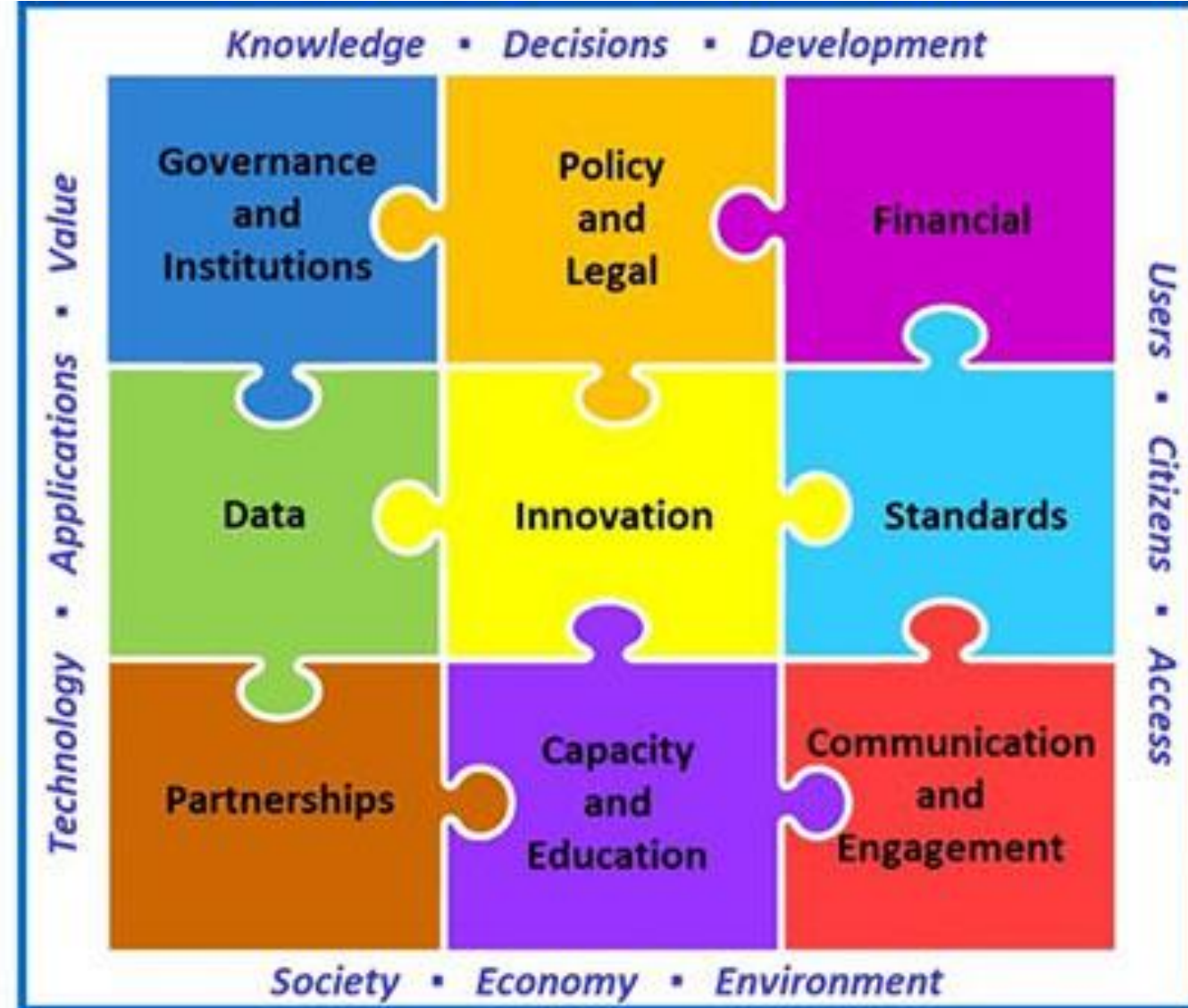
Vanuatu (Efate, Tanna, Malekula) Geodetic Control Surveys – LiDAR (2022)

Fiji Geospatial Reference System – ROADMAP October 2023





United Nations Committee of Experts on Global Geospatial Information Management



Sub-committee on Geodesy

Expert Group on Land Administration and Management

Expert Group on Marine Geospatial Information





United Nations Committee of Experts on Global Geospatial Information Management



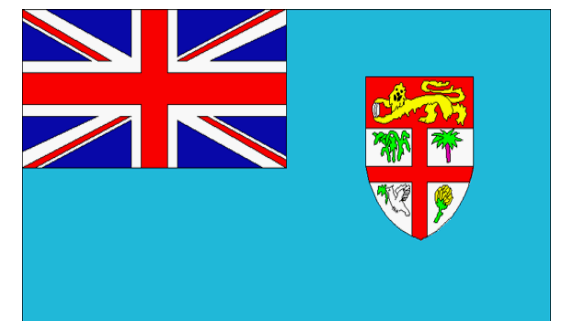
11TH TRANCHE DEVELOPMENT ACCOUNT PROJECT
STRENGTHENING GEOSPATIAL INFORMATION MANAGEMENT IN DEVELOPING COUNTRIES
TOWARDS IMPLEMENTING THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT
(PROJECT 1819D)

