



Pacific  
Community  
Communauté  
du Pacifique

# **GNSS CORS for Topography**

## **Nadi - Fiji Islands**

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**Pacific Community (SPC)**

**FIG References Frame in Practice Seminar, Suva, Fiji.**  
**Operational Aspects of GNSS CORS**  
*19<sup>th</sup> September 2018*

# Nadi Survey Site – Fiji Islands

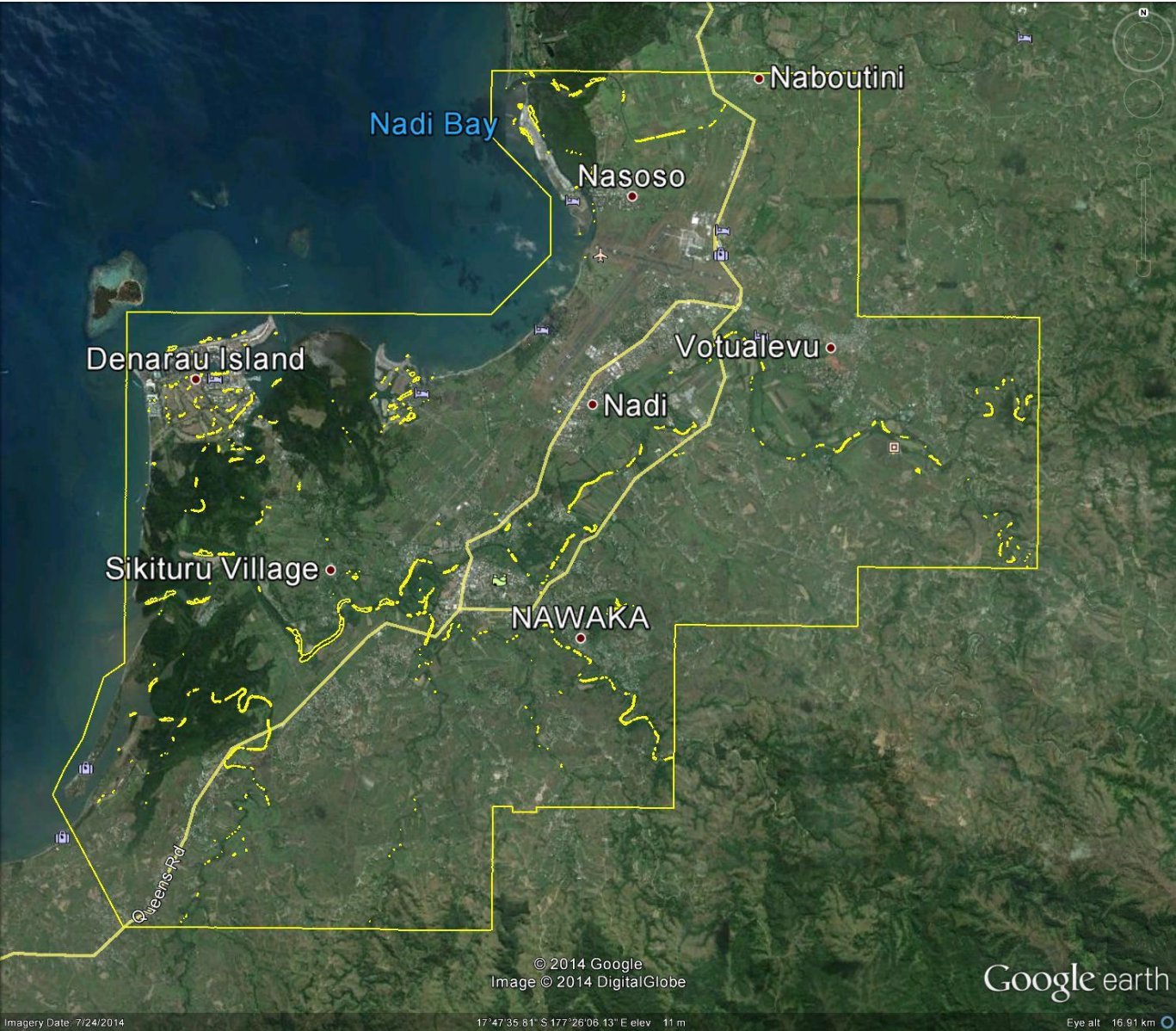
## Objectives

- To contribute in the development of the digital surface models
- To calibrate the LiDAR data sets on the ground





