



# *Capacity Development in the Pacific Region*

**Pacific Geospatial & Surveying Council**

**SPC Partnership Desk**

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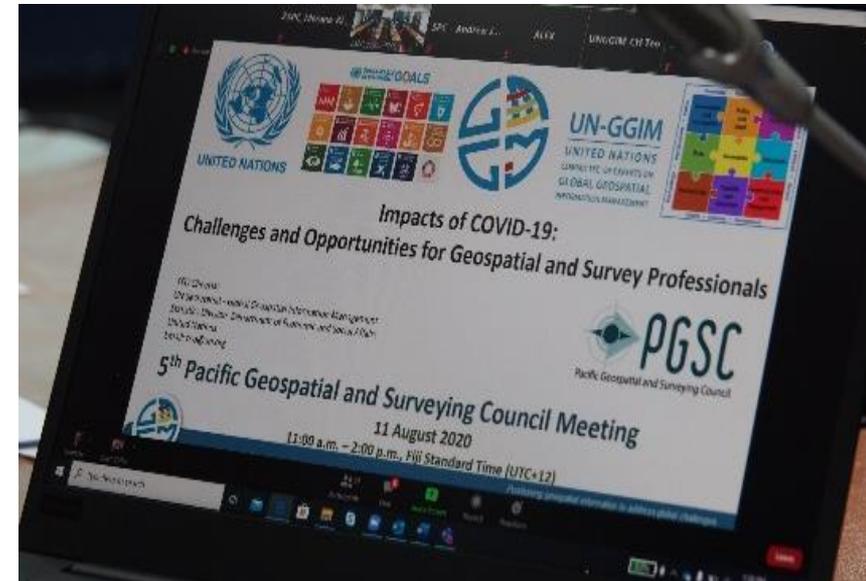
Pacific  
Community  
Communauté  
du Pacifique

# What is the PGSC?

## Pacific Geospatial and 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** endorsed by 11 Pacific Island governments
- Implementing and monitoring progress against the **PGSC Strategy (2017-2027)**
- Supported by **PGSC Partnership Desk – Pacific Community (SPC)**

The Pacific Geospatial and Surveying Council and the Partnership Desk brings together regional experts, practitioners, and heads of surveying, geospatial information management, and hydrography to report progress against the PGSC Strategy (2017–2027), conduct council business, identify key actions for working groups to progress, and provide a platform to raise regional issues and concerns related to geospatial and surveying capacity development, policy, technical standards, technology, and resourcing.



# Pacific Geospatial and Surveying Council



**Chair Ms Rosamond Bing, CEO - Ministry of Lands and Natural Resources (Tonga)**

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



# 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

- Support from AU-DFAT, NZ-MFAT, UN-GGIM.
- **Training and capacity support** from Geoscience Australia, LINZ, UN-GGIM, FIG, UKHO, USP, UNOOSA, NOAA, 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 | Nukuʻaloʻa



MoU signed with S+SNZ April 2018



MoU signed with SSSi Aug 2019



# Global Geodetic Reference Frame

## The UN-GGIM Roadmap...

In February 2015 the UN General Assembly adopted the resolution “A Global Geodetic Reference Frame for Sustainable Development” - the first resolution recognizing the importance of a globally-coordinated approach to geodesy.