COUNTRY-LEVEL ACTION PLAN

ADDENDUM L

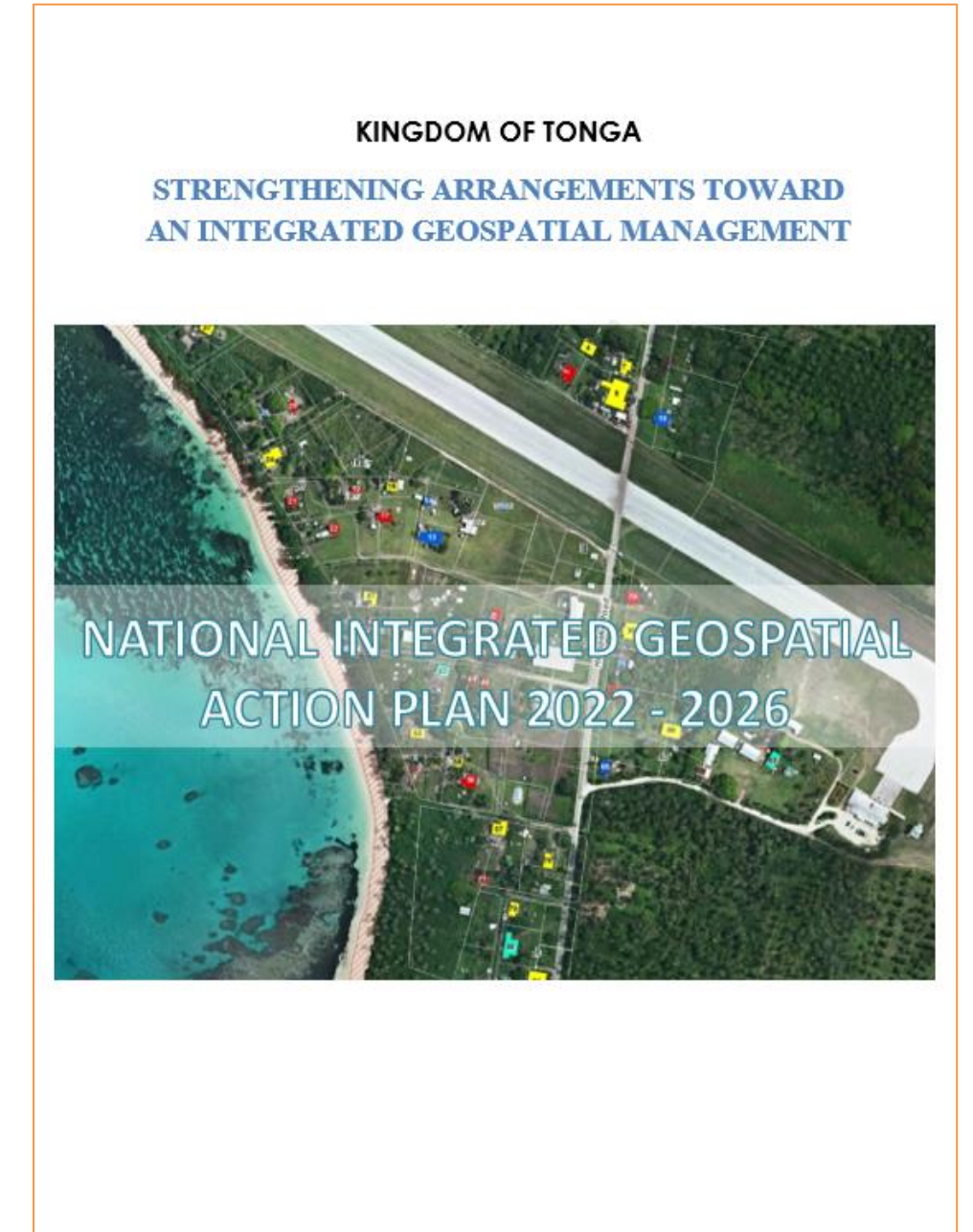
TOWARDS STRENGTHENING ARRANGEMENTS IN NATIONAL GEOSPATIAL
INFORMATION MANAGEMENT

[Republic of the Fiji Islands]