# Nadi Survey Site – Fiji Islands



# Reference Object – Nadi Survey

## Continuously Operating Reference Station.....

Global Navigation Satellite System – FIJI

**Lautoka - LAUT**

**Vertical Datum: Mean Sea Level**

**Horizontal Datum: ITRF2008**

**Location: FSC Compounds, Lautoka**

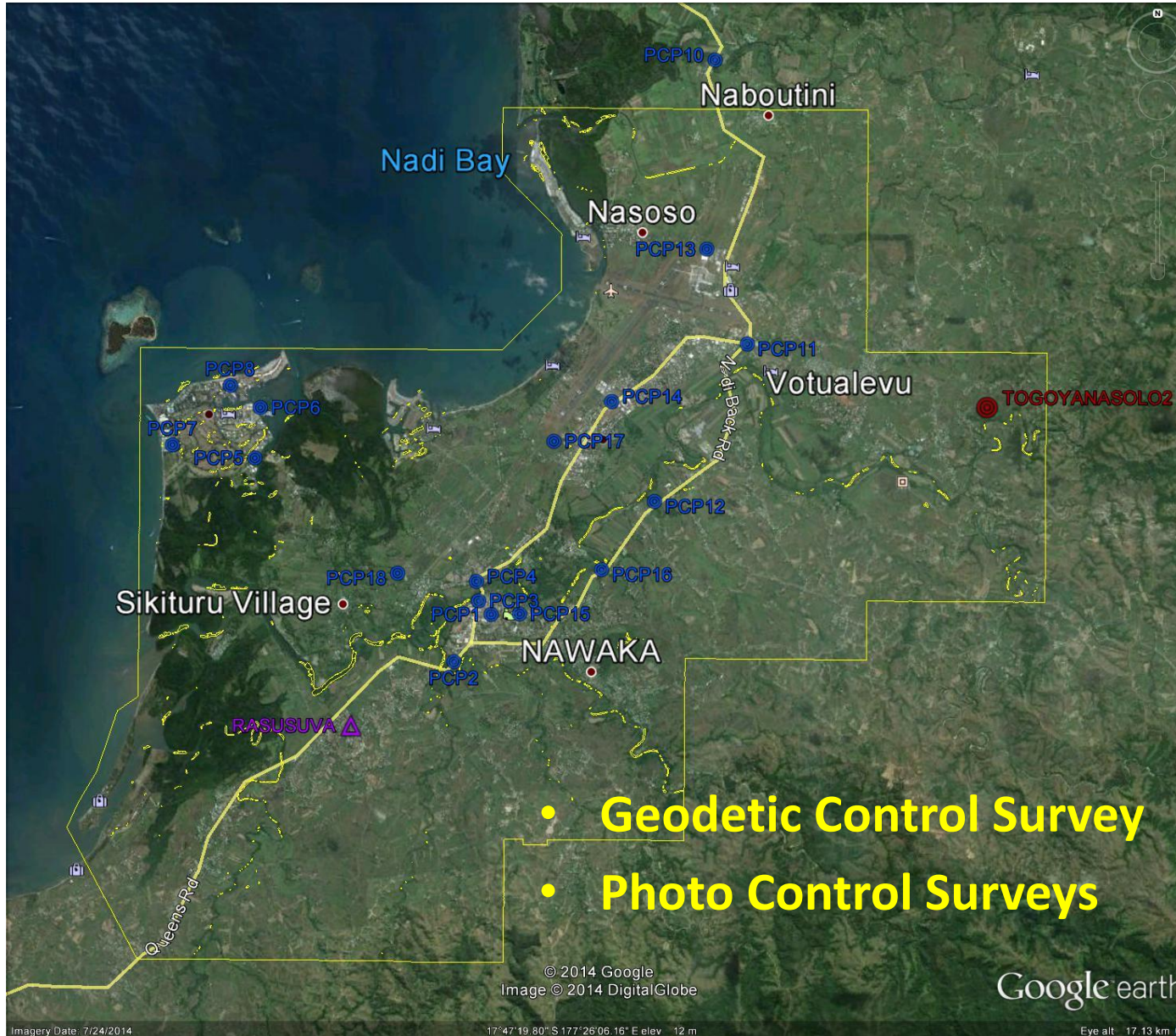
**Managing Authority: Geoscience Australia**