## As per UN Resolution A/69/L.53

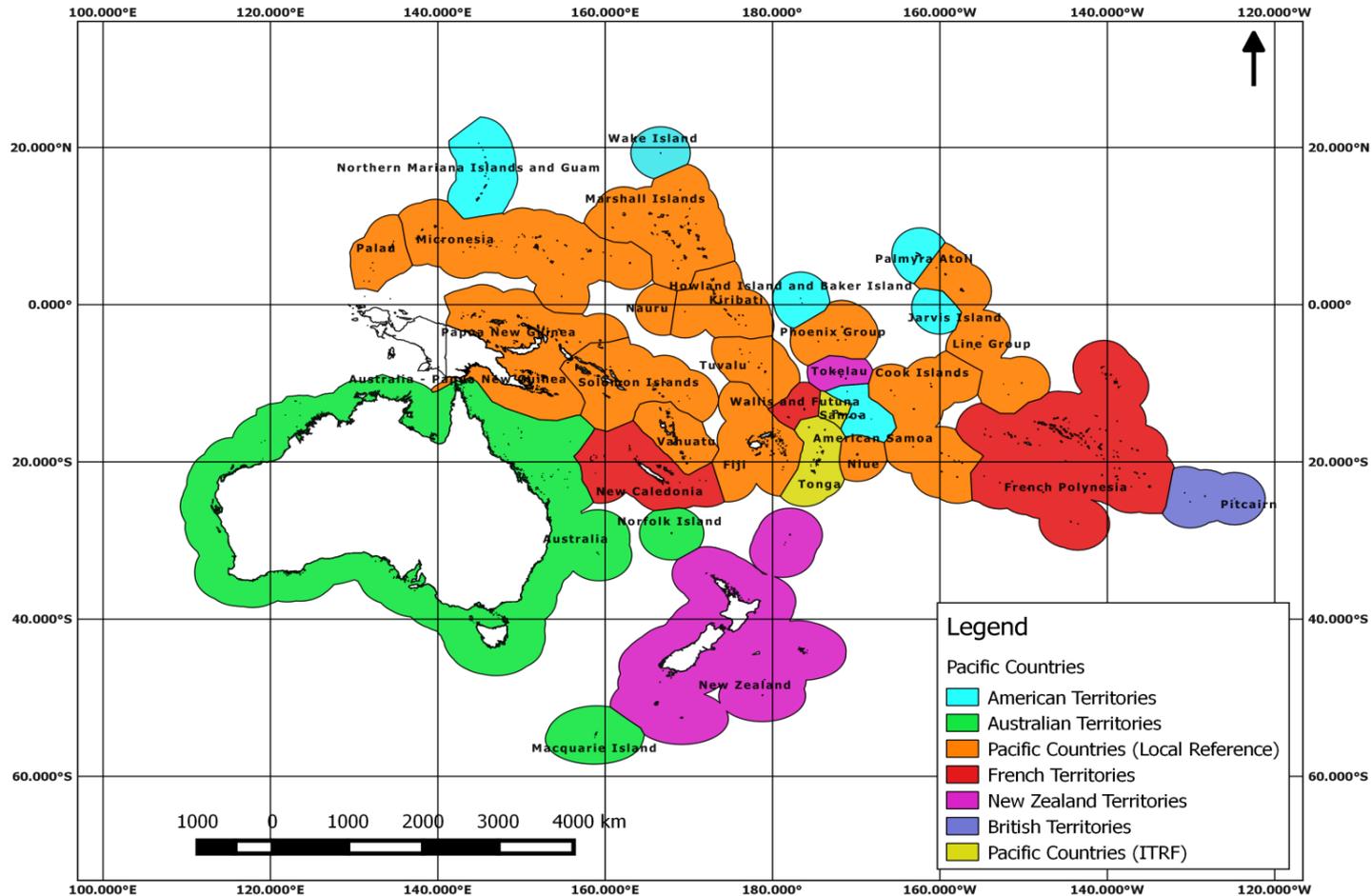
In the Pacific...Australia, Fiji, New Zealand, Papua New Guinea, Samoa, Solomon Islands, Tuvalu, Vanuatu



