

The Kingdom of **Tonga**

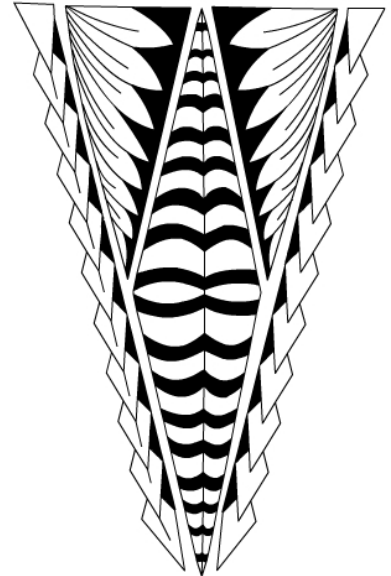


Tonga Meteorological and Coastal Services

Outline

- Brief about Tonga
- Ministry Structure
- Department Structure
- Stations
- Tropical Cyclone Flow Chart
- TC Gita
- Conclusion

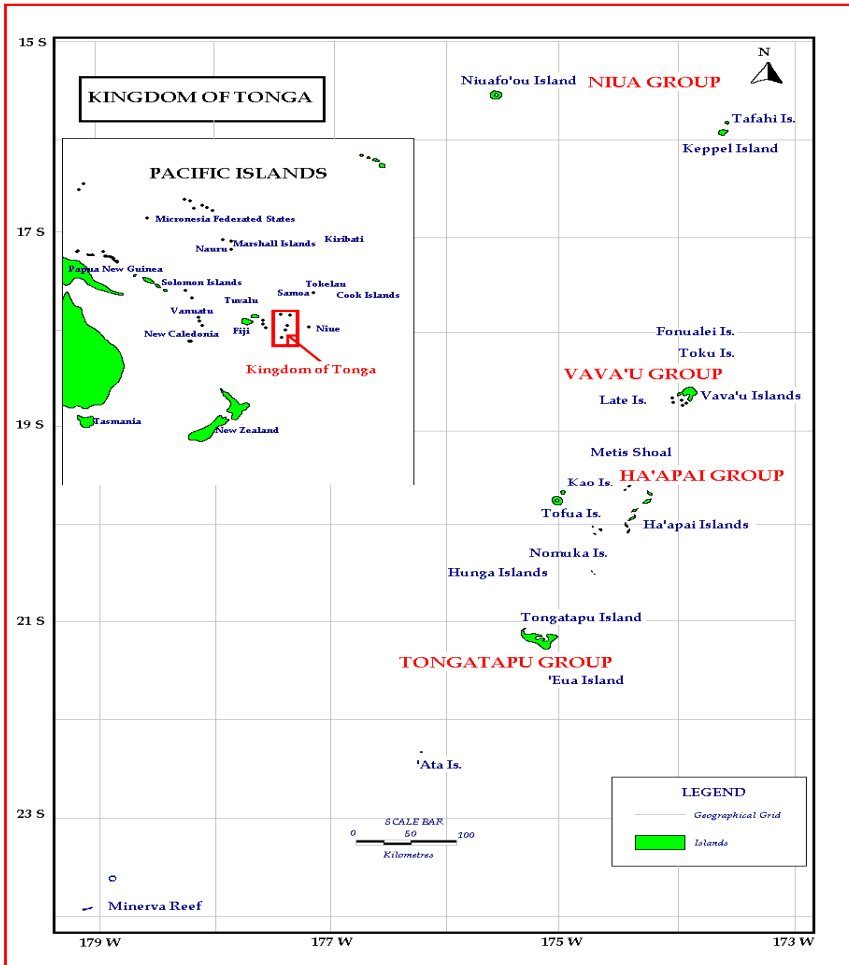
By
Siaosi Maeakafa Palu
Sitamipa Paea
Gary Vite



Flag



Kingdom of Tonga



King George Tupou VI and
Queen Nanasi Pau'u
Tuku'aho

Population: 106,326 people
Location: 15-23° S, 173-177° W
Local Area: 717km²

171 Islands of which 36 are in habitat,
Land/sea area ...720,000 km²



Government Logo



Tongan Formal Costume



Tonga Meteorological & Coast Radio Services

Ministry of Environment, Energy, Climate Change, Disaster
Management, Meteorology, Information and Communications