**Project: Pacific Sea Level & Geodeic Monitoring Project**



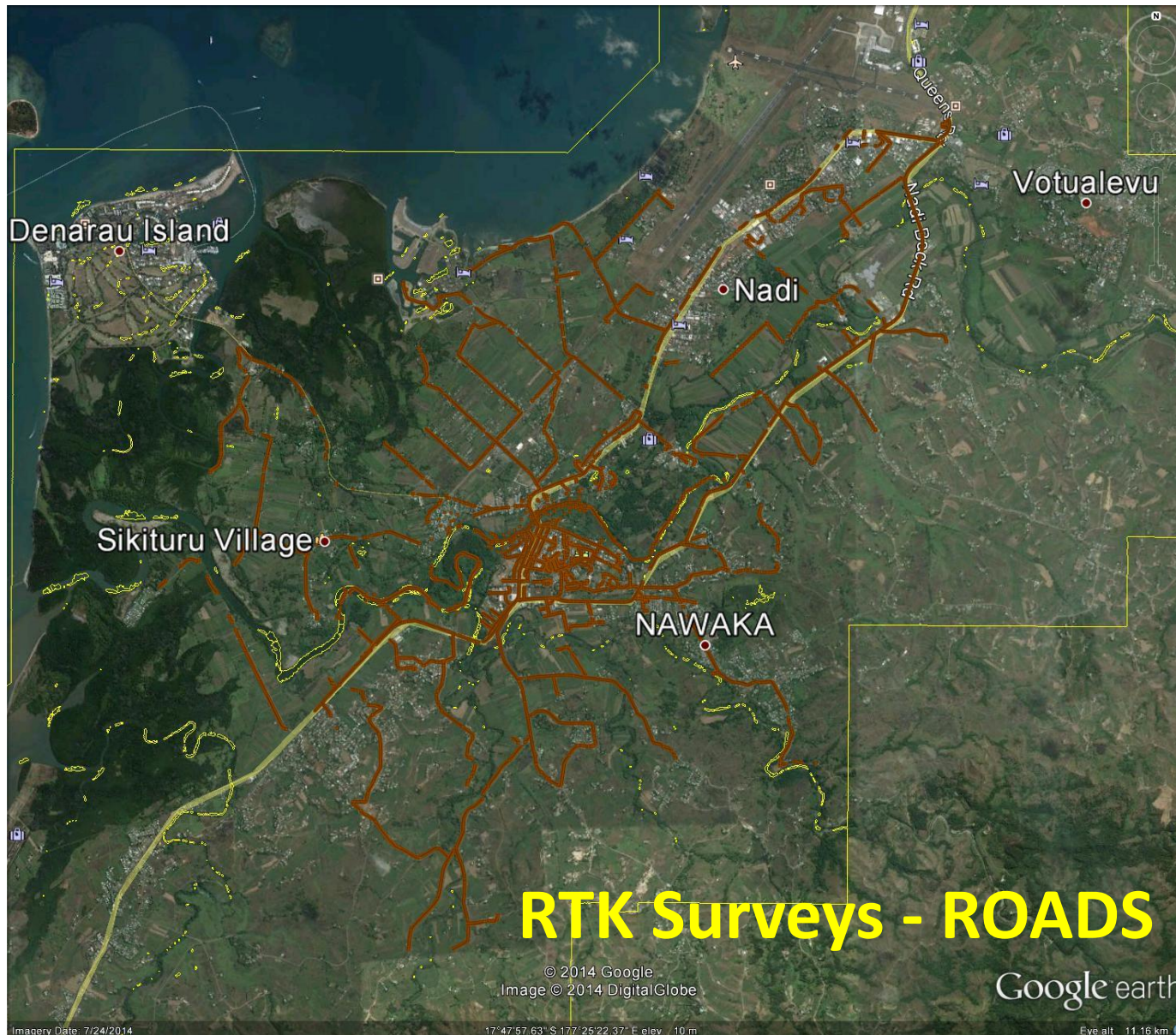


# Nadi Survey Phase 1 – USP

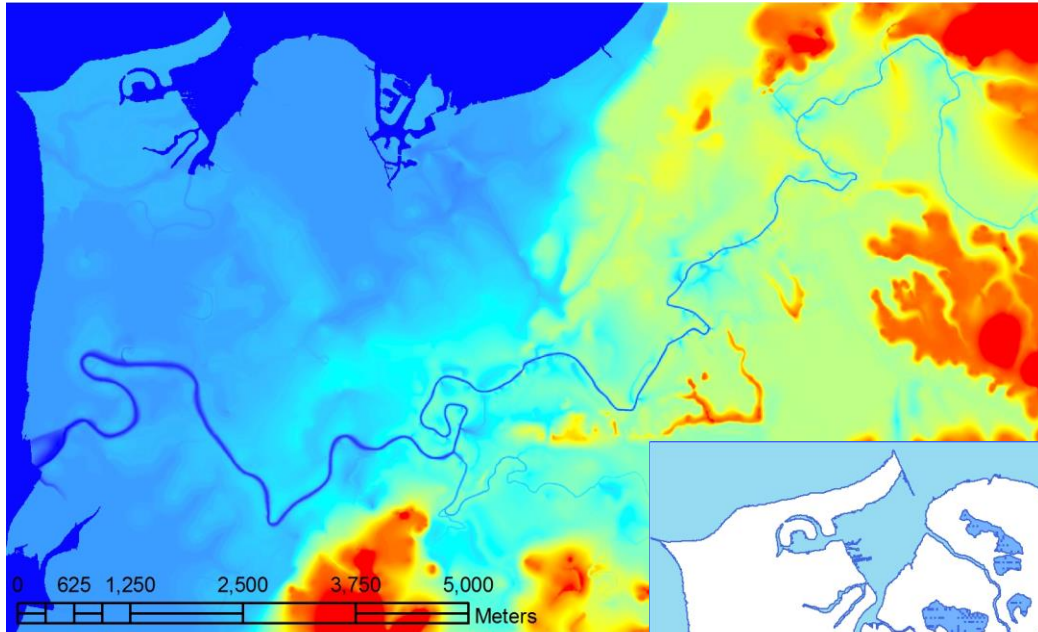




# Nadi Survey Phase 1 - USP

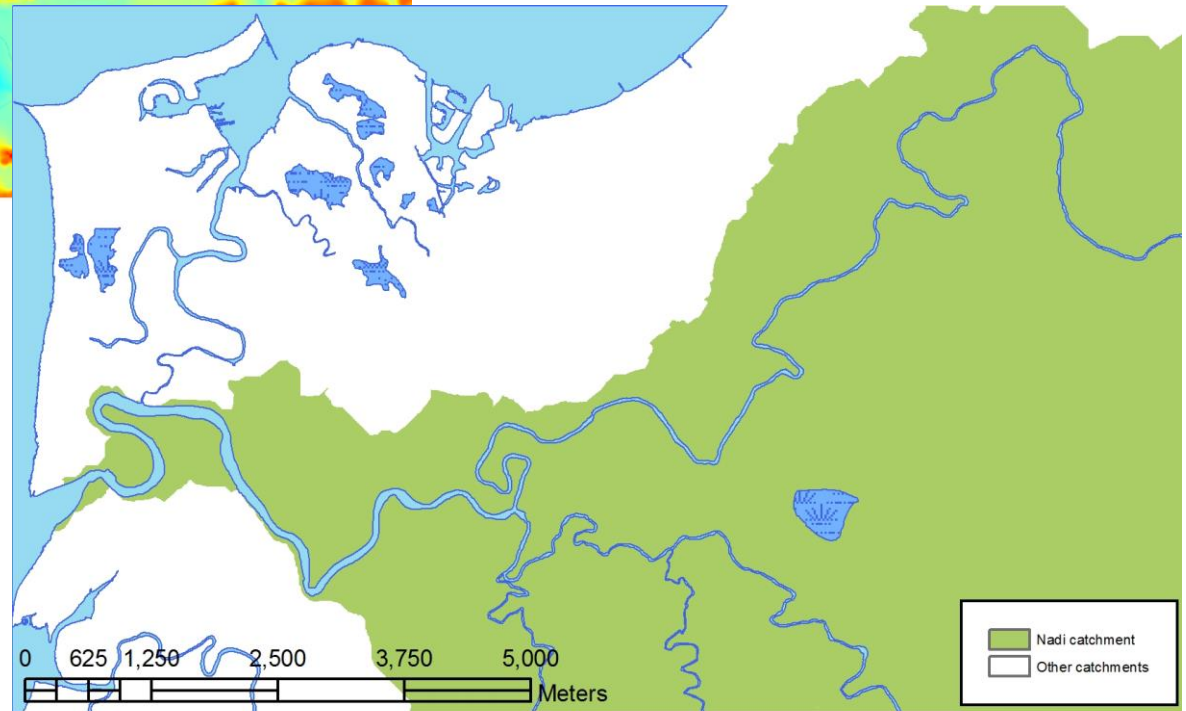


# Nadi Survey Phase 1 – USP



- **Elevation (DSM)**  
*Jessy Paquette, 2011*

- **Nadi Catchment Area**  
*Jessy Paquette, 2011*





