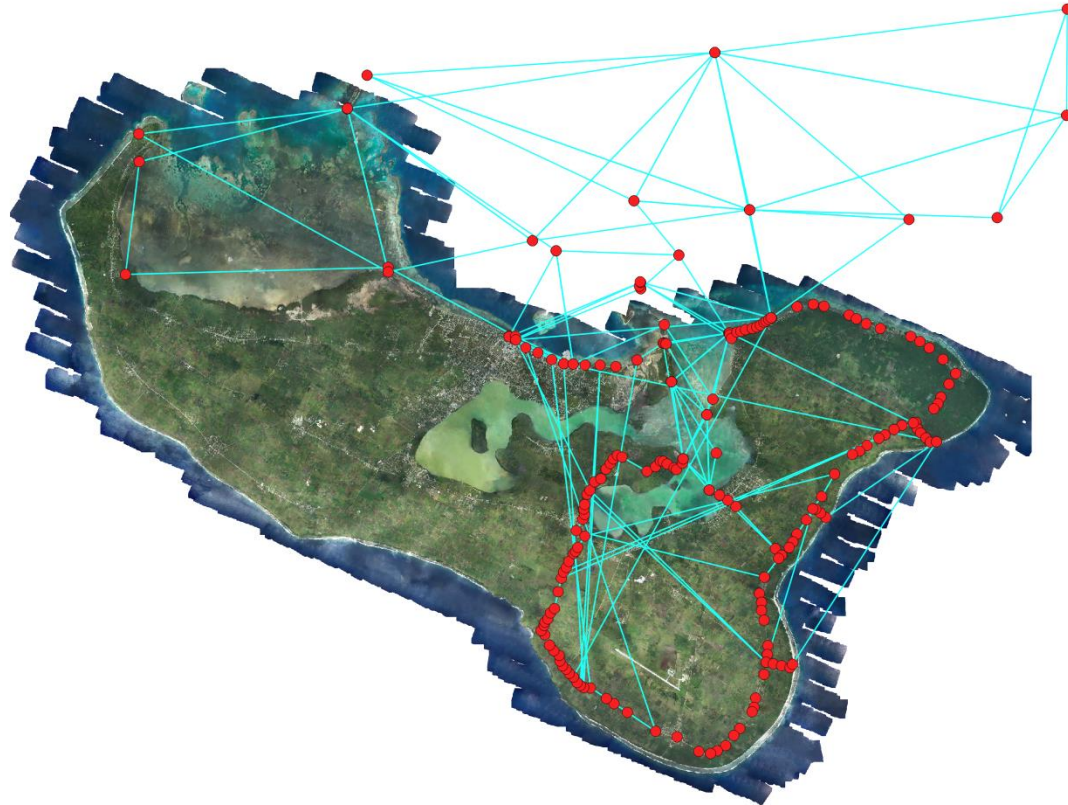


# ADDRESSING GLOBAL AGENDA, LOCALLY

My role as a young female surveyor in SIDS- Tonga



Siotasia Malolo

Geodetic Survey Services (MLNR, Tonga)