United Nations Committee of Experts on Global Geospatial Information Management





Kiribati and UN-GGIM IGIF



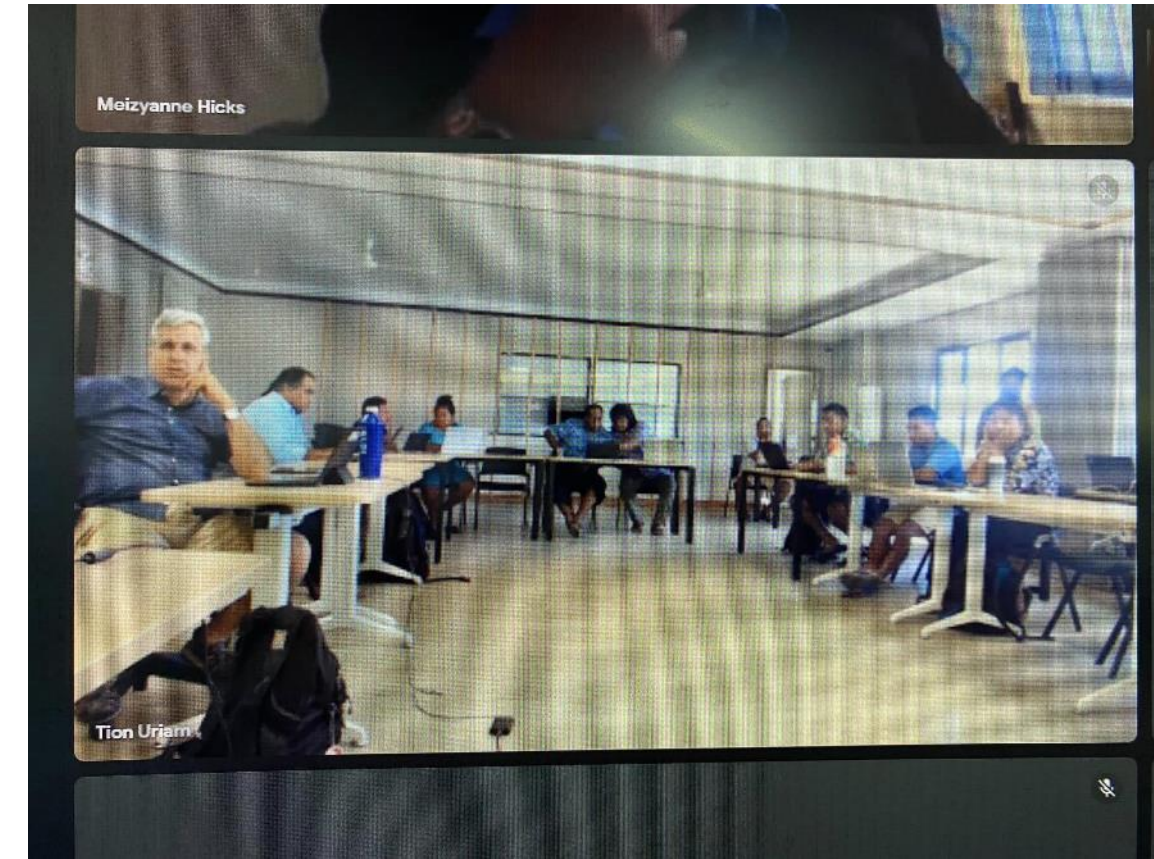
John Nyberg - NOAA Federal is presenting

Experiences

- ▶ Employing team members to work on the CAP
- ▶ Understanding what needs to be done
- ▶ Being determined
- ▶ Consultation with Stakeholders
- ▶ Approval from the highest level
- ▶ Sharing our journey with our friends in the Pacific region




Gather around a whiteboard
Brainstorm and work together like you're in the same room by using a Miro whiteboard without leaving Meet. No account required.

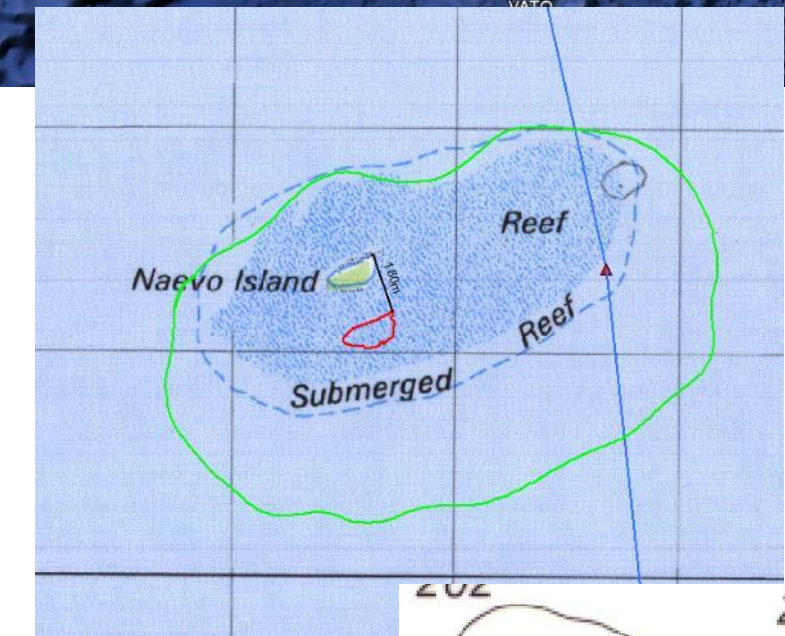
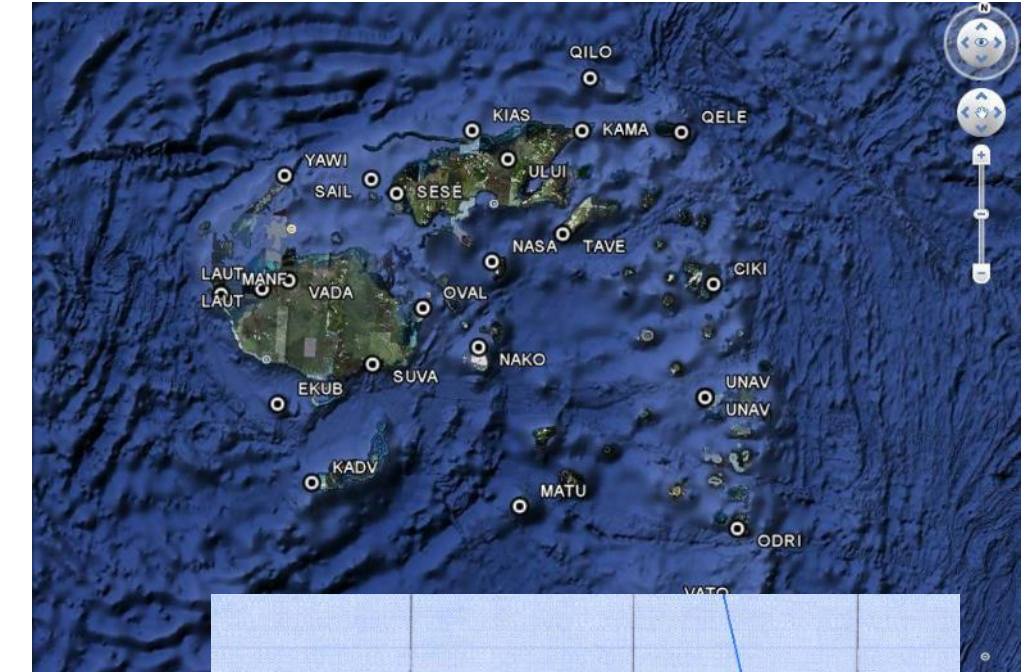