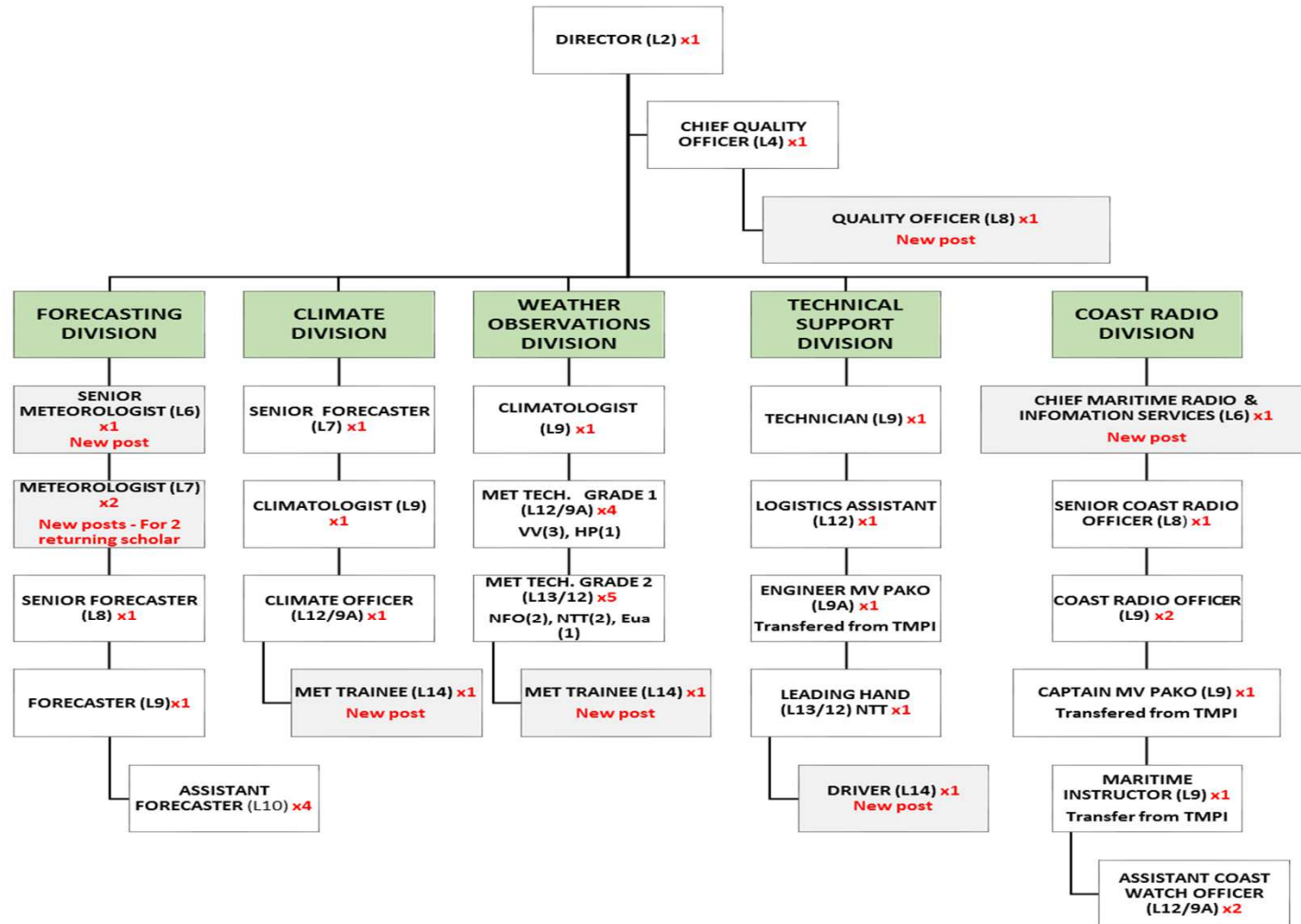
KINGDOM OF TONGA

Official Government Website: Providing meteorological and maritime radio services in support economic development, safety and security and general well-being of citizens of and visitors to the Kingdom of Tonga