**UN-GGIM**  
 UNITED NATIONS INITIATIVE ON  
 GLOBAL GEOSPATIAL  
 INFORMATION MANAGEMENT

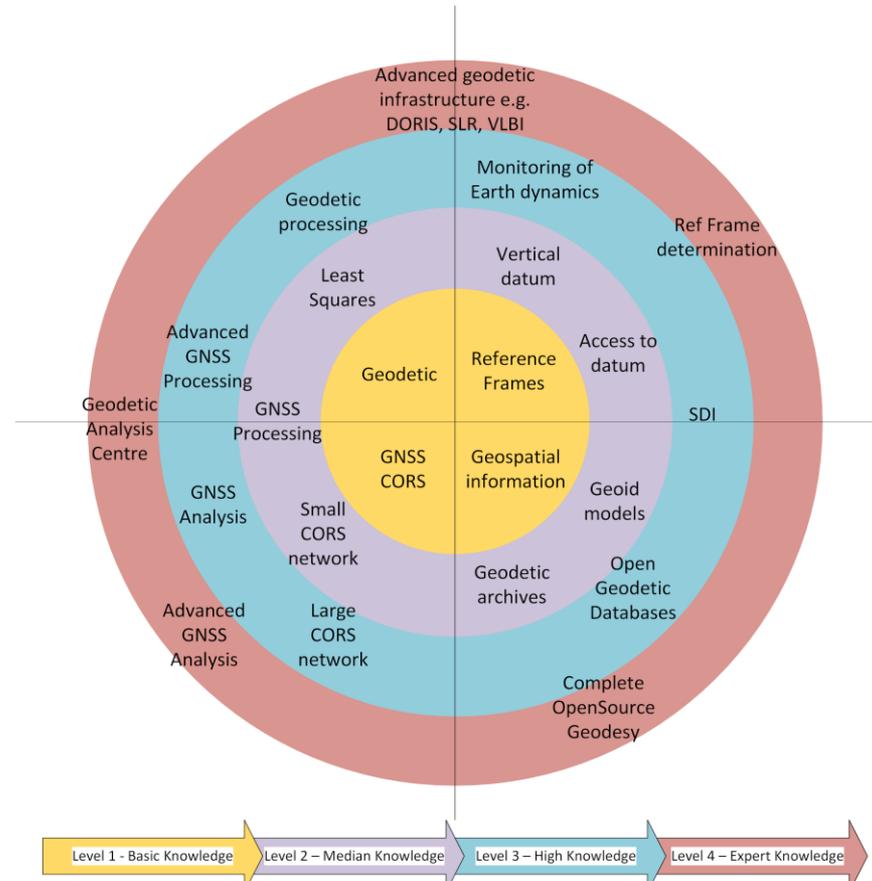


# Geodetic Reference Frame - Pacific



# Geodetic Reference Frame - Pacific

- Modernise Geodetic Reference Frame
- Define the geodetic infrastructure aligned to Global Geodetic Reference Frame (GGRF)
- Compatible with IGS and positioning technology
- Near real time positioning for disaster risks and hazards
- Monitoring Earth dynamics
- Enhance geospatial capacity and capability