Pathway 4 - DATA

- 'Availability of High Quality Data is so critical for decision makers to understand where investments can have the greatest impacts' (Antonio Guterres, UN Secretary General).
- SDG Data Alliance supports to establishing National SDG Data Hub Platform: To enable monitoring of achievement of the SDGs by goal, target and indicators (Source: SDG Data Alliance).
- SDG Data Hub Solution Template is configured using ArcGIS Online that organizes people, Data and Tools to accomplish initiatives and goals.
- ESRI GIS Technology grant a professional packages for a country deployment (remoted/or on-site) included:
 - ◊ 2 ArcGIS Desktops Advanced Licenses - Non royalty Bearing Licenses
 - ◊ 1 ArcGIS Enterprise Advanced - Non royalty Bearing Server Roles
 - ◊ 5 ArcGIS Online Creator named users
 - ◊ 10,000 ArcGIS Online Service Credits
 - ◊ 2 Insights for ArcGIS
 - ◊ Access number of Global Data sets via ArcGIS Living Atlas
 - ◊ Capacity Building opportunities



Positioning



 FIJI GEODETIC DATUM 2019 - 2020 GNSS OCCUPATION REPORT

 STATION NAME: CEVA I RA
 4 CHARACTER ID: CEVA
 LOCATION: CEVA I RA I SLAND
 COUNTRY: FIJI
 TYPE OF SURVEY MARK: 20mmx1.220mm STEEL ROD ENCASED BY 30mmx0.5mm ALUMINIUM PIPE IN SITU IN CONCRETE.
 ORTHOMETRIC HEIGHT OF SURVEY MARK: _____
 (MEAN SEA LEVEL DATUM)
 OBSERVATION START DATE/DAY: 09/11/2019
 UTC TIME: 2257hrs
 OBSERVATION END DATE/DAY: 17/11/2019
 UTC TIME: 0007hrs
 GNSS RECEIVER TYPE: TRIMBLE

 MODEL: TRIMBLE R10
 SERIAL NUMBER: 5333441663
 FIRMWARE VERSION: 4.81

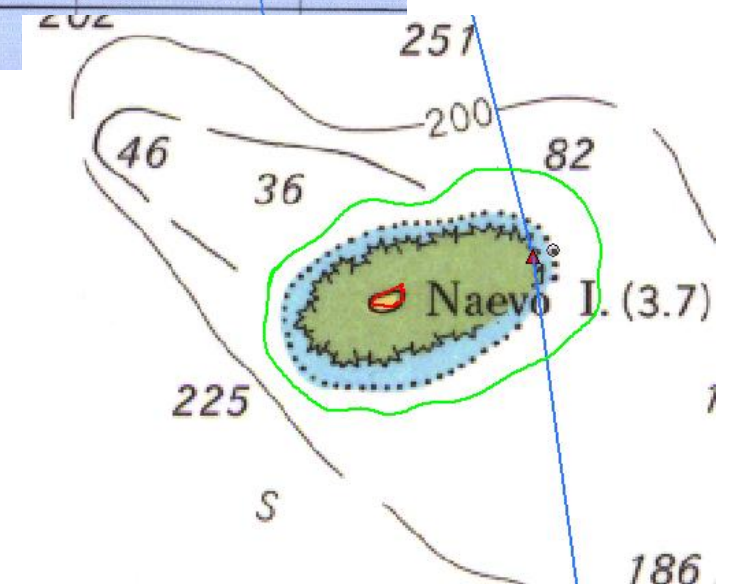
 GNSS ANTENNA TYPE: TRIMBLE

 MODEL: TRIMR10
 SERIAL NUMBER: 5333441663
 HEIGHT OF GNSS ANTENNA ABOVE STATION MARK: 1.643m
 (VERTICAL MEASUREMENT)
 DESCRIPTION OF THE POINT ON THE GNSS ANTENNA
 THAT THE ANTENNA HEIGHT REFERS TO:

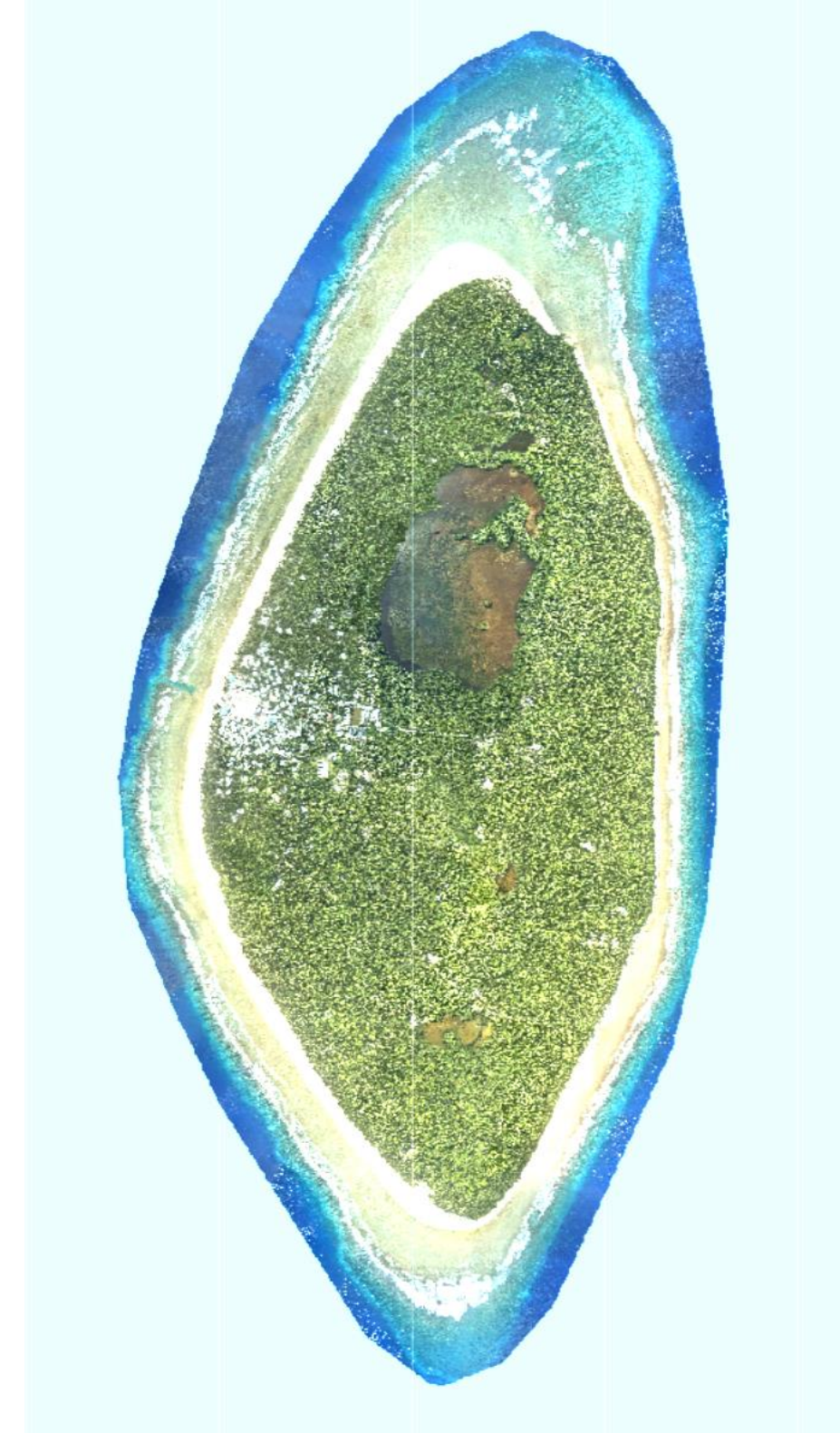
BOTTOM OF QUICK RELEASE

ANTENNA HEIGHT TO ARP - 1.692m

 ATTACH ADDITIONAL INFORMATION AND DIAGRAMS THAT MAY BE USEFUL FOR PERSONS
 PROCESSING THE DATA AND ANALYSING THE RESULTS.