# Nadi Survey Phase 1 - USP



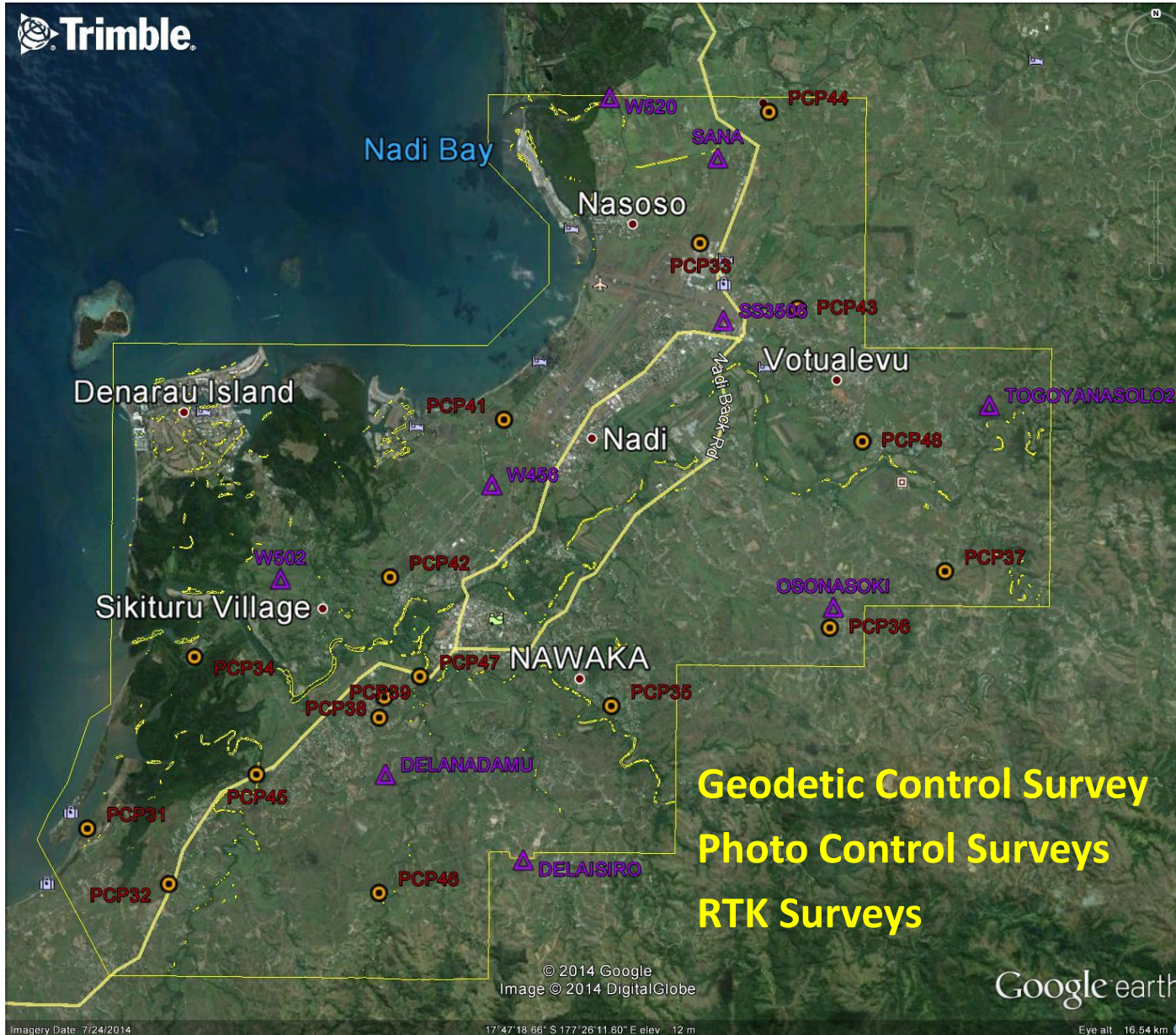
- **RTK Surveys – Base Station**



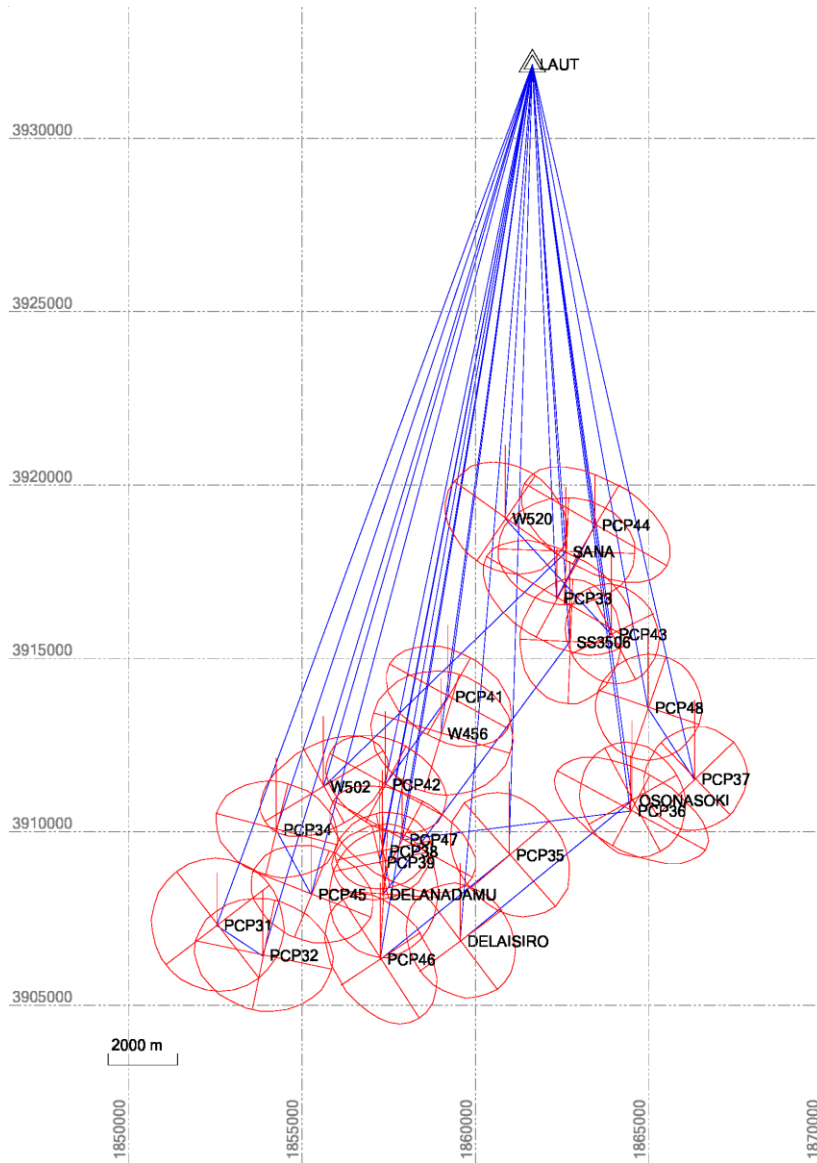
- **RTK Surveys – Rover on the Vehicle**



# Nadi Survey Phase 2 – Disaster Risks Programme



# Nadi Survey Phase 2 – Disaster Risks Programme



- **Horizontal Datum**
  - ITRF2008
  - FMG 1986
- **Vertical Datum**
  - Mean Sea Level