## Pacific Sea Level & Geodetic Monitoring Project

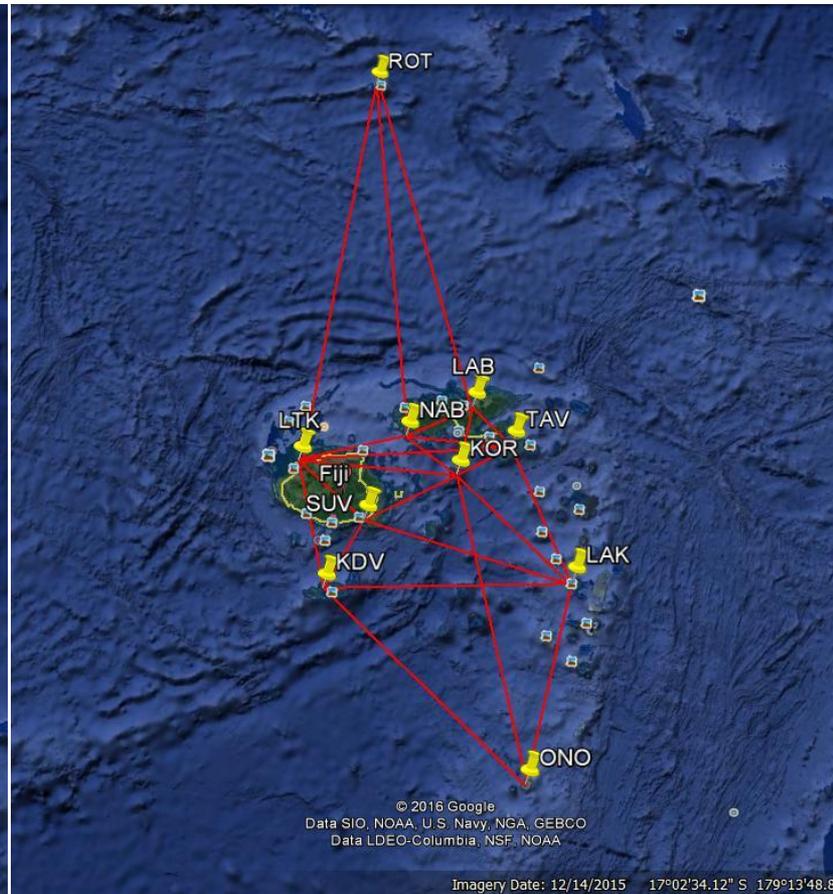


**GNSS COR Station**

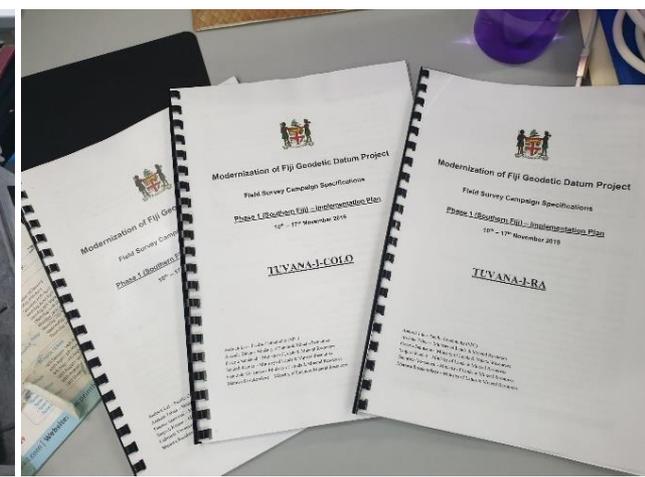


**Tide Gauge Station**

# The Geodetic Infrastructure



# Geodetic Networks – National & Local

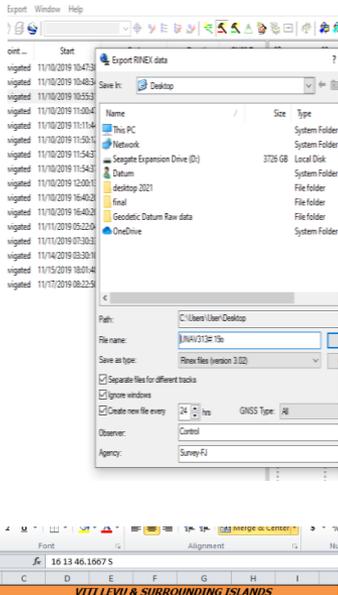


# Geodetic Survey Operation Training & Skills

# Geodetic Survey Data & Info Handling Capacity

- **Data Storage Capacity**
- **Data Downloading**
- **Data Conversion**
- **Data format & structure**
- **GNSS Survey Data Occupation Summary**
- **Locality Diagrams**
- **Field Survey Sheets**
- **Data Sources (old survey info)**
- **Check and verify meta data**

# Geodetic Survey Data & Info Handling Capacity



COUNTRY: FIJI ISLAND: VANUA LEVU PROVINCE: MACUATA	MINISTRY OF LANDS & MINERAL RESOURCES CONTROL SECTION	POINT ID: BULE DATE: 26-01-20 LDP: FJ133
<p>Locality Diagram Not To Scale</p>		
COUNTRY: FIJI ISLAND: VANUA LEVU PROVINCE: BUA	MINISTRY OF LANDS & MINERAL RESOURCES CONTROL SECTION	POINT ID: ROGA DATE: 26-01-20 LDP: FJ134
<p>Locality Diagram Not To Scale</p>		

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: TRM10  
SERIAL NUMBER: 5333441663

HEIGHT OF GNSS ANTENNA ABOVE STATION MARK: 1.643m  
(VERTICAL MEASUREMENT)

DESCRIPTION OF THE POINT ON THE GNSS ANTENNA

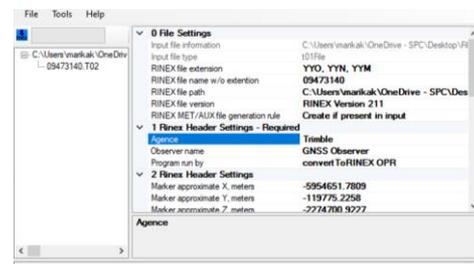
THAT THE ANTENNA HEIGHT REFERS TO:

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.