Website: <http://met.gov.to/>

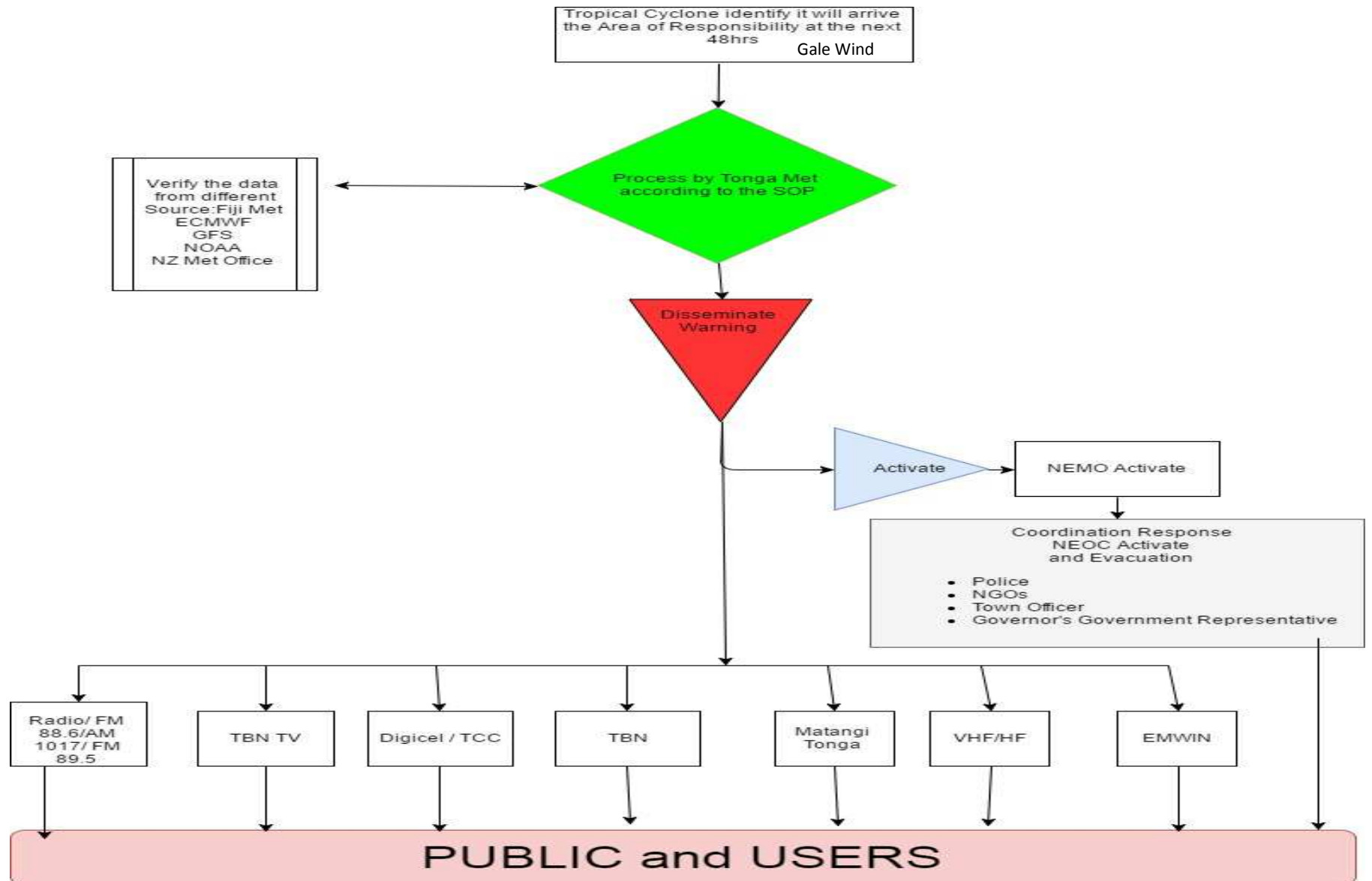
METEOROLOGY AND COAST RADIO SERVICES



Stations in Tonga

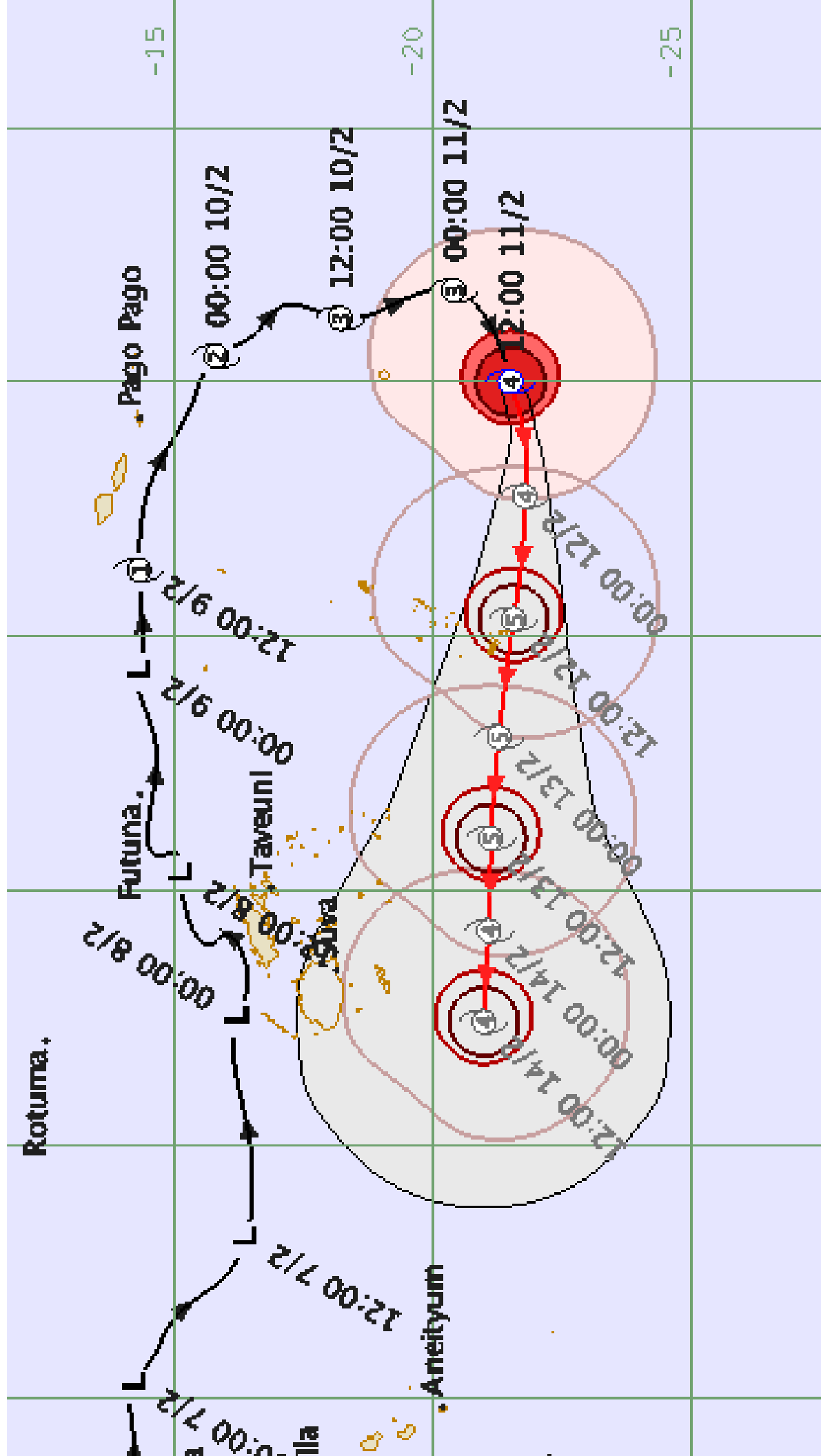
WMO No.	Name	Lat. (S)	Lon. (W)	Elev. (m)	Type of Station*
9177200	Niuafo'ou Aerodrome	15.57°	175.62°	37	Climate/Synoptic/Aeronautical
9177600	Niutoputapu	15.95°	173.77°	2	Climate/Synoptic/Aeronautical
9177900	Lupepau'u Aerodrome	18.60°	173.98°	71	Climate/Synoptic/Aeronautical
9178806	Nuku'alofa	21.13°	175.18°	2	Climate
9178900	Tide Gauge (TBU)	21.13°	175.17°	2	AWS
9178400	Pilolevu Aerodrome	19.78°	174.35°	2	Climate/Synoptic/Aeronautical
9179200	Fua'amotu Aerodrome	21.25°	175.15	38	Climate/Synoptic/Aeronautical
9179203	Kaufana Aerodrome	21.38°	174.95°	105	Climate
A3A	Nuku'alofa Radio	21.25°	175.15	38	Coastal Radio

