

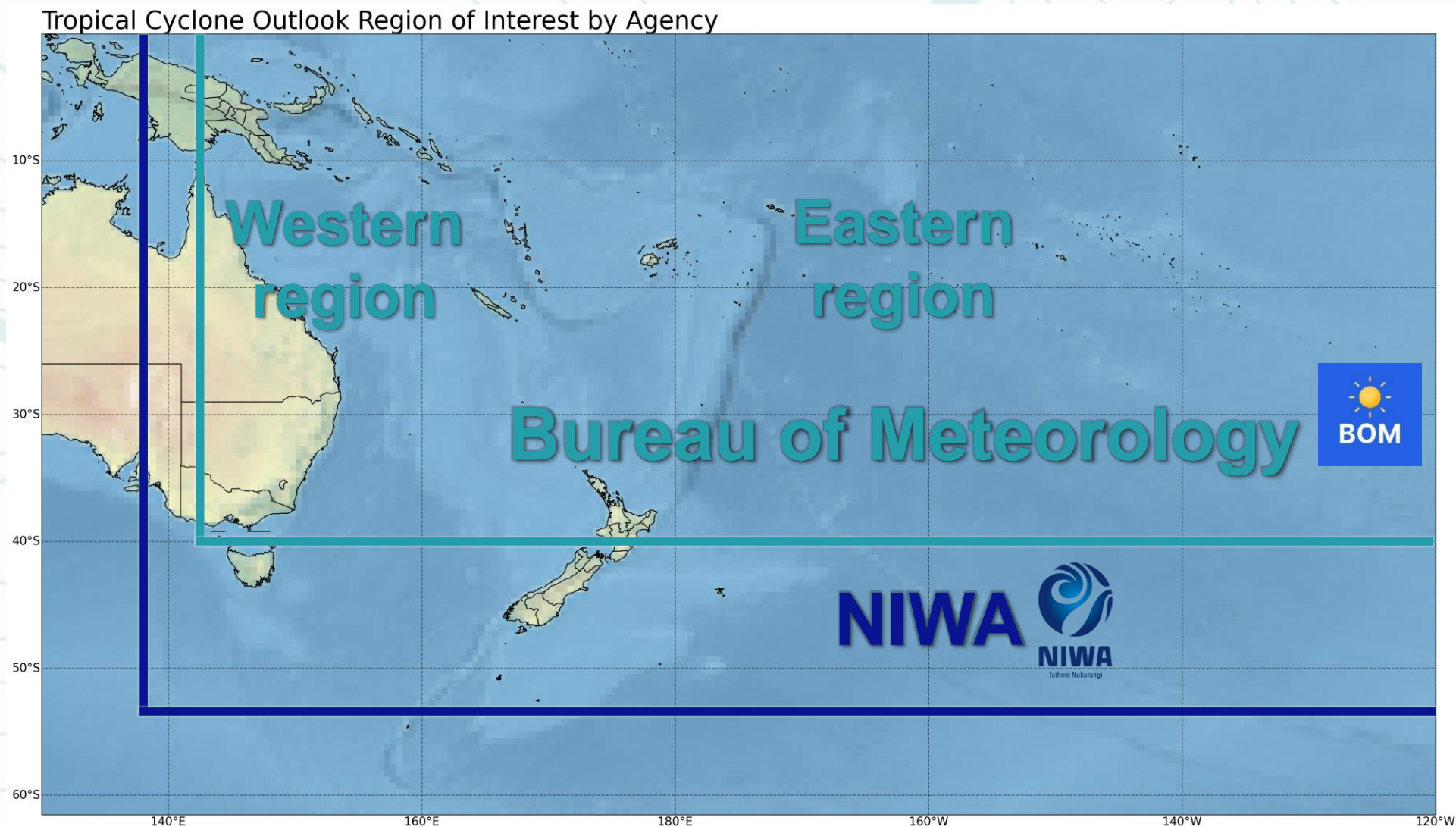
Looking back – Review of 2021-2022 cyclone season

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[Climate Officers-NMS]