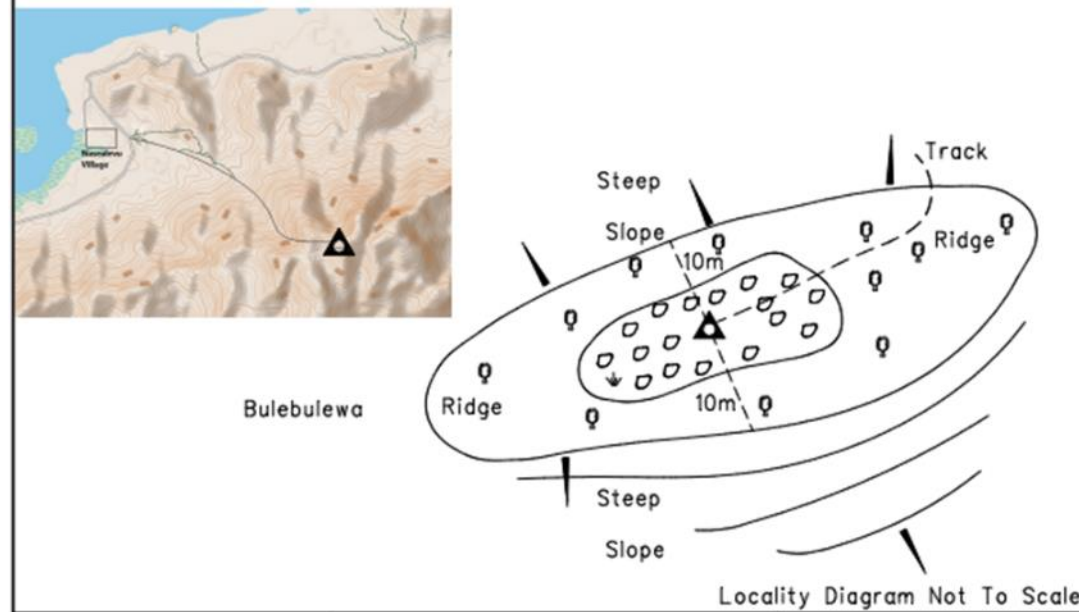


Geospatial

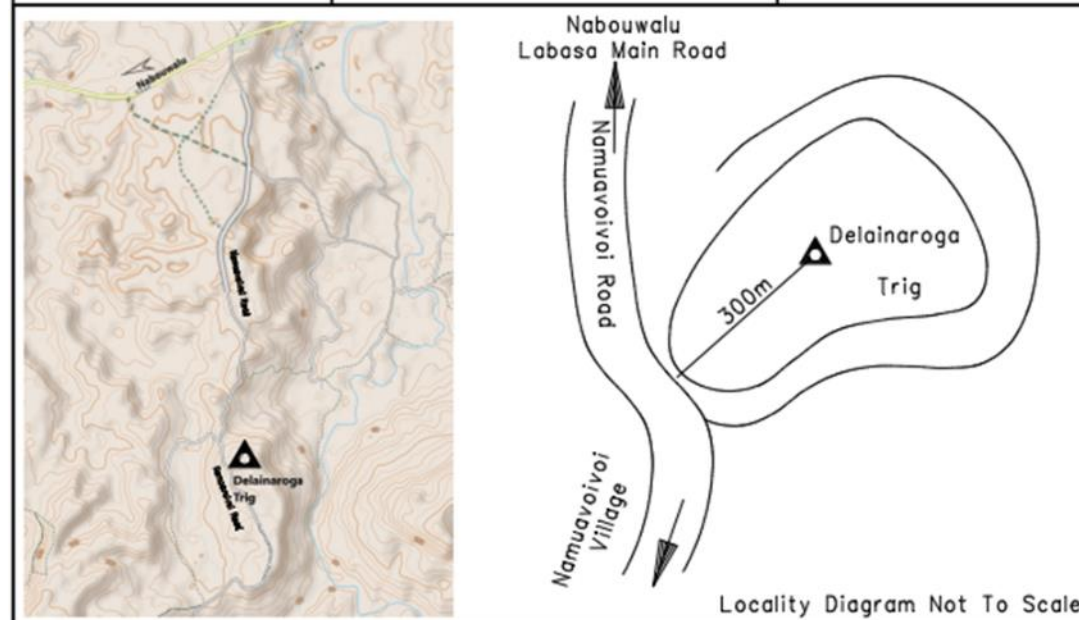


Geospatial Data Management

COUNTRY: FIJI ISLAND: VANUA LEVU PROVINCE: MACUATA	MINISTRY OF LANDS & MINERAL RESOURCE CONTROL SECTION	POINT ID: BULE DATE: 26-01-20 LDP: FJ133
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COUNTRY: FIJI ISLAND: VANUA LEVU PROVINCE: BUA	MINISTRY OF LANDS & MINERAL RESOURCE CONTROL SECTION	POINT ID: ROGA DATE: 26-01-20 LDP: FJ134
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Fiji Geodetic Stations Survey Campaign Metadata

Station ID	Station Name	Occupation Period	Interval	Receiver Type	Antenna Type	Rinex Version	Vertical Ht (m)	Rinex Height	Antenna Method	Firmware	Checked By	Field Operators
LAUT	Lautoka	Continuous	1sec	SEPT POLARX5	JAVRINGANT_DM	5.2.0			ARP			GA
SUV1	Suva	Continuous	1sec	Trimble NetR5	TRM55971.00	4.19			ARP			SPC
LABC	Labasa	Continuous	1sec	VNET10T-D	HI-TARGET AT-53501	3.02			ARP	CJ00		CONTROL
NABC	Nabouwalu	Continuous	1sec	HI-TARGET VNET10T-D	HITAT53501(HITS)	3.02			ARP	CJ00		CONTROL
TAVC	Taveuni	Continuous	1sec	HI-TARGET VNET10T-D	HITAT53501(HITS)	3.02			ARP	CJ00		CONTROL
KORC	Koro	Continuous	1sec	Leica GR50	Leica AR20	3.02			ARP	4.11.606		CONTROL
LAKC	Lakeba	Continuous	1sec	Leica GR50	Leica AR20	3.02			ARP	4.11.606		CONTROL
ONOC	Ono-i-Lau	Continuous	1sec	Leica GR50	Leica AR20	3.02			ARP	4.11.606		CONTROL
KADC	Kadavu	Continuous	1sec	Leica GR50								
ROTC	Rotuma	Continuous	1sec	Leica GR51								
CEVA	Ceva-i-ra	7 DAYS	1sec	TRIMBLE R10								
BUKE	Delainabukelevu (Kadavu)	7 DAYS	30sec	TRIMBLE NET R9								
NAKO	Nakorowaro (Gau)	7 DAYS	30sec	LEICA GS10								
OALA	Korokoli (Moala)	7 DAYS	10sec	LEICA GPS 1200								
UNAV	Lakeba(GPS - Yadrana)	7 DAYS	1sec	LEICA GS16								
CIKI	Cikobia-i-lau	7 DAYS	15sec	LEICA GS10								
LULU	Cokalulu (Cicia)	7 DAYS	10sec	TRIMBLE NET R9								
MTKU	Matuku	7 DAYS	30sec	LEICA GPS 1200								
OGEA	Ogea Driki	7 DAYS	30sec	LEICA GPS 1200								
VATO	Vatoa	7 DAYS	30sec	LEICA GPS 1200								

