



TALOFA

AND

WELCOME TO

TUVALU COUNTRY REPORT

Richard Gokrun
Tuvalu Meteorological Services
Email: richardgokrun@gmail.com



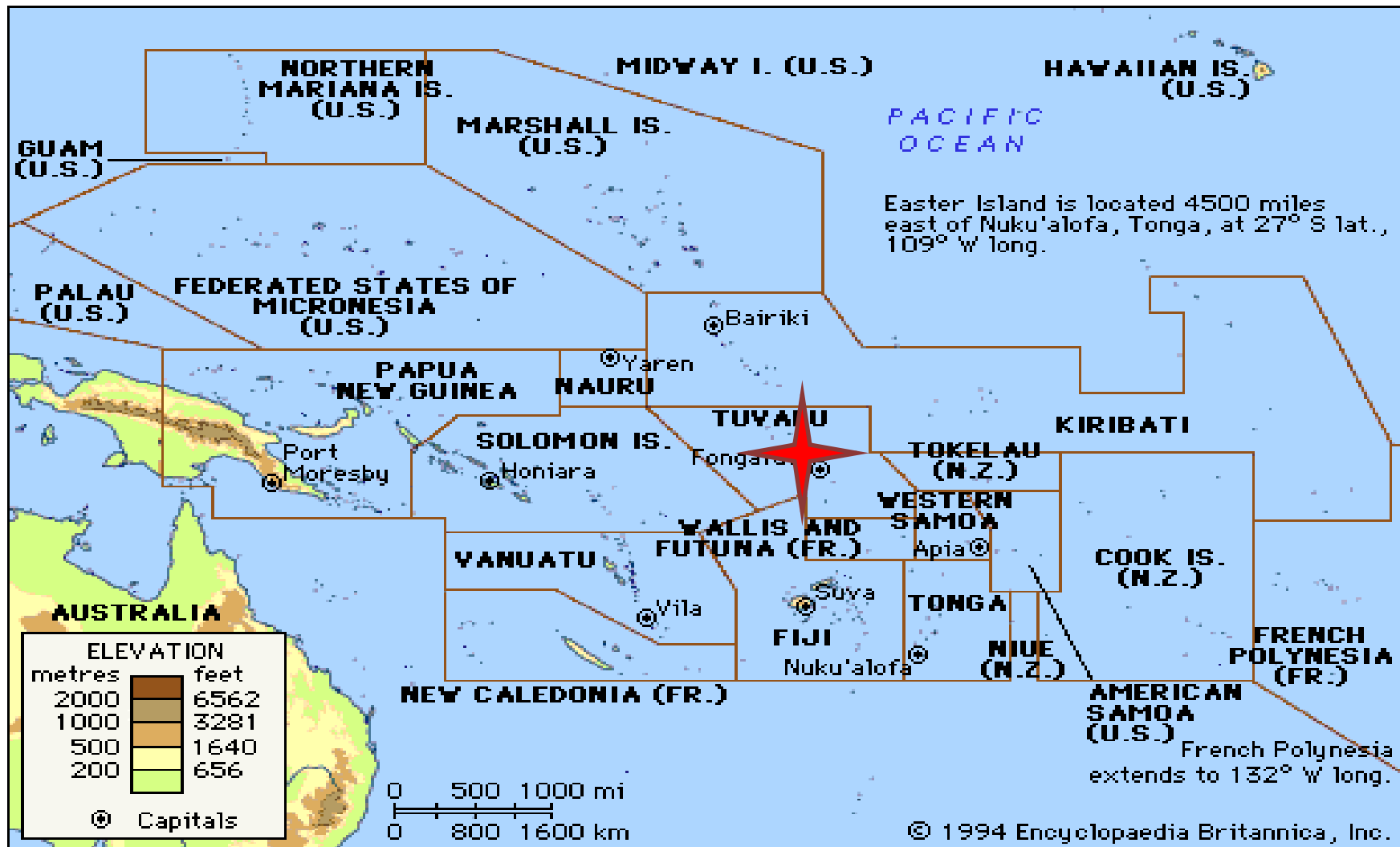
Content

- - Overview of Tuvalu history
- - Organizational structure
- Severe Hazards
- Future plan

WHERE IS TUVALU



Pacific Island Countries



BRIEF HISTORY



- Tuvalu is a group of nine tiny islands in the South Pacific which were proclaimed a British Protectorate along with the Gilbert islands in 1892 and became a independent Realm within the Commonwealth on 1 Oct 1978.