Point ID	GPS - ITRF2005@2008		FMG1986			Difference	
	Easting	Northing	Easting	Northing	Source	Easting	Northing
DELAISIRO	1859568.018	3906832.807	1859567.52	3906832.53	SO4242 Lands	0.50	0.28
DELANADAMU	1857337.157	3908177.427					
LAUT	1861654.67	3932152.668			GA/SOPAC		
OSONASOKI	1864531.073	3910904.769	1864530.72	3910904.9	Lands	0.35	-0.13
SANA	1862618.49	3918080.606	1862617.82	3918080.41	SO4242 Lands	0.67	0.20
SS3506	1862729.196	3915474.878	1862728.58	3915474.66	SO4242 Lands	0.62	0.22
TOGOYANASOLO2	1867008.881	3914145.559	1867008.3	3914145.46	SO4242 Lands	0.58	0.10



# Nadi Survey Phase 2 – Disaster Risks Programme



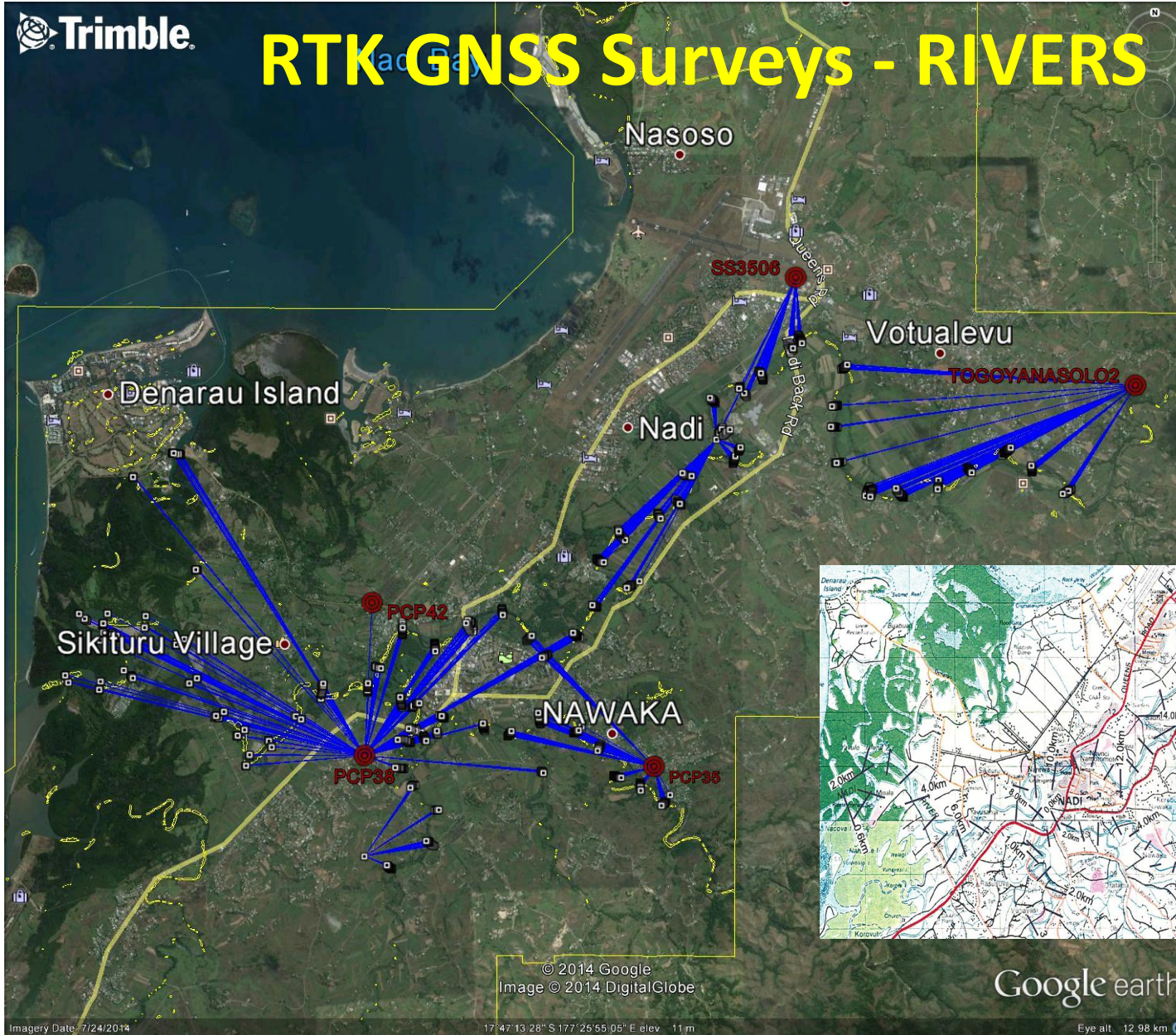
- **Geodetic Control Survey – Trig Stations**