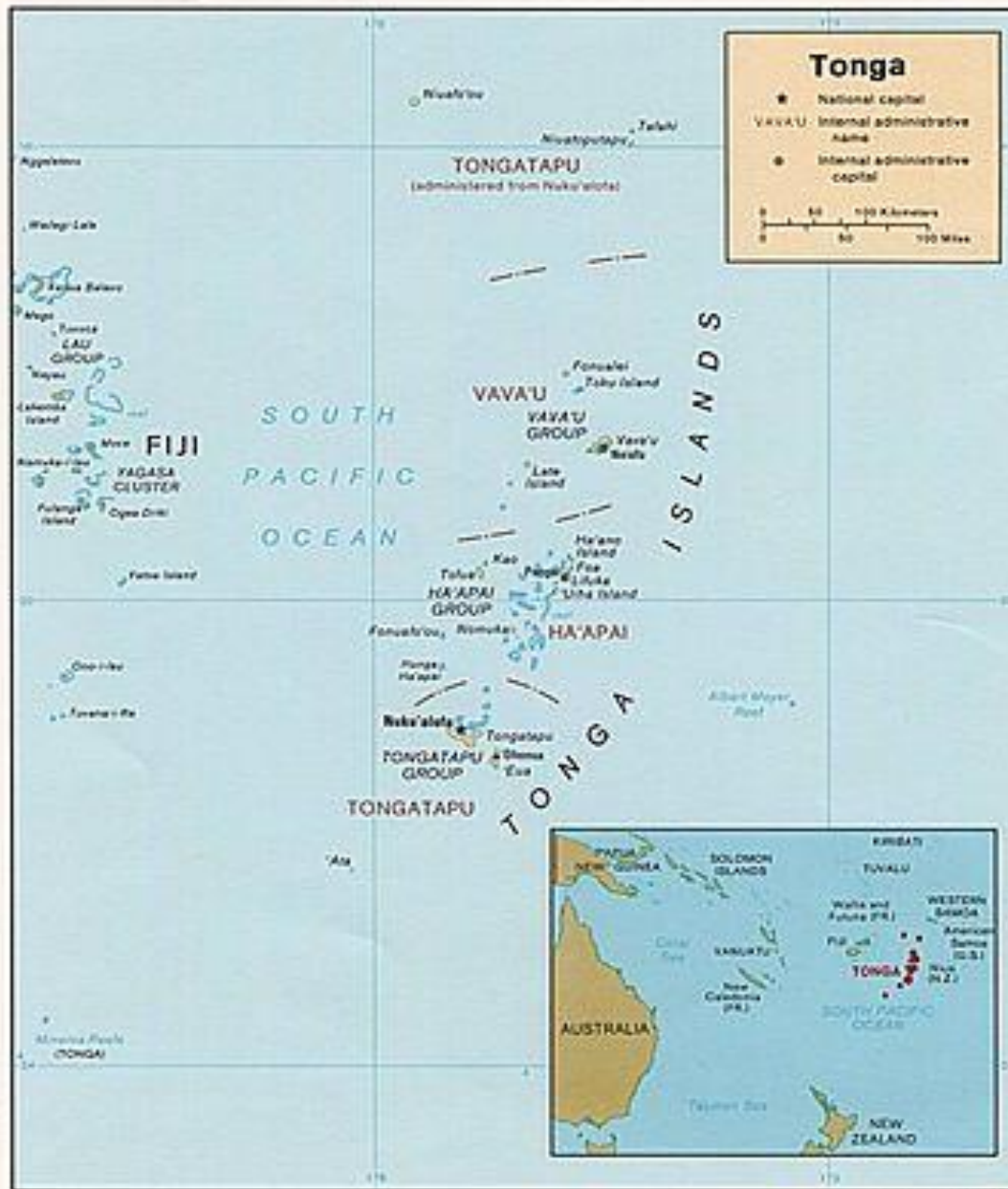
# Content

- General background
- Vision
- Scope of focus
  - Addressing Climate Change (from a female geodetic surveyor's perspective)
  - Geodetic role contributes to SDGs

# World Map



# Pacific Region





# TONGA



## Tonga

### Geography:

- 21°S, 174° W
- Coral & volcanic formation
- 760 sqkm land area
- 172 islands
- ~700,000 sqkm ocean

### Population:

- ~110,000
- 70% reside in the main island

### Income:

- Agriculture
- Fishery
- Tourism
- Remittance



# Vision

## National Outcome

Effective land administration, environment management and resilience to climate and risk.

## Organization Outcome

Effective NRM and increase resilience to natural hazard and CC impacts to ensure and enhance protection Tonga's inheritance and provision of benefits to future generation

## Division's Mission

Efficient and effective system of survey, mapping and subdivisional design of land to facilitate socio-economic development based on global updated and accurate geodetic.

## Geodetic Objectives

Survey land according legislate and standards

Maintenance and monitoring geodetic control network to ensure accuracy

Execute topographic and engineering survey request effectively and efficiently.

Use geodetic survey with GIS application to support disaster risk reduction , environmental and climate change analysis