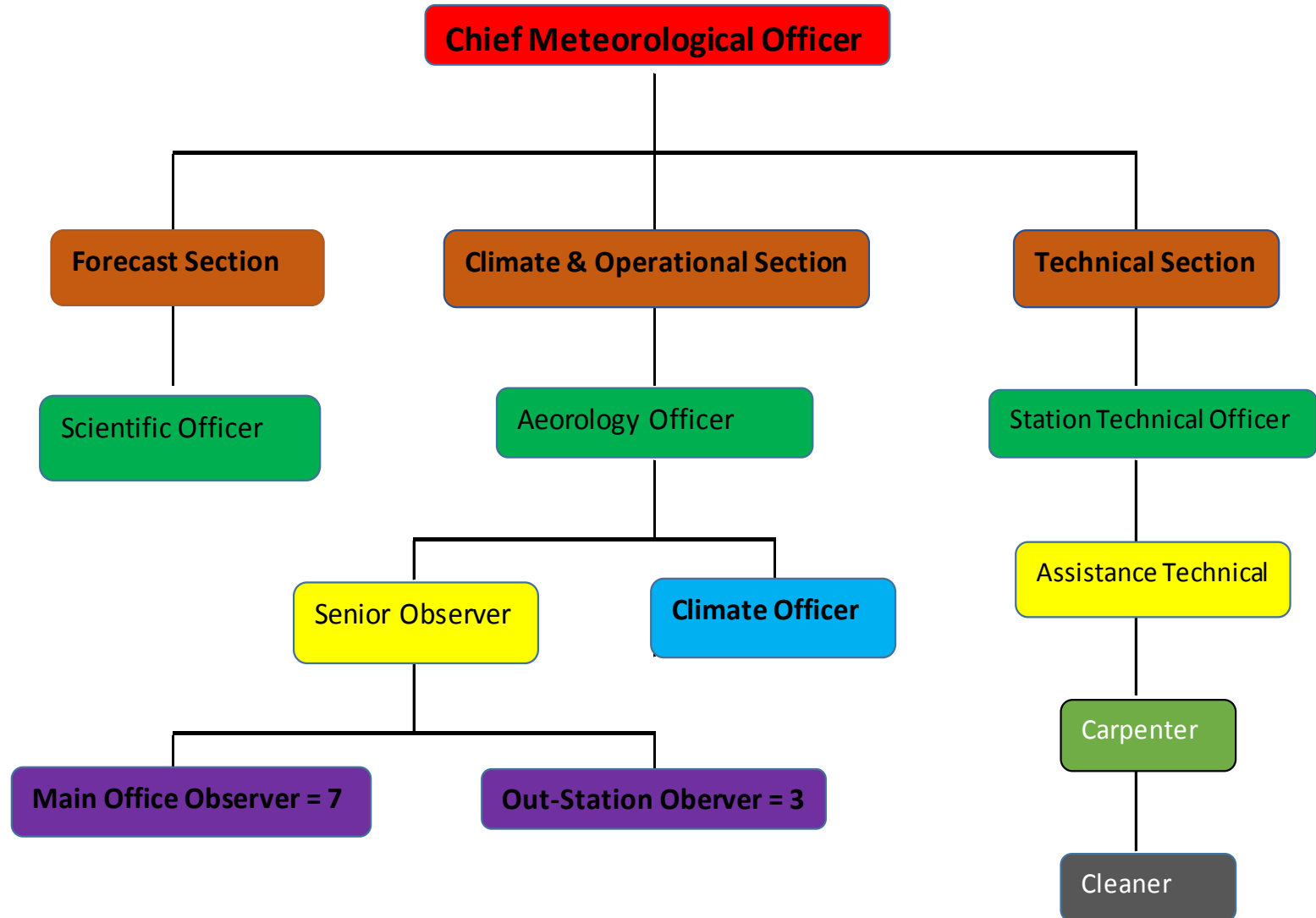
- A population of 11,200.
- A total land mass of 26 sq km

 3 Meteorological Manned Station in Outer-islands

 Head Office – Manned station and AWS

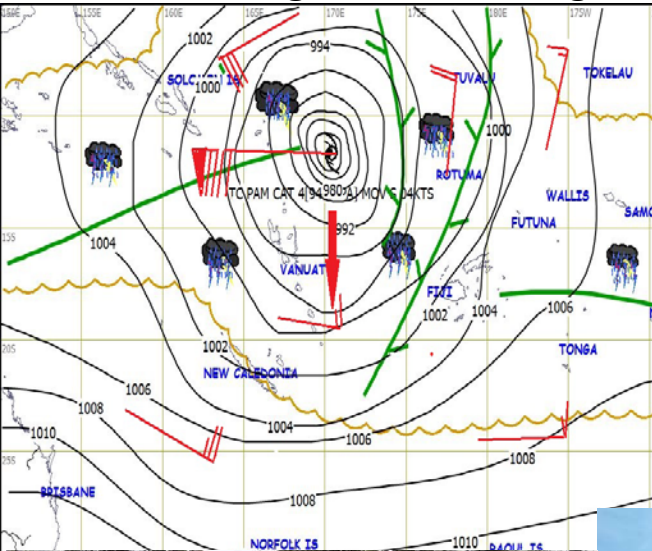
TUVALU METEOROLOGICAL SERVICES STRUCTURE

Total of 22 permanent post



• Hazard 1: Tropical cyclones (Typhoons)

- Tropical Cyclone PAM March 2015, Tuvalu declare state of emergency on the 13th March until the 27th affected most island atolls with severe coastal damages from strong Surge and inland Flooding.