# Nadi Survey Phase 3 – Disaster Risks Programme



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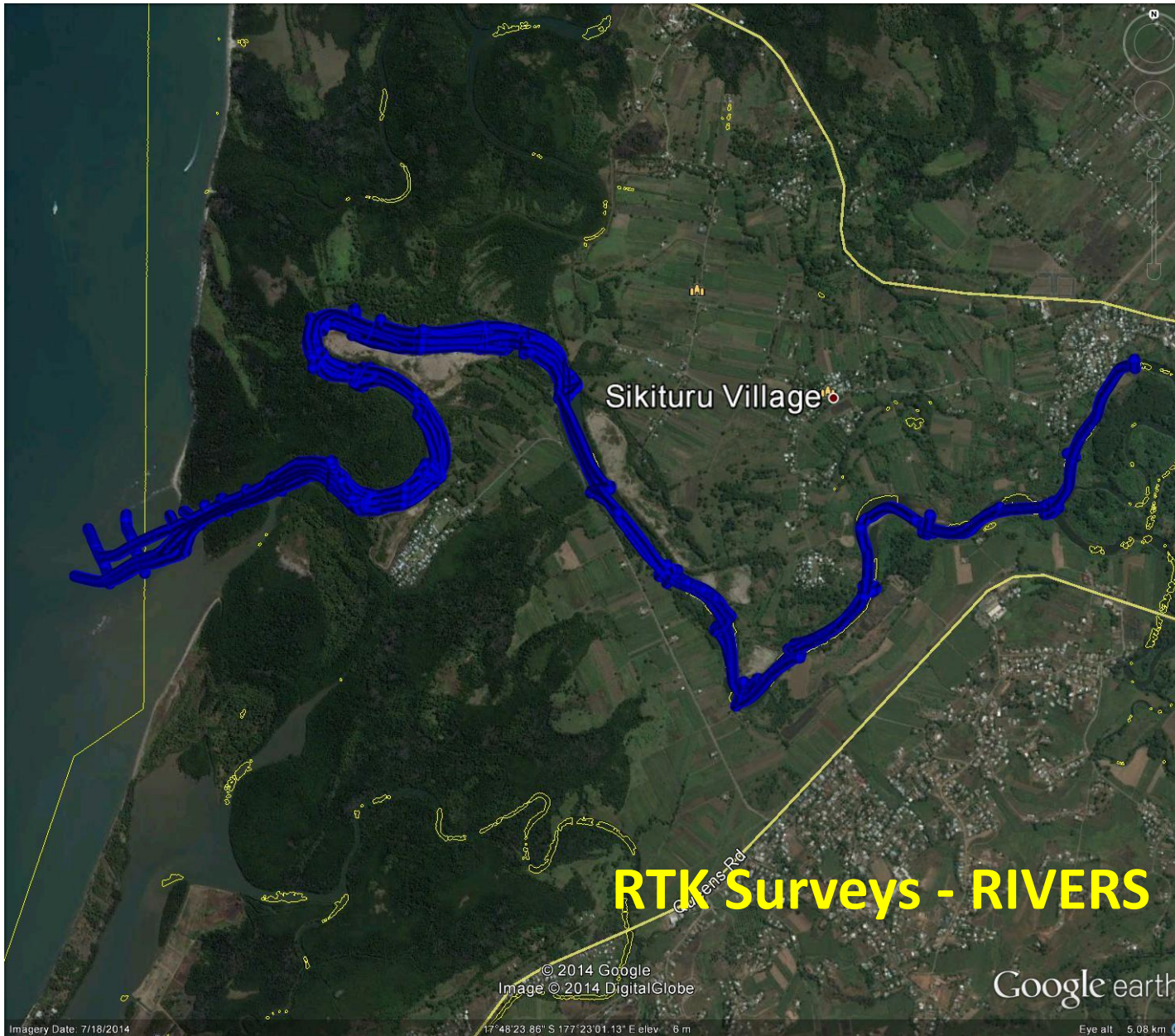


# Nadi Survey Phase 3 – Disaster Risks Programme





# Nadi Survey Phase 3 – Disaster Risks Programme





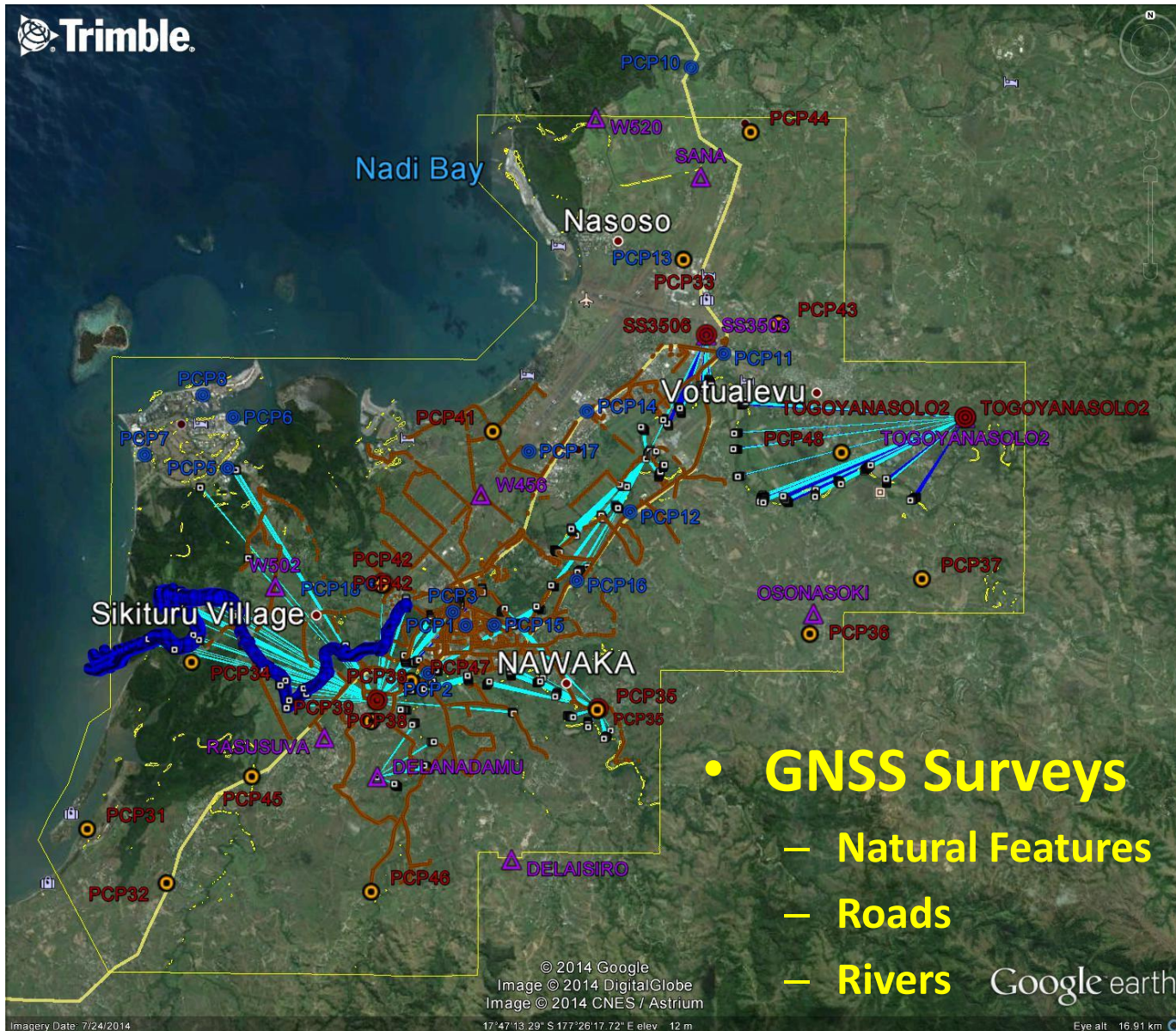
# Nadi Survey Phase 3 – Disaster Risks Programme