- Tongatapu area have 8 AWS
- Fua'amotu Met Station – Aerodrome report, Climate and Synoptic 24/7
- Nuku'alofa Station – Climate (observe at 10am everyday 1 hour)
- Ha'apai Met Station – Aerodrome report, Climate and Synoptic (observe at (1am) 6am -7pm 14 hours and 4 AWS for Ha'apai)
- Vava'u Met Station – Aerodrome report, Climate, Synoptic (observe 1am – 7pm 19 hours and 5 AWS/1 Sea Level for Vava'u)
- Niutoputapu Met Station – Synoptic (observe at 1am, 7am, 1pm, 7pm 4 hours and 1 AWS/1 Sea Level)
- Niuafo'ou Met Station – Synoptic (observe at 1am,7am,1pm,7pm 4 hours and 1 AWS)
- 'Eua Met Station – Climate – (observe at 10am everyday 1 hours and 2 AWS)



Meteorological brief on Severe Tropical Cyclone “*Gita*” (Cat4)

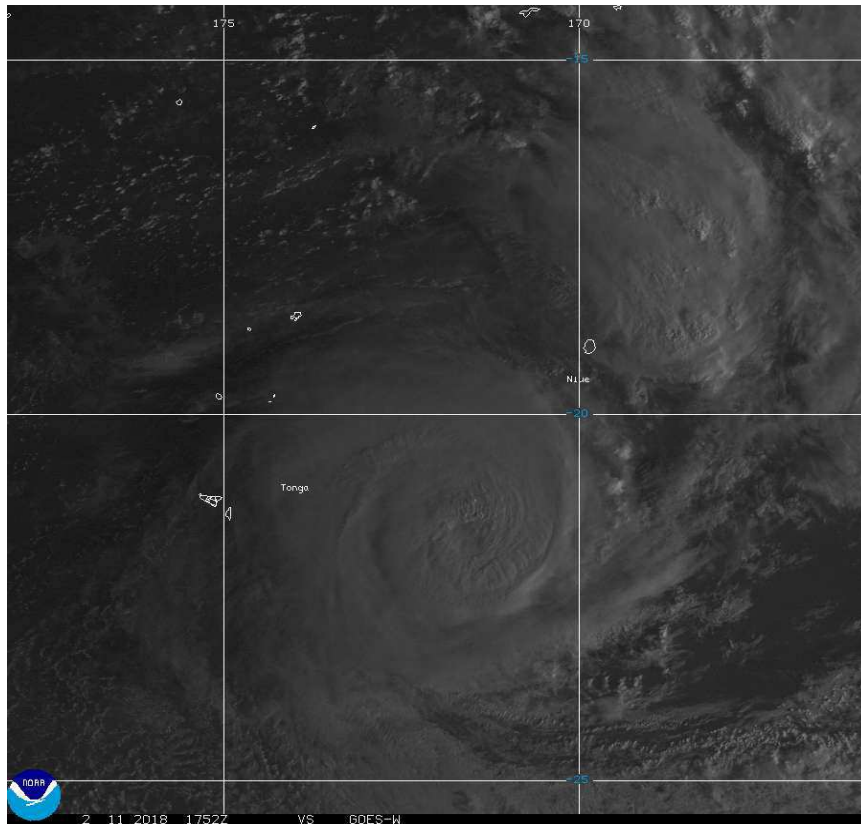
**Total Cost \$TOP356Million
(\$TOP208Million in Damages and \$TOP147Million in Losses)**