Severe Thunderstorm

In June 26th 2007 severe thunder storm strike telecommunication mask damaging whole system of mobile and landlines leaving Tuvalu with no communication to its outside world for couple of weeks.



Mini Tornado

Mini tornado on 24th May 2013 one house was affected.

Flying Iron roof on pandanus tree causes by tornado



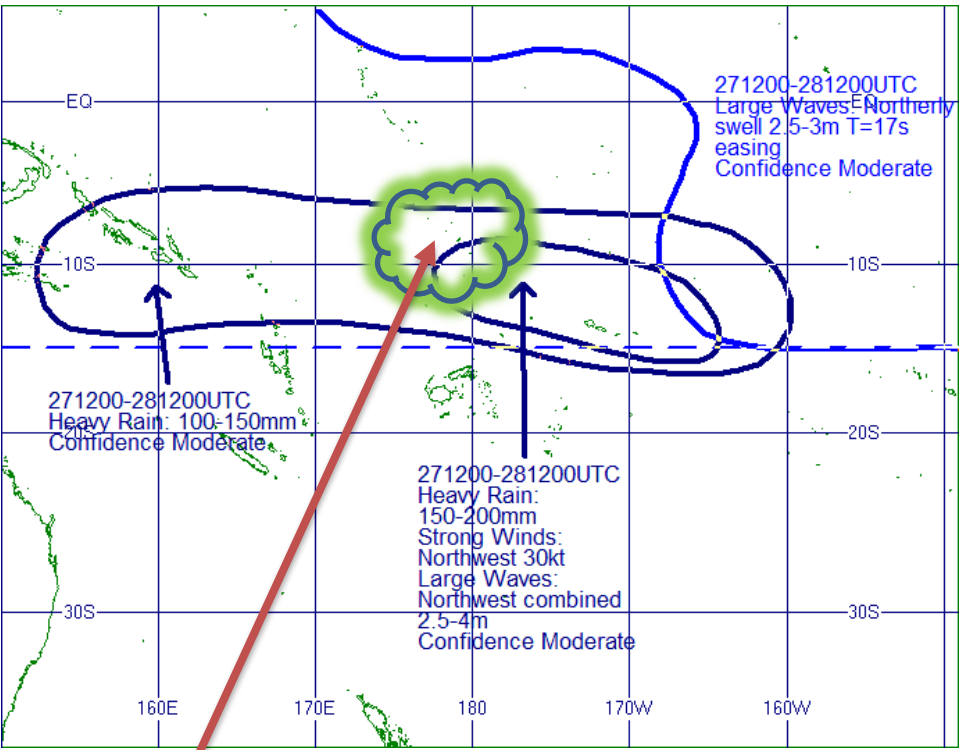
• Hazard 2: Torrential Rain

In January 27, 2015 was the highest rainfall ever recorded within 24hrs. The total rainfall at the time was 347.5mm. This event was luckily not to coincide with king tides, otherwise severe flooding would affect most property.



Heavy rainfall flooded the air strip and houses.

Issued at: 03:06 27 Jan 2015 UTC
Valid at: 12:00 27 Jan 2015 UTC
A trough extends from the Solomon Islands towards Samoa and the Southern Cook Islands.