Station ID	Station Name	Occupation Period	Receiver	Antenna Type	Antenna Height (m)	Vertical Inflation (m)	Antenna Offset (m)	Remarks	Checked by	Field Operations
001	Bulelevu	09/11/2019	TRIMBLE	TRM10	1.643	0.00	0.00			
002	Roga	17/11/2019	TRIMBLE	TRM10	1.692	0.00	0.00			

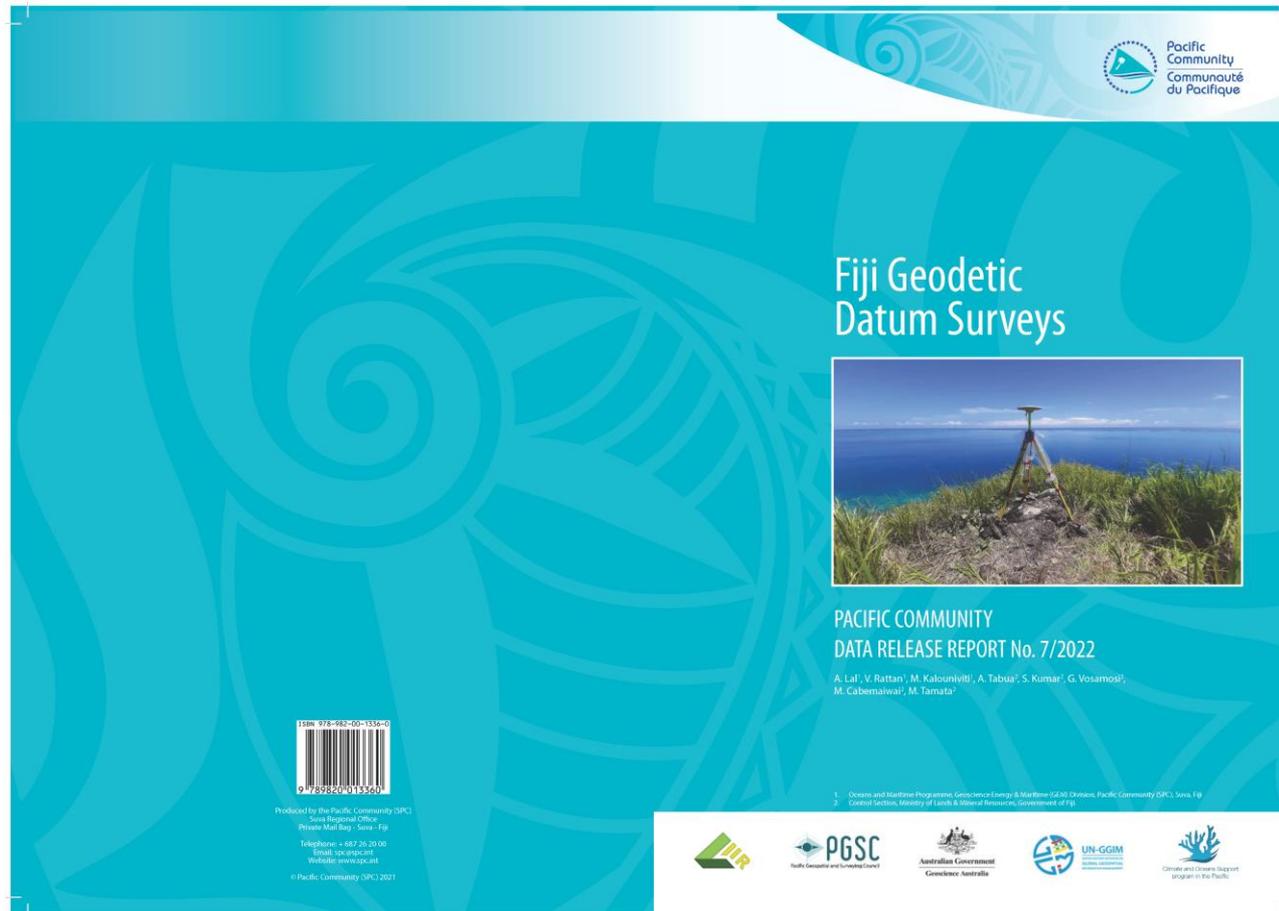


Station ID	Start time	Duration	Campaign	File Name	RINEX Version	Ant Height	Ant Method	Ant. Manufacturer
001A	18/11/2019 1200hrs UTC	76yrs	Phase 1	180835130.rinex	3.02	1.643	ROD	Trimble
001B	18/11/2019 1200hrs UTC	76yrs	Phase 1	180835130.rinex	3.02	1.643	ROD	Trimble
001C	18/11/2019 1200hrs UTC	76yrs	Phase 1	180835130.rinex	3.02	1.643	ROD	Trimble

Latitude	Longitude	MSL Ht	Latitude	WG
18 08 35.28307 S	178 26 24.43342 E	68.57	18 8 35.279 S	178
17 51 36.91470 S	178 36 31.20563 E	50.353	17 51 36.910 S	178
18 30 55.011 S	177 38 49.063 E	8.8	18 30 54.970 S	177
18 09 16.64688 S	177 36 48.24271 E	329.58	18 9 16.6462 E	177
18 05 31.25589 S	177 56 39.977 E	237.96	18 5 61.2558 S	177
17 49 34.2528 S	178 17 31.57718 E	149.83	17 49 34.2502 S	178
17 41 6.88916 S	178 31 10.58872 E	628.56	17 41 6.5862 S	178
17 40 16.05061 S	178 48 32.17230 E	625.69	17 40 16.0561 S	178
17 47 29.46092 S	177 43 52.85371 E	888.75	17 47 29.4610 S	177
17 52 41.52648 S	177 37 54.34343 E	228.99	17 52 41.52669 S	177
17 29 15.05356 S	178 17 44.70744 E	481.58	17 29 15.0519 S	178