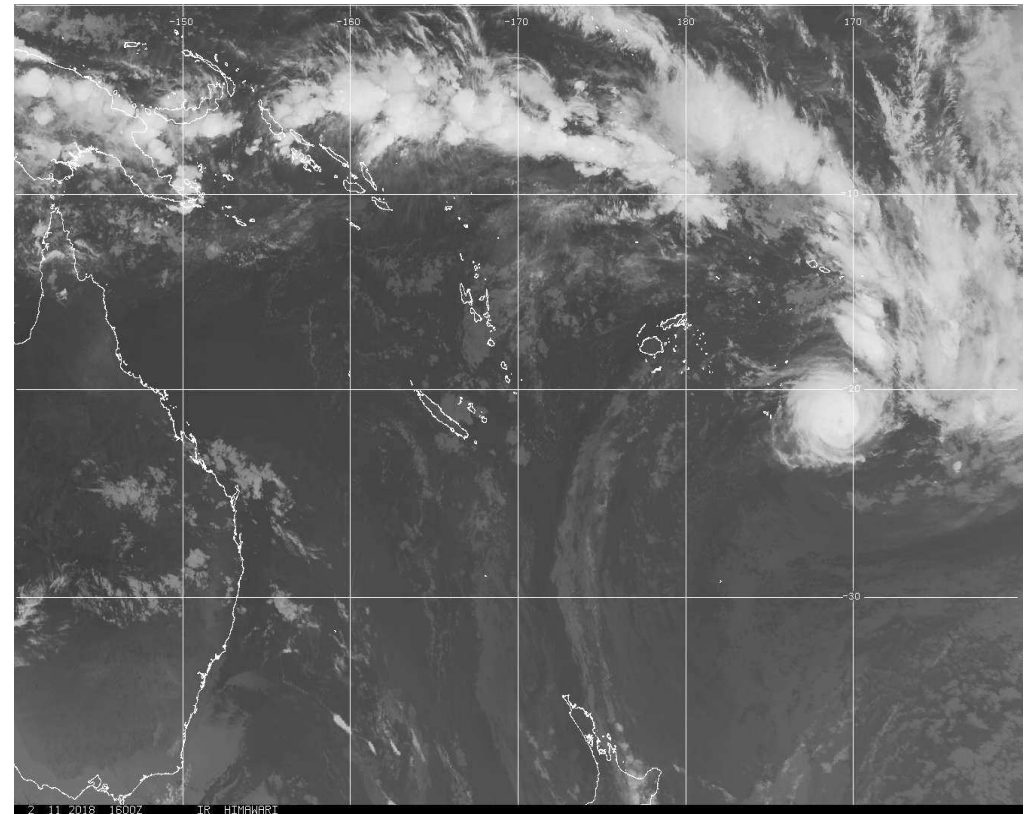
Warnings

- Fua'amotu TCWC was activated at 11:45am Saturday 10th February 2018
- TC Gita arrive evening in Tonga on 12th of February, 2018.
- A total of 22 Tropical Cyclone Advisories were issued on TC Gita (17 from Fua'amotu Tropical Cyclone Warning Centre until Roof damage around 10:30pm and the last 5 tropical cyclone warnings for Tonga were issued from RSMC Nadi until cancellation at 3pm Tuesday 13th February 2018.)
- Met Office remained on air and was able to continue to provide advice on the cyclone until it passed Tongatapu but could only do so to the local FM/AM Radio station.