# FOCUS

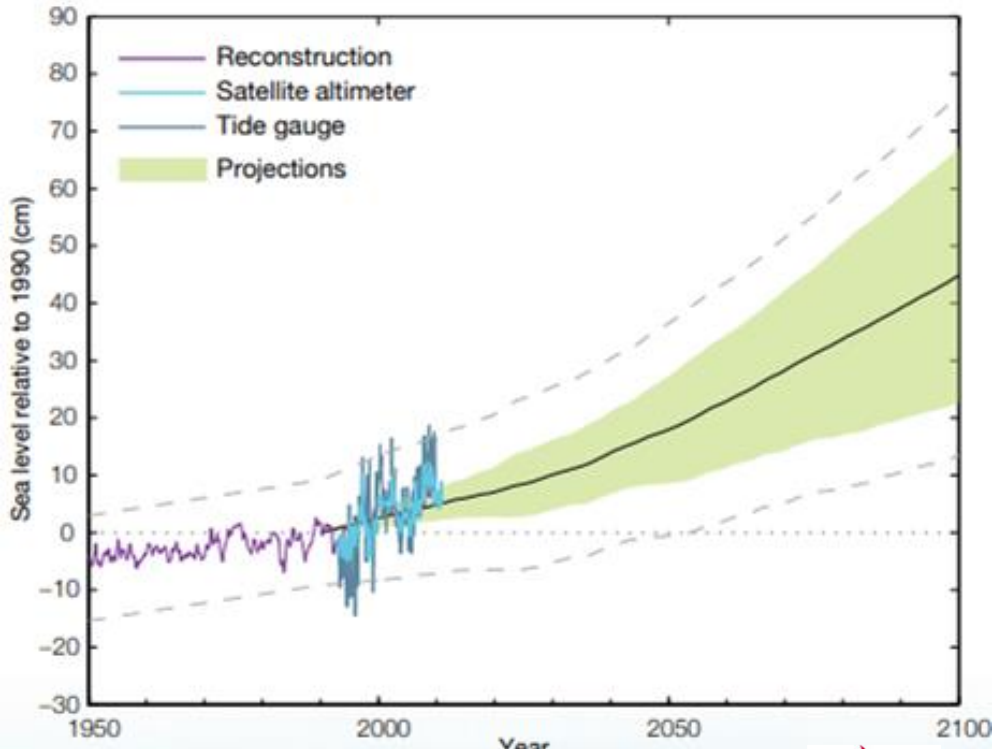
- Addressing Climate Change
- Contribution toward Sustainable Development Goals