Tuvalu Groups

● Hazard 3: Drought

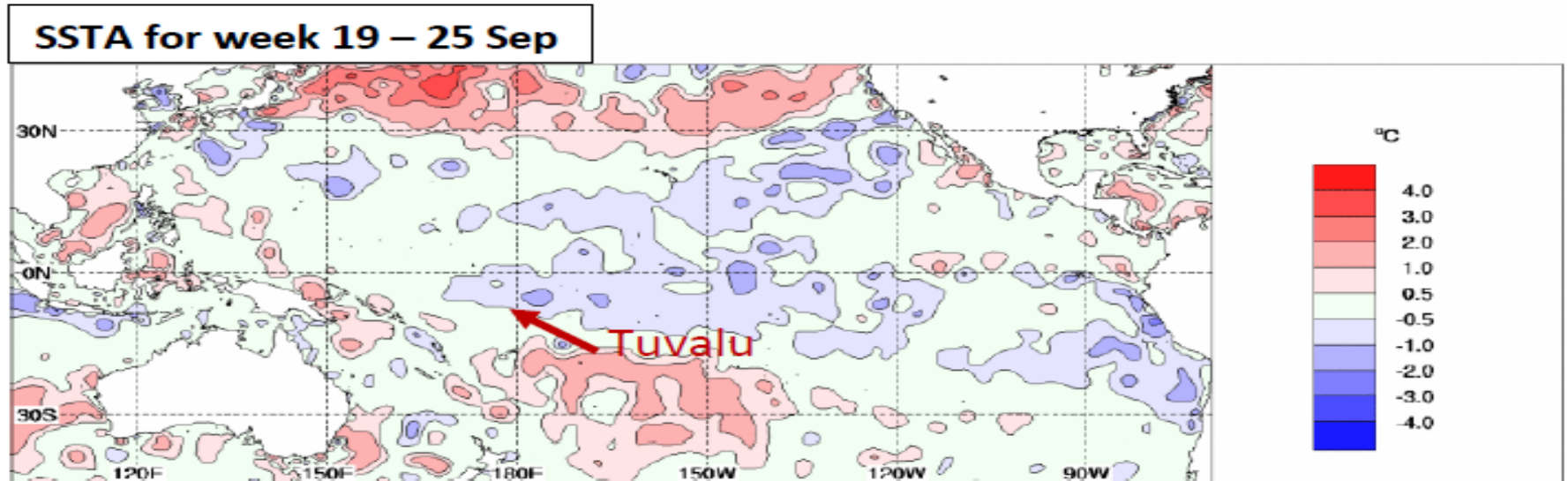
- In September 28th , 2011 Tuvalu declare state of emergency.
- Severe Impact on vegetation and food crops.
- Each family were ration with 40litres of water per day.



Dying Banana and Breadfruit Trees with local root crops *Taro* and *Pulaka*



Sea Surface Temperatures anomalies - Pacific



Major hazard

Features of new generation GEO met. satellite

Hazard 1: Tropical cyclones

: Severe Thunderstorm & Tornado

Multi-spectral bands:

New signals derived from multi-spectral-band observations will support issuance of more effective warnings.

High Spatial Resolution:

New resolution data will easily determine the atmospheric structure identifying convective and active cloud band that can causes severe thunderstorm and tornado.

New Instruments:

Lightening mapper product that can be detected in a particular area can serve as an advanced early warning to the public.

Hazard 2: Torrential Rainfall

Multi-Spectral bands:

With different band of visible and infrared runs will enable early detection of very active and convective formation of clouds .

High Spatial resolution:

Resolution of 0.5 to 1.0km from visible will easily determine the atmospheric structure at that time.

Hazard 3: Drought

Multi spectral bands:

New signals derived from multi-spectral band observation before extremely long period of drought are useful for daily decision making.

JMA's requirements to get desired benefits from the new generation of satellites

(Q 3 of the JMA questionnaire)

| Major hazard | Features of new generation GEO met. satellite |
|--|---|
| Hazard 1: tropical cyclones : severe thunderstorm & tornado | <p>Training in imagery analysis: Training would develop better understanding of new signals from multi-spectral band observation.</p> <p>Training in Product Development: This determines the development of a phenomena and monitors its capability of developing or dissipating.</p> |
| Hazard 2: Torrential rain | <p>Easy to understand product: Using this product from multi spectral band will easily understand indications of new signal prior to extreme heavy rain.</p> <p>Stable provision of imagery without communication errors: Consistent provision of imagery is highly recommended not to be interfere when there is communication errors during extreme heavy rain.</p> |
| Hazard 3: Drought | <p>Training in imagery analysis: This imagery training will be better compared with multi-spectral observation for better understanding of the impact.</p> <p>Training in the basic of multi-spectral observation: Multi- spectral observation band observation may indicate areas that may easily affected during a severe drought at that period.</p> |

FUTURE PLANS

- Need urgent upgrade of internet speed/bandwidth for more reliable internet connection for downloading satellite images and animation.
- Tuvalu Met Services (TMS) needs bigger server to be able to process the amount of satellite pictures every 10 minutes and archive download data electronically.
- Tuvalu Met services needs capacity building in satellite meteorology training and will actively attend or participate in coming years focusing new-generation satellite imagery and utilization.
- Coastal inundation modelling (need good near coast bathymetry data)
- Improving service quality and delivery
- Improved communication system and early warning. Capability to prepare and deliver high quality early warnings and forecasts of weather, climate and water related hazards

Thank you for your attention