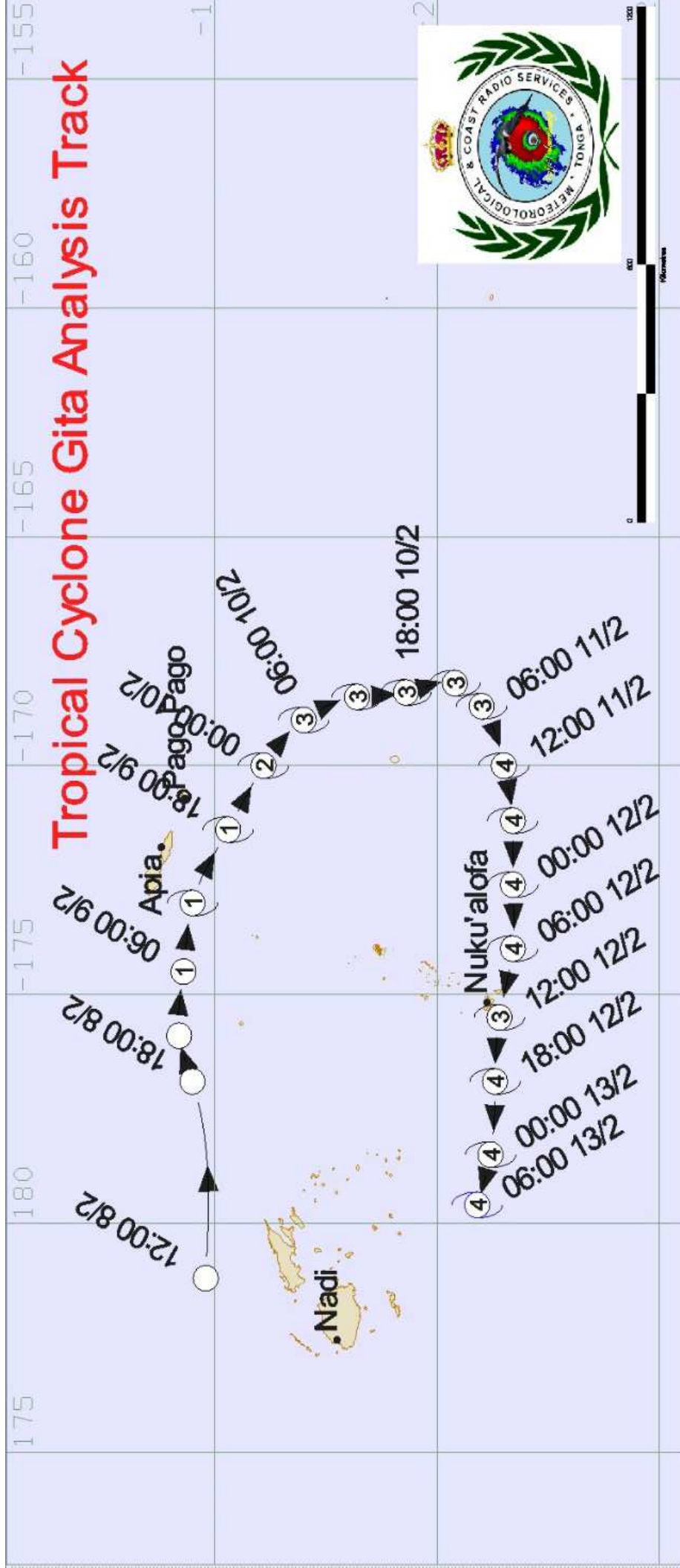
Satellite Image



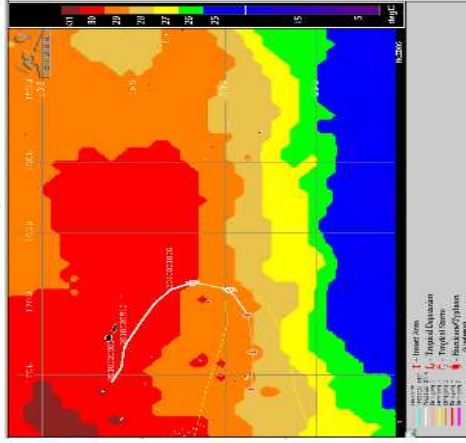
Visible Image



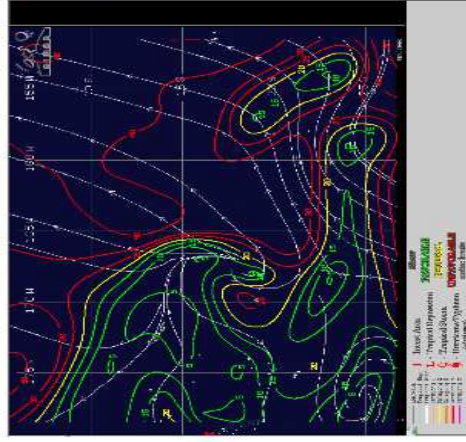
IR Imagery



Sea Surface Temperature



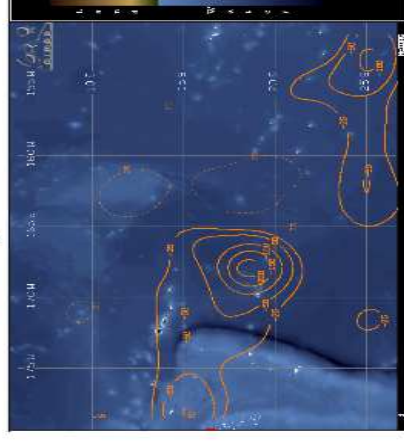
Shear



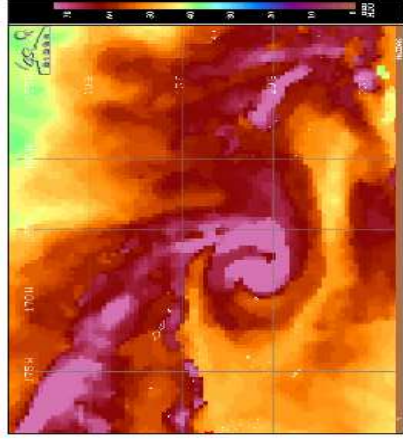
Steering Product



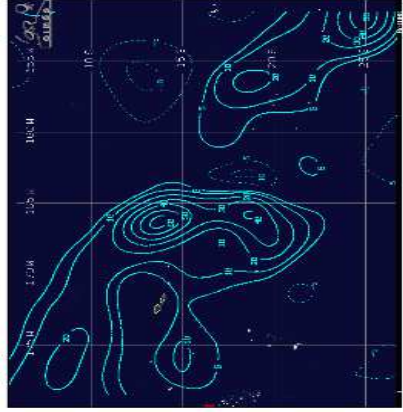
Vorticity



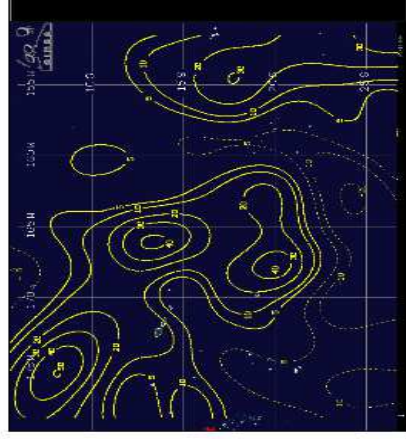
Total Precipitable Water



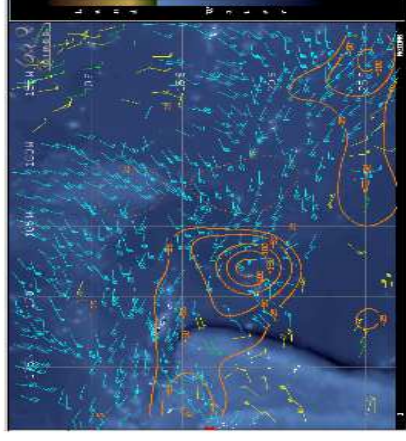
Convergence



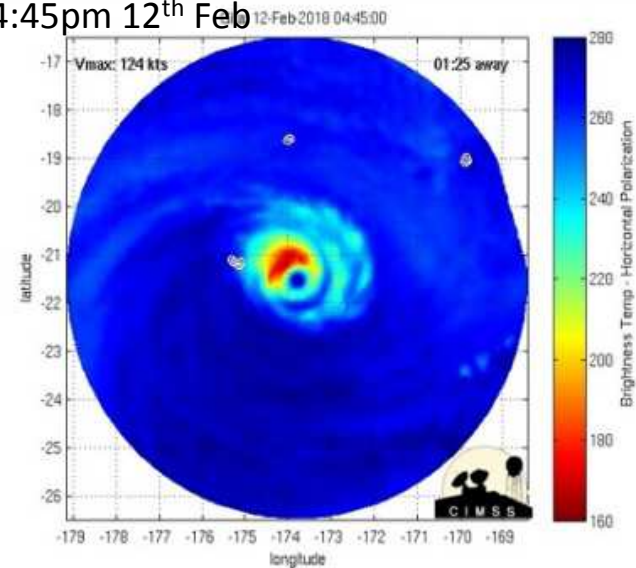
Divergent



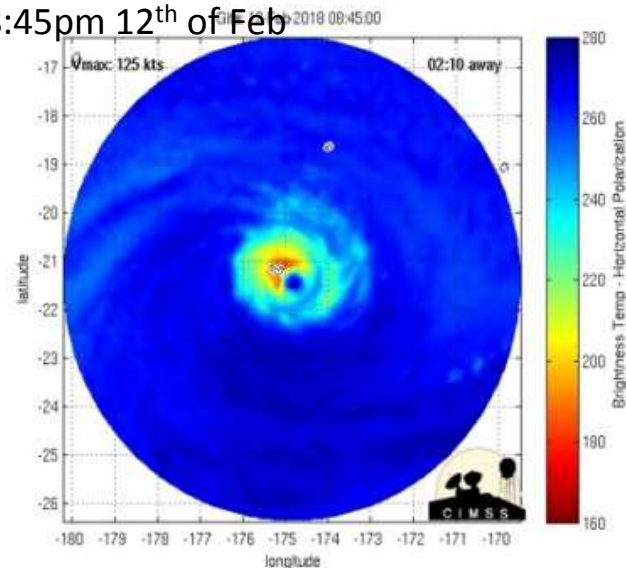
upper wind



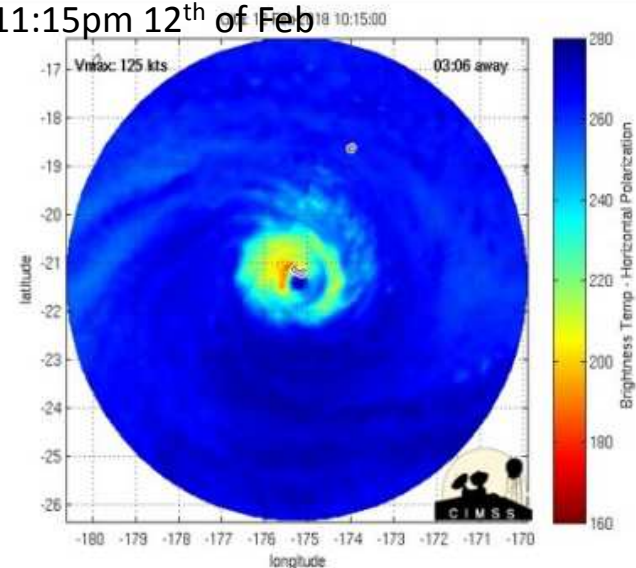
4:45pm 12th Feb



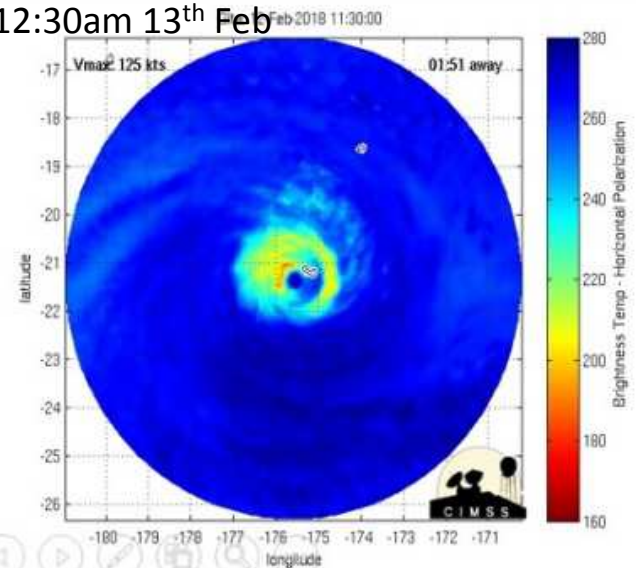
8:45pm 12th of Feb



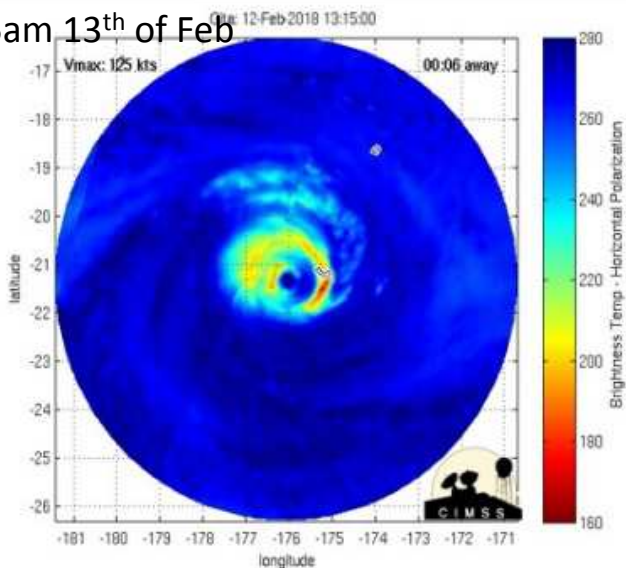
11:15pm 12th of Feb



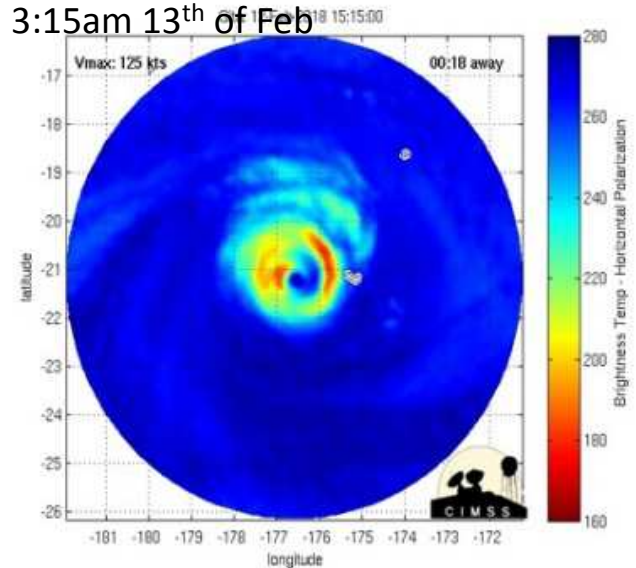
12:30am 13th Feb



2:15am 13th of Feb



3:15am 13th of Feb



Effects

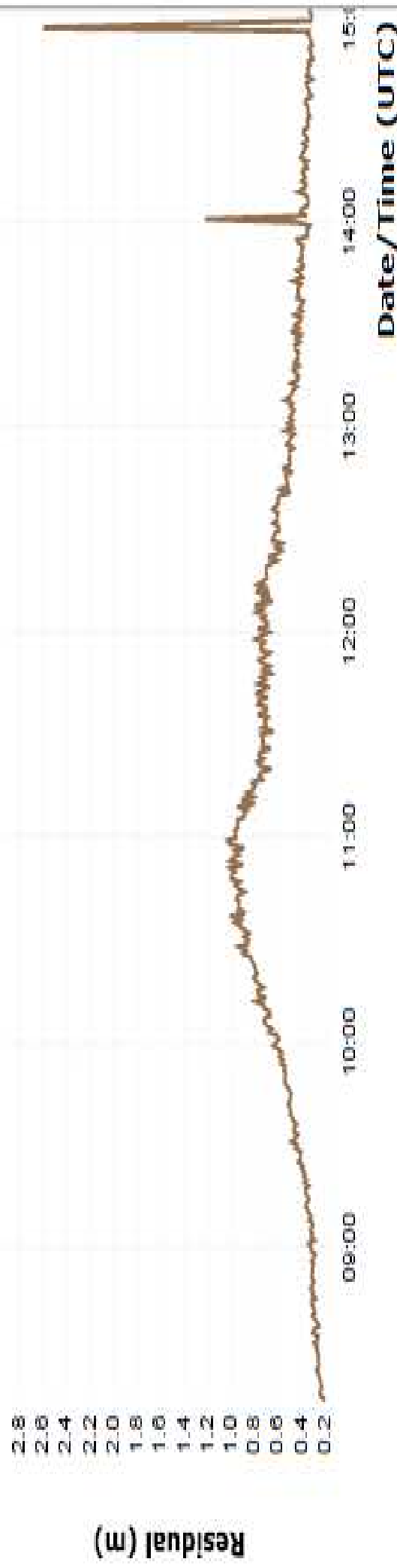
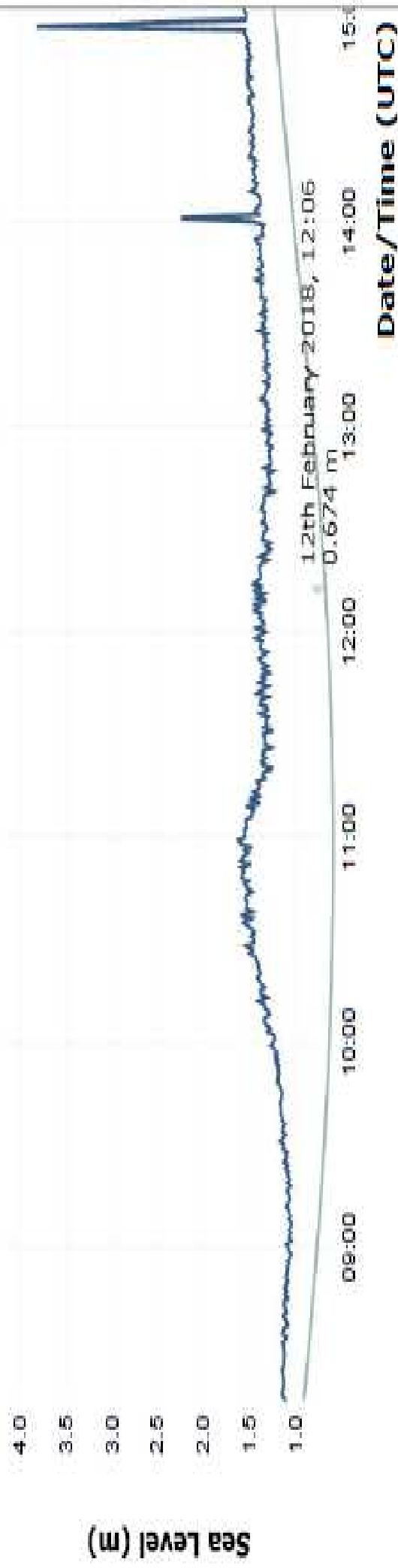