# CLIMATE CHANGE - TONGA

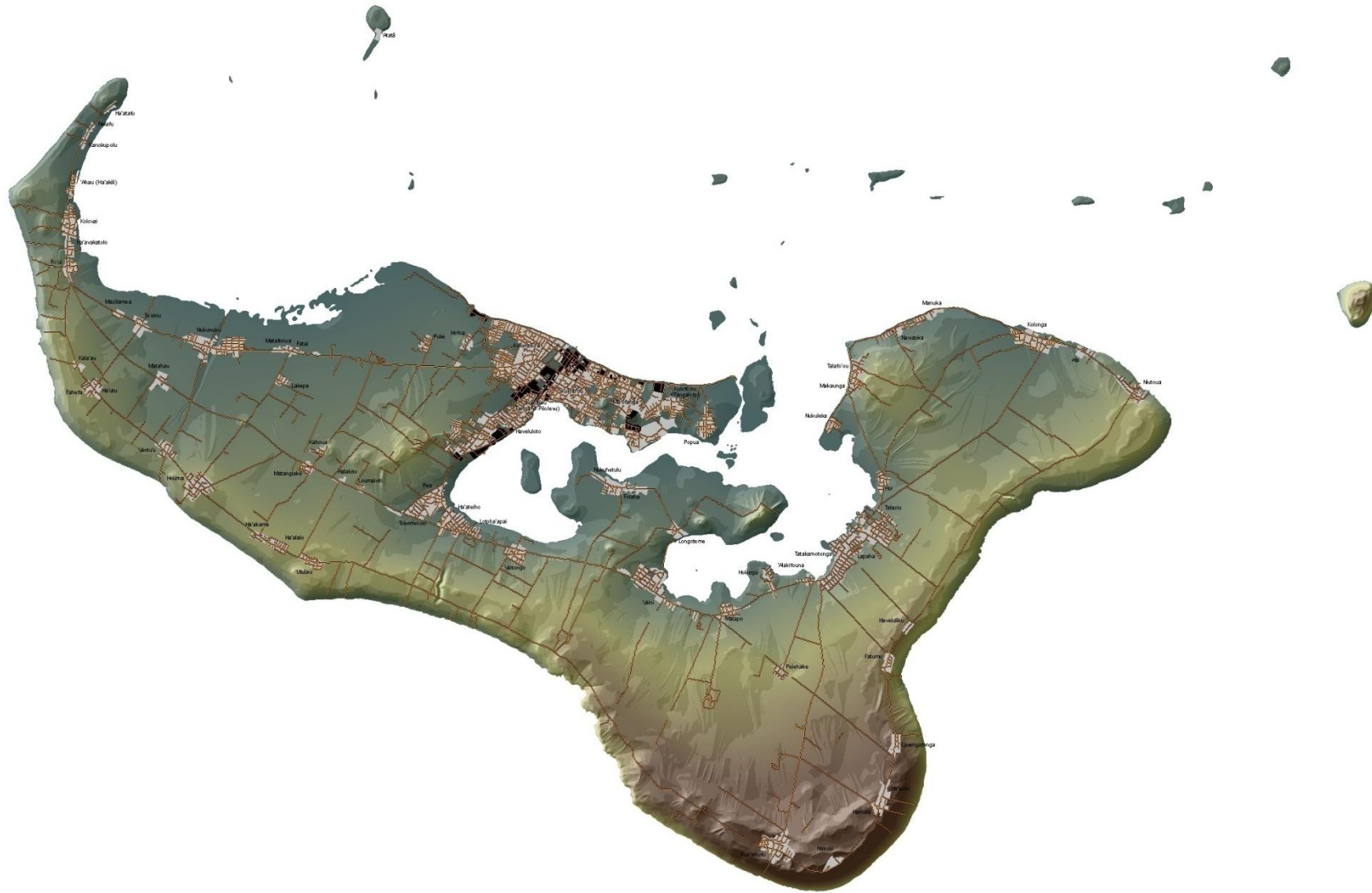
## i) Sea Level Rise

- risen by about 6mm/ yr (above global average 2.8- 3.6 /yr)
- threatens agriculture and settled areas
- coastal erosion