Station ID	Start time	Duration	Campaign	File Name	RINEX Version	Ant Height	Ant Method	Ant Manufacturer	
CEVA	10/11/19 1200hrs UTC	7days	Phase 1	16633153.19o 16633133.19o 16633140.19o 16633201.19o	3.02	1.692	BQR	Trimble	1
BUKE	10/11/19 1200hrs UTC	7days	Phase 1	42703140.19o 42703150.19o 42703160.19o 42703170.19o 42703180.19o 42703190.19o 42703200.19o	3.02	1.934	BON	Trimble	1 2 2
NAKO	10/11/19 1200hrs UTC	7days	Phase 1	NAKO3140.19o	3.02	1.625	Hook Height	Leica	L
OALA	10/11/19 1200hrs UTC	7days	Phase 1	MOAL3130.19o	2.11	1.764	Hook Height	Leica	L
UNAV	10/11/19 1200hrs UTC	7days	Phase 1	UNAV3140.19o UNAV3130.19o	3.02	1.74	Hook Height	Leica	L
CIKI	10/11/19 1200hrs UTC	7days	Phase 1	CIKI3130.19o	3.02	1.693	Hook Height	Leica	L
LULU	10/11/19 1200hrs UTC	7days	Phase 1	LULU.19o	3.02	1.707	BON	Trimble	1 2 2
MTKU	10/11/19 1200hrs UTC	7days	Phase 1	MATU3130.19o	2.11	1.623	Hook Height	Leica	L
OGEA	10/11/19 1200hrs UTC	7days	Phase 1	OGEA3130.19o	2.11	1.545	Hook Height	Leica	L

Capacity Building



Communications & Community



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Mapping our Pacific Geospatial Future

Suva | 21 June 2022 | [Twitter](#) [LinkedIn](#) [Facebook](#)



Pacific Geospatial and Surveying Council
Public group · 1.3K members

<https://www.facebook.com/groups/3998884766792177/>

Ministry of Lands and Mineral Resources
November 9 at 8:15 AM · [View post](#)

Leading up to the 2022 GIS Day on 16th November, the Geospatial Information Management team attended the breakfast show that aired live this morning. The theme ... See more

850 post reach >

Celine Becker, Jeff Aquilina and 42 others · 2 Shares

Like Comment Share

Write a public comment...

Imagine a world without maps. It's hard to do. Humans are born map-makers, instinctively looking for landmarks, making sense of patterns, and forming connections when we venture beyond our known environment.

For this reason, geospatial science may be one of the most important fields of study you have ever heard of. Geospatial information is location information. At its simplest, this can be topographical information found on a map. But you can also add in layers of location-tagged data, to show changes or trends, for example, in land use, population density, vaccine distribution, or coral reef health over time.

Feature

modernisation programs to CAPs, there are also other initiatives that will require assistance, such as:

- Revision of legislation of the Native Lands Act, and relevant Survey legislation to align with Trench's IGIP and CAP aspirations, and
- Upgrading of Trench's Navigation Charts, to assist commercial shipping and cruise liners to navigate Trench's waters safely, thus improve the trade and tourism industry, once the COVID-19 influence have subsided.

Embracing challenges through Partnerships, Pacific Geospatial & Surveying Council (PGSC) and the Pacific Community (SPC)
By Anvick Lal, Senior Geospatial Surveyor

In November 2014, a group of Pacific regional surveying and geospatial experts met in the margins of the annual Pacific Geospatial Information Systems and Remote Sensing (GIBRS) User Conference in Suva, Fiji. It was at this meeting that the PGSC was first envisaged and a charter governing its mission and objectives was developed. In addition, the Pacific Community (SPC) established the Pacific Geospatial and Surveying Partnership Desk to provide secretarial services and support the PGSC in achieving its goals and objectives.

Today, the PGSC is an independent regional advisory body that provides a forum for Pacific Island geospatial information and survey authorities to discuss and address regional challenges. The PGSC aims to collaborate with regional and international organisations, associations, educational institutions and technical groups to support progress on national, regional and global development objectives for sustainable development in the Pacific enabled by geospatial information and surveying services.

The 14 country members of the PGSC subscribe that geospatial information underpins the majority of economic and sustainable development activities in the world today. The services provided by Pacific Island geospatial scientists and surveyors contribute to the security and well-being of Pacific people, supporting numerous industries and sectors. These include: natural resource management, civil engineering, climate change adaptation, disaster risk reduction, transport, land ownership, health, and agriculture, to name a few.

The SPC is the principal scientific and technical organisation in the Pacific region, providing supporting development since 1947. From a geospatial modernisation perspective, the SPC Geospatial Survey Team delivers professional advice and services to the PGSCs. This primarily involves provision of instrumentations, remote technical guidance or support on numerous field survey operations or techniques, processing and management of geospatial data, geospatial data and positioning matters, GNSS base stations, GNSS measurements for survey control, monitoring, calibration or geospatial activities, and precision levelling monitoring surveys, including assisting with tide gauge measurements for the Pacific Sea Level & Monitoring Project in the Pacific.