Eye cross over Fua'amotu station around 10:45pm (12/02/2018) and lasted for an hour

Observations recorded at Fua'amotu Meteorological Station and the Nuku'alofa tide gauge (Automatic Weather Station) were

Station	Winds	Lowest Pressure	Rain 24 hours
Fua'amotu	250 66G100 knots (1015pm)	947hpa (1115pm)	146mm
Nuku'alofa	300 73G105 knots (1115pm)	956hpa (1115pm)	200mm

The largest wave recorded was 2.4m above normal tide about 4am Tuesday 13 February.

Sea Level



Fua'amotu Tropical Cyclone Warning Center



Lessons learnt

- Social media dissemination
- Radio interviews
- Impact information
- State of Emergency 12hrs before impact
- Regular NEMC meetings during warning phase
- Strong leadership from the Executive

BREAKING NEWS

“We are alive, material things don’t matter!” says Gita survivor

Emergency Friday 16 February 2018 8:27pm



Nuku'alofa, Tonga : Meliame Matu, in her 50's, stands outside her home battered by Tropical Cyclone Gita in Ha'ateiho, doing her laundry. She said they are thankful to be alive after having to run from a collapsing house to a nearby church during

the cyclone. [Read more...](#)

► Free to view

Early cyclone warnings helped people escape death and injuries

Emergencies Friday 16 February 2018 8:14pm



Nuku'alofa, Tonga : Cyclone Gita evacuees currently staying in an evacuation centre at The Church of Jesus Christ of Latter Day Saints in Ha'ateiho, said today that listening to the cyclone warnings helped them decide to move to the evacuation centre before

the massive storm hit Tongatapu. [Read more...](#)

Conclusion

- Tonga Met Office is building its capacity to extend our products and services to help the public for their decision making in management of their future works for their life and property.
- TMS still in process of implementing a new SOP for Severe Weather Forecast to operate during a Non-TC related event
- TMS still in process to implement of a SOP for Impact Forecast