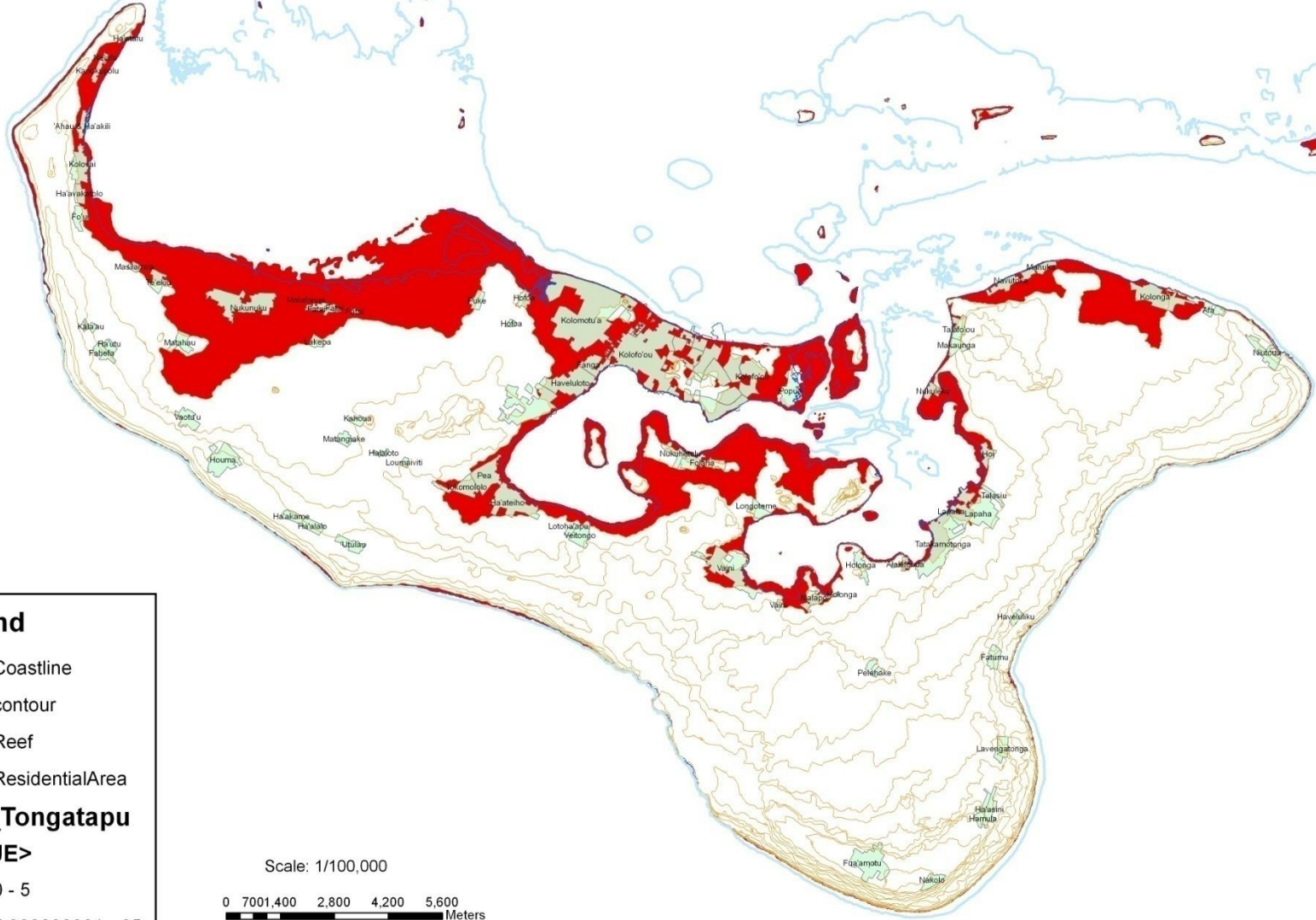




# Digital Elevation Model of Tongatapu (main island)



**MAP SHOWING THE CLIMATE CHANGE EFFECT ON LOW-LYING AREAS  
- 1 metre Sea Level Rise**



**Legend**

- Coastline
- contour
- Reef
- Residential Area
- DEM\_Tongatapu**
- <VALUE>**
- 0 - 5
- 5.000000001 - 65

Scale: 1/100,000

0 7001,400 2,800 4,200 5,600 Meters

Area could be affected approx. 5142 ha

## ii) Changing Weather Patterns and Temperature

- increasingly extreme rainfall
- threatens agriculture and settled areas
- severe drought