- **Bathymetry Surveys**

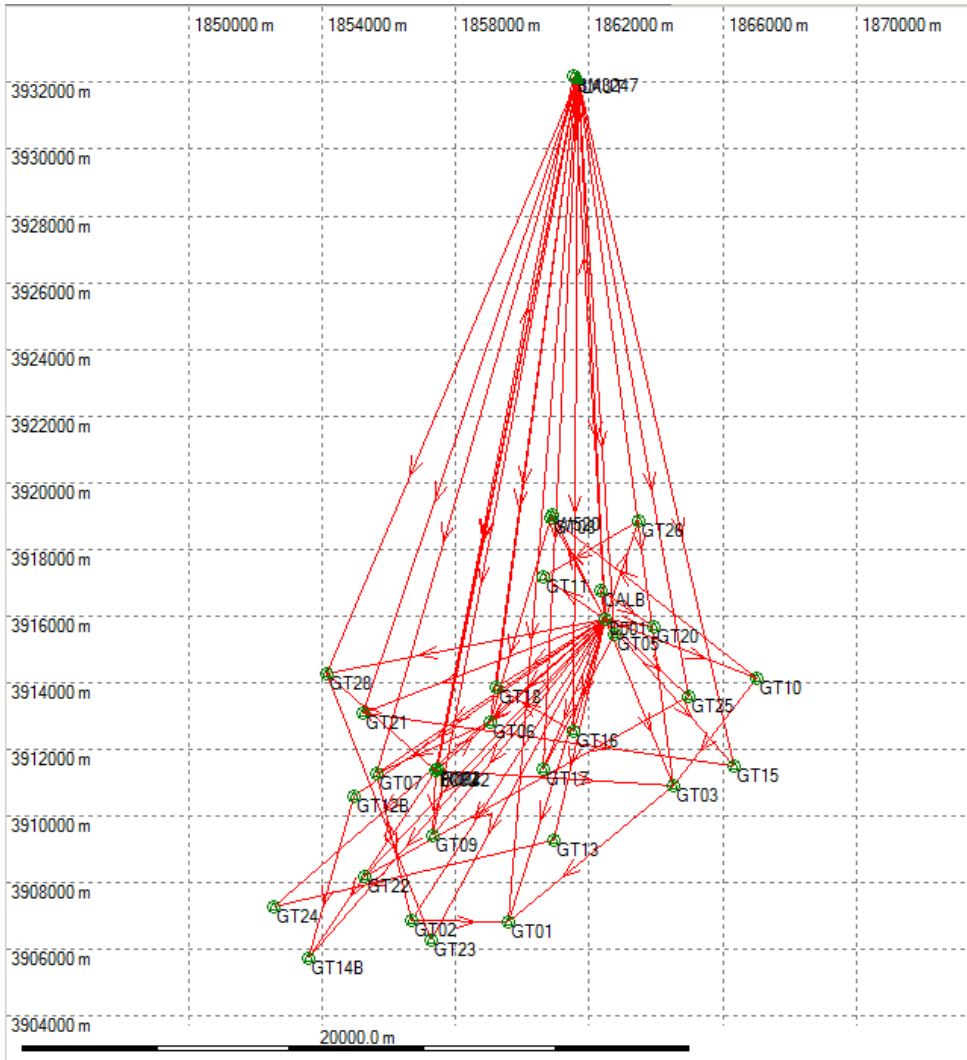


# Nadi Survey Phase 3 – Disaster Risks Programme





# LiDAR Surveys – Disaster Risks Programme



- GPS Surveys Network Mapping (UK)

### Network Mapping Station Description

STATION ID	R002	JOB REF:	NMLP11117
Projected Coordinates (FMG Map Grid 1986 - Lautoka MSL)		Geodetic Coordinates (ITRF2005@2008.0 GRS80)	
Eastings (m)	1857433.573	Latitude	17 47 44.860820 S
Northings (m)	3911425.794	Longitude	177 24 19.521994 E
Elevation (m)	6.238	Ellip. Height (m)	64.494

Photo (taken looking Westerly)

Location

Detailed Description

Marker: Mag survey nail

Prepared by	Network Mapping Ltd Unit B1G Fairoaks Airport Chobham Surrey, GU24 8HU	Drawn by	C. Tassinari
		Checked by	B. Thomas
		Date	15 <sup>th</sup> May 2012