17 19 41.52631 S	178 11 8.27595 E	203.2	17 19 41.5257 S	178
17 18 58.29670 S	178 27 58.66570 E	31.78	17 17 11.6775 S	178
17 25 14.49082 S	177 46 43.06777 E	368.67	17 25 14.4907 S	177
17 39 4.43158 S	177 23 37.39203 E	480.4	17 32 39.0999 S	177
18/11/2019 1200hrs UTC		33.8	17 39 4.4320 S	177
18/11/2019 1200hrs UTC		64.83	17 40 19.3811 S	177
18/11/2019 1200hrs UTC		1.49		
18/11/2019 1200hrs UTC		65.5	16 41 16.6981 S	177



# Geodetic Data Release Report



# Benefits

- Operational Capacity
- Data Processing & Analysis Capacity
- Data Storage
- Data Sharing
- Data Downloading
- Data Conversions
- GNSS CORS maintenance and infrastructure
- Data accessibility



# Workplan – Geospatial Reference System

- Survey Data Processing and Analysis
- Survey Results
- Transformation Parameters
- Transformation Tools
- GNSS CORS infrastructure maintenance plan
- Data Sharing and management
- Capacity Building & Advocacy
- Monitoring GNSS CORS
- Definitions – Vertical Reference Frame
- Definitions – Global Geodetic Reference Frame
- Cadastral and Topographical datasets (geospatial data transformations)
- Further collaboration efforts and partnerships



# *Capacity Development in the Pacific Region .....in progress*

## **Positioning Pacific Island Countries and Territories for the Future**



# **THANK YOU**



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du Pacifique