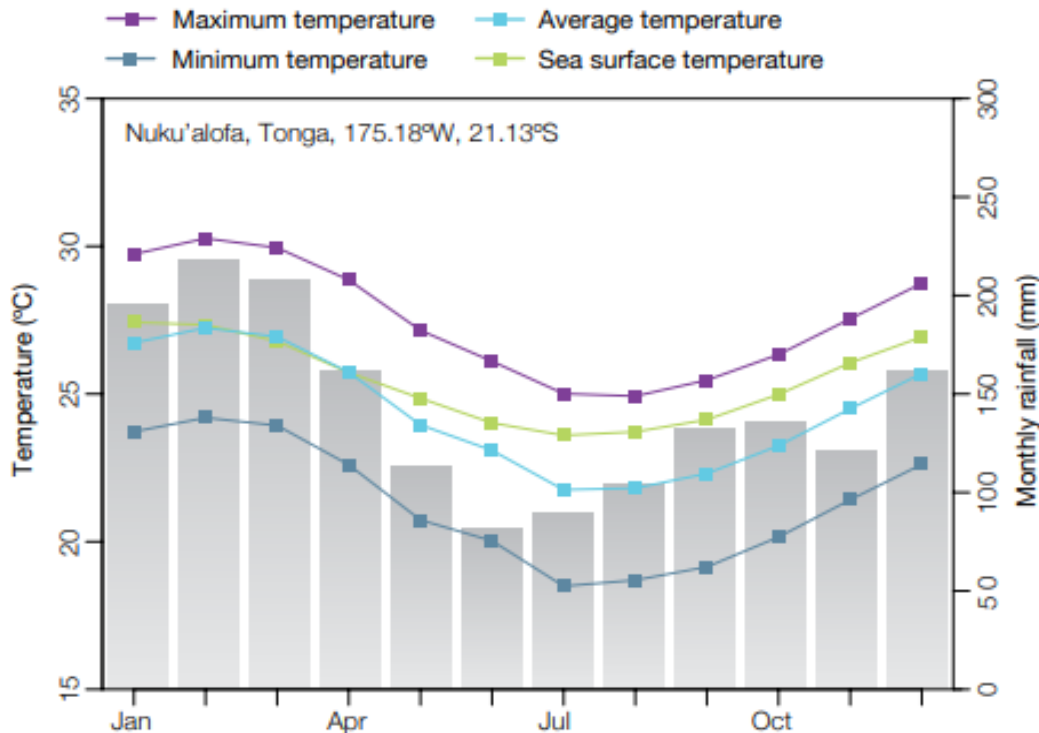
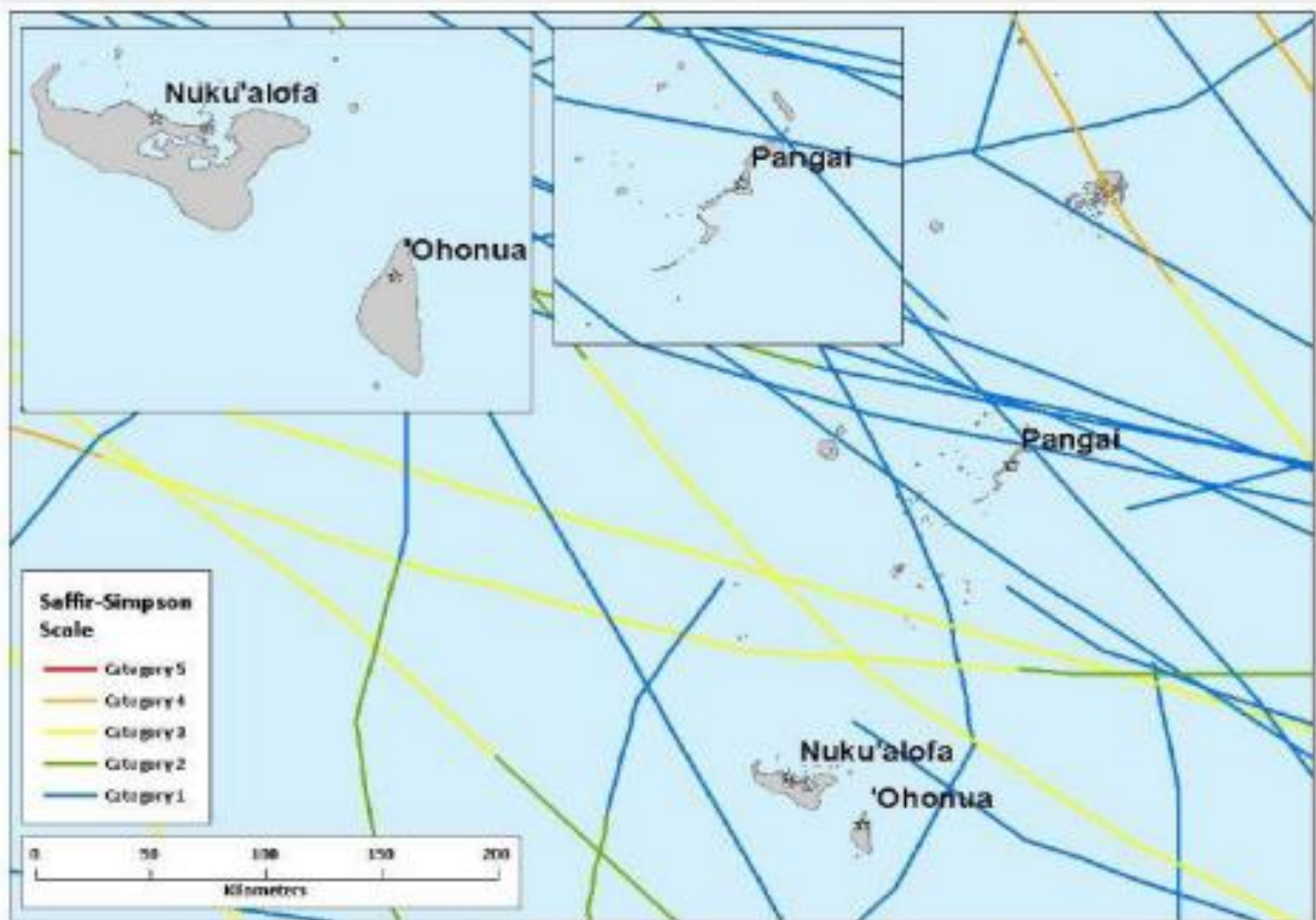


Figure 1: Seasonal rainfall and temperature at Nuku'alofa.





### iii) Less Frequent but more Intense Tropical Cyclones





# CYCLONE GITA





# Addressing Climate Change





# PARTNERSHIP FOR THE GOALS



# Challenges

- Capacity building
- Human resources

# Way Forward

- Modern Geodetic Reference Framework
- Improving technology under pinning Geospatial System
- Recognize and enhance connection of GIS and Geodetic but also to other technical fields.



## Challenges

- Capacity building
- Human resources
- Natural disaster management

## Way Forward

- Modern Geodetic Reference Framework
- Improving technology under pinning Geospatial System
- Recognize and enhance connection of GIS and Geodetic but also to other technical fields.

Malo 'aupito  
Thank you