Partnerships are critical to the successful implementation of the Pacific Geospatial and Surveying Council Strategy 2017-2027. The responsibilities of regional surveyors and geospatial managers frequently correspond to broader initiatives, which all contribute toward achievement of United Nations Sustainable Development Goals. The PGSC relies upon collaboration, and is an important contributor towards sustaining a GIBRS and global efforts to improve positioning and geospatial information management.

The goals of the PGSC, the Partnership Desk and SPC are focused on:

- Positioning
- Geospatial Policy & Data Management
- Capacity Building

Since 2014 the PGSC, Partnership Desk, SPC and development partners such as:

Modern Geodetic Infrastructure - Key to Consistency and Efficiency
By Sanjesh Kumar, Senior Surveyor, Anakoa Tabua, Surveyor General Fiji

Fiji is highly vulnerable in natural disasters such as cyclones, coastal inundation and flooding due to climate change; and subsequent sea level rise. These natural events affect the food security, livelihoods, infrastructure, health, housing and livelihoods of more than 800,000 Fijians. It is therefore critical for Fiji to mitigate the influence of natural disasters and climate change. Surveyors can alleviate this impact by applying their skills to disaster preparedness, building resilience, quantifying the environmental and social changes, and providing qualitative analysis. The keys to monitoring and measuring such changes include: high resolution and accurate geospatial data and information. Underpinning these activities, Fiji recognised the need and importance of a consistent, comprehensive and modernised geodetic reference frame, and positioning network.

Recently in August 2020, the 14th Pacific Geospatial and Surveying Council (PGSC) meeting was held virtually from the 11th to 14th and 25th August 2020, and was hosted by the SPC in Suva, Fiji. There were about 200 attendees each day, to participate in virtual panel discussions on presentations from international experts, regional partners and PGSC members. The meeting, like previous ones, was an opportunity for the PGSC members and partners to report, collaborate and plan on leadership, standards and technology, sustainability, and capacity development, in line with the PGSC Strategy 2017-2027. Please refer to the article regarding this meeting Pacific calls for Integrated Geospatial Information Management, and for meeting proceedings.

Identified the actions required to migrate from a local datum to a GIBRS, such as the International Terrestrial Reference Frame (ITRF). Presently, the ITRF, and/or its subset Asia Pacific Reference Frame (APRF), is the datum adopted by many PGSCs to realise their national geodetic datum, primarily because of its reliability, accuracy and accessibility. As such, Fiji's Cabinet Memorandum - "Modernising Fiji's Geodetic Datum" was strategically aligned to the 2019 UN General Assembly Resolution on the GIBRS in August 2019. This mandate is realising their geodetic datum, also set the roadmap for the integration, interoperability and management of geospatial information and systems at the local, national, regional and global level.

Prior to modernisation, Fiji's geodetic datum was based on the World Geodetic System 1972 (WGS82) and comprised of a network of triangulation and trilateration observations, which interconnected the main and outermost islands. The adjustment and propagation of coordinates for the datum were significantly impacted by survey inconsistencies and produced survey uncertainties in the order of several decimetres. Despite this, WGS82 met Fiji's needs for a period of time, however today this reference frame is no longer widely the requirements of modern-day geospatial demands and applications, such as real-time positioning, and autonomous vehicles. Also, with the advent of accurate geospatial data being readily available, rapid technological changes, geospatial trends and digital disruption, the management of the data is more complex and challenging. With this in mind, the Fiji government saw the establishment of a modern geodetic infrastructure and datum in pathways to bridging the gap. The government also acknowledged the necessity to build the capacity and capabilities of its people to ensure a sustainable geodetic reference frame for the future.

Initially, datum modernisation started with the construction of eight (8) GNSS CORS across Fiji. These stations complemented two (2) GNSS CORS managed by Geoscience Australia and the SPC. Soon after the construction of the GNSS CORS, survey teams were

deployed to carry out reconnaissance and identification of existing 'passive' geodetic control stations (GCS), that would be connected to the GNSS CORS, and form the fiducial observations for the geodetic network adjustment.

In order for this geodetic field campaign to be successful, collaboration and assistance with the Fiji Hydrographic Office, Fiji Navy, SPC, PGSC and Partnership Desk was necessary. The campaign involved more than 500 survey personnel and included a three-day workshop in the operation of GNSS survey equipment. This training and capacity building for the survey personnel was facilitated by the SPC and Partnership Desk in October 2019.

The field campaign involved the occupation of 1st GNSS with GNSS receivers, and was divided into three (3) phases. The GNSS were occupied continuously for 7 days, and each phase was completed in November 2019, December 2019 and February 2020 respectively. A number of these GNSS occupied were existing Doppler stations, and first order topographic stations, which were originally observed in the early 1980s. Observations on first order topographic stations were primarily on the islands of Viti Levu and Vanua Levu, as well as the Maritime Islands. Other observations were taken in selected parks, and standard survey marks in major towns and cities.

A substantial amount of the GNSS survey data acquired during the field survey campaign will be used to calculate the position of Fiji's existing geodetic system and the determination of a new geodetic datum aligned to the ITRF / APRF. The GNSS data will subsequently be integrated with the Pacific GNSS CORS Network for the computation of the new transformation parameters, and be the primary network adjustment of Fiji.

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