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## Topographical Surveys

# LiDAR Surveys – Disaster Risks Programme

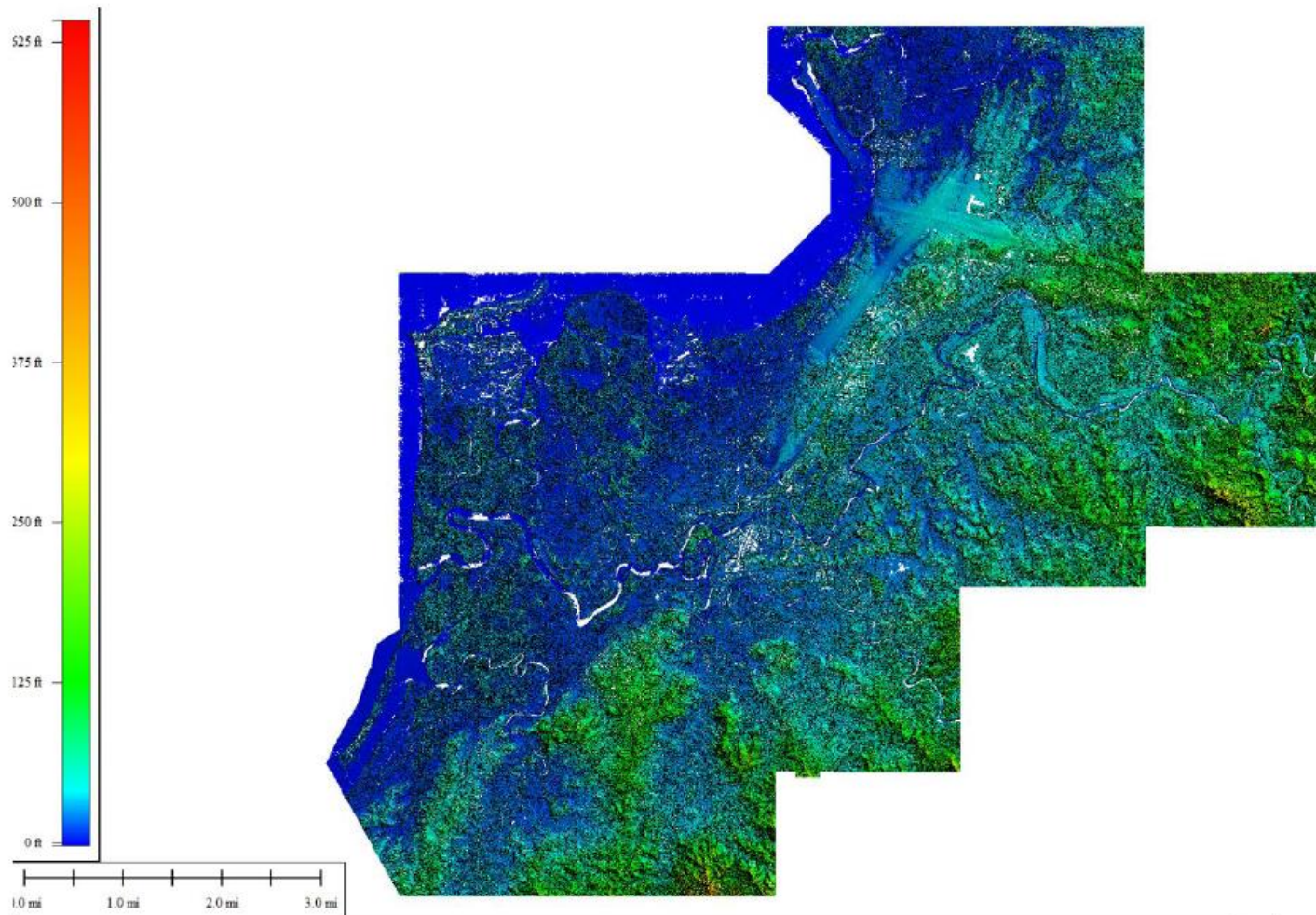


- LiDAR Equipment - Network Mapping (UK)





# LIDAR Surveys – Disaster Risks Programme



- Residual Model - Network Mapping (UK)



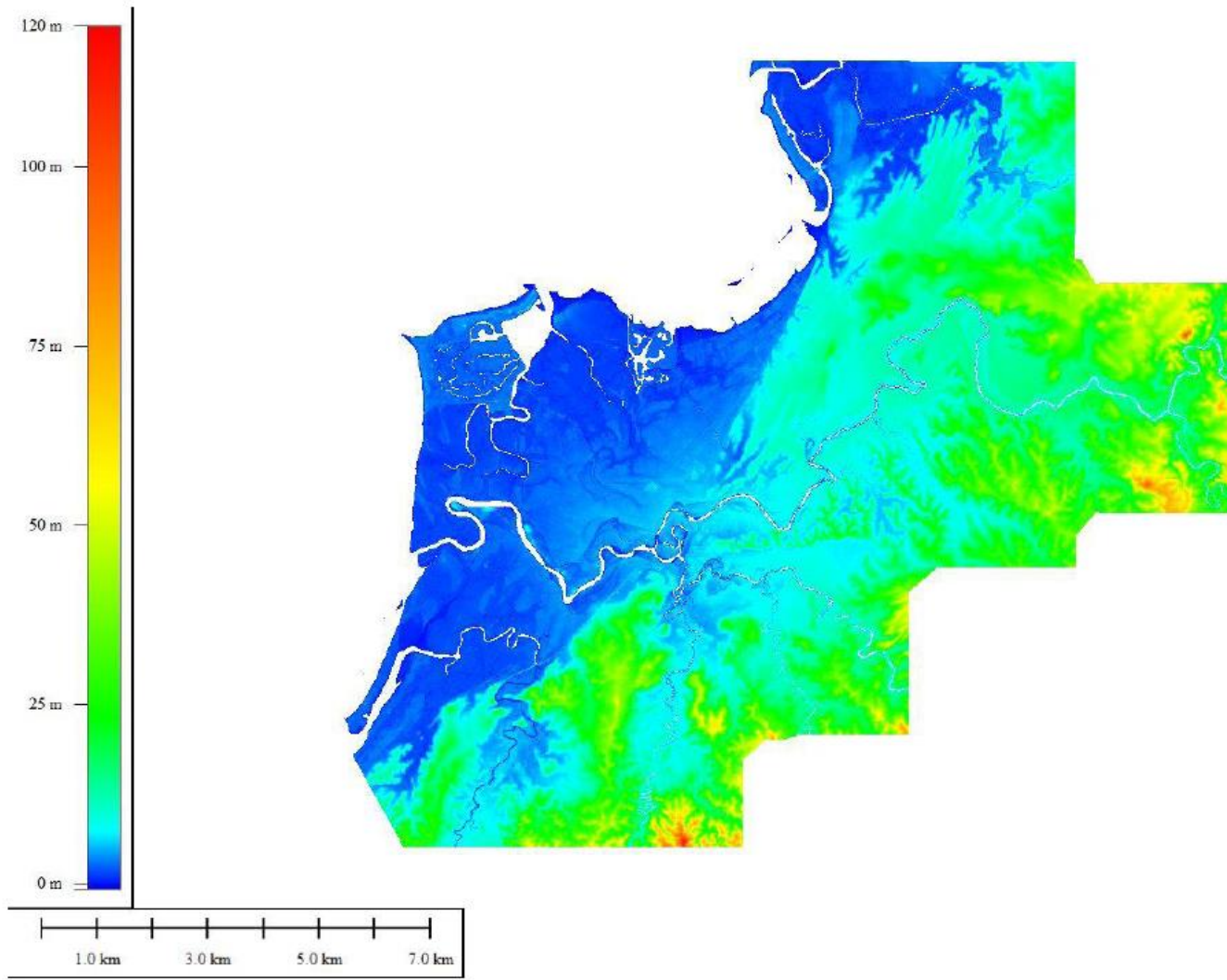
# LIDAR Surveys – Disaster Risks Programme



- **Contour Model - Network Mapping (UK)**



# LIDAR Surveys – Disaster Risks Programme



- **Digital Elevation Model - Network Mapping (UK)**

**Vinaka,  
Malo Aupito &  
Thank u too mus.**