Outline of Presentation

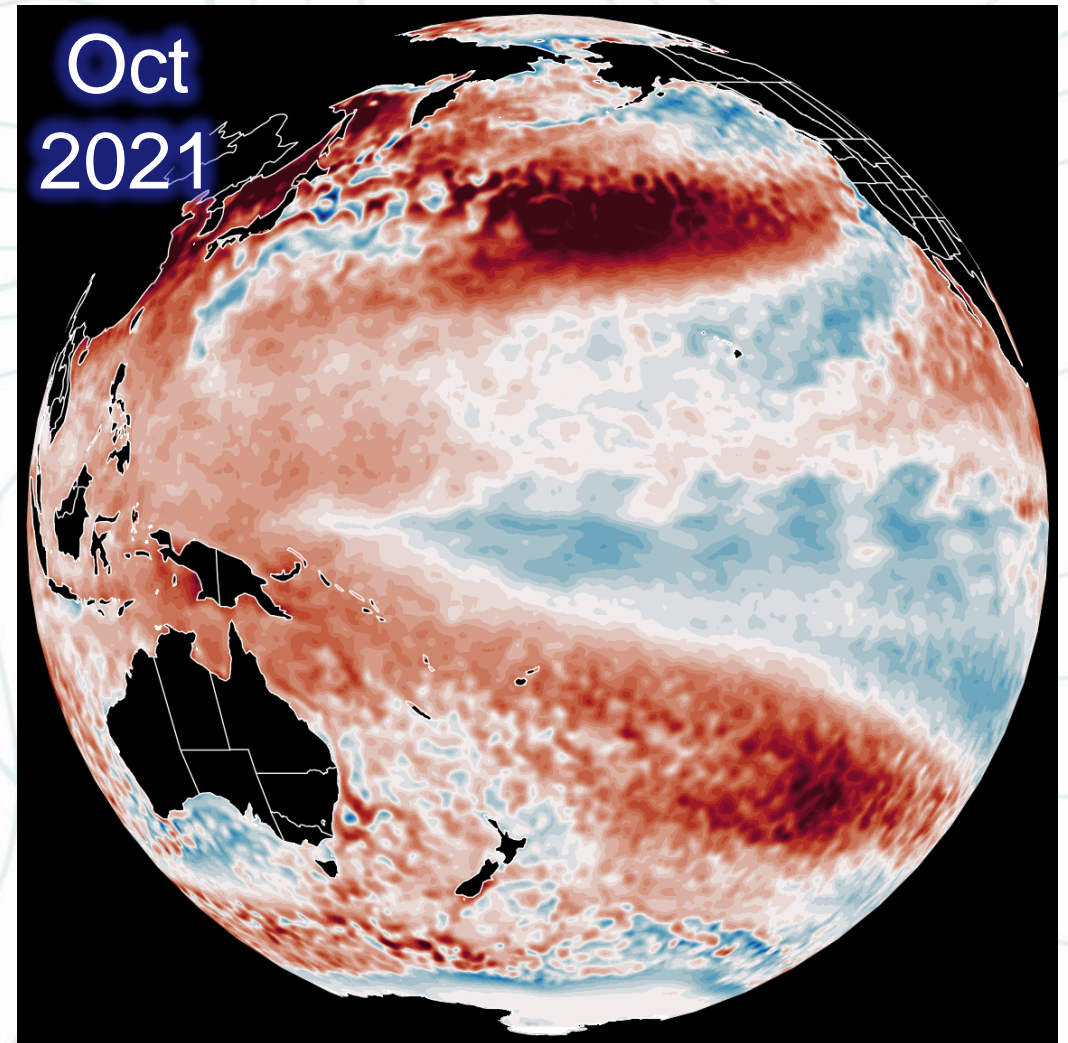
- Cyclone numbers forecasted in PICO9
- Cyclones in 2021-2022 cyclone season
- Significant events
- Pictures of cyclone impacts

Friendly reminder: cyclone outlook areas differ



PICOF 9 2021-2022 Cyclone prediction

- Climate model outlooks favour weak La Niña conditions in the tropical Pacific Ocean from November to February. It is expected that the La Niña conditions will return to the neutral state in March.
- There is an enhanced risk for tropical cyclone activity in the western part of the basin over November to April. In the central part of the region, cyclone risks are generally near normal, with reduced chances farther east.
- It's important to remember that it does not take a severe cyclone to produce severe impacts. Coastal and river flooding rainfall can occur with a distant, weak or former cyclone. Communities should remain vigilant, and follow forecast information provided by their National Meteorological and Hydrological Service (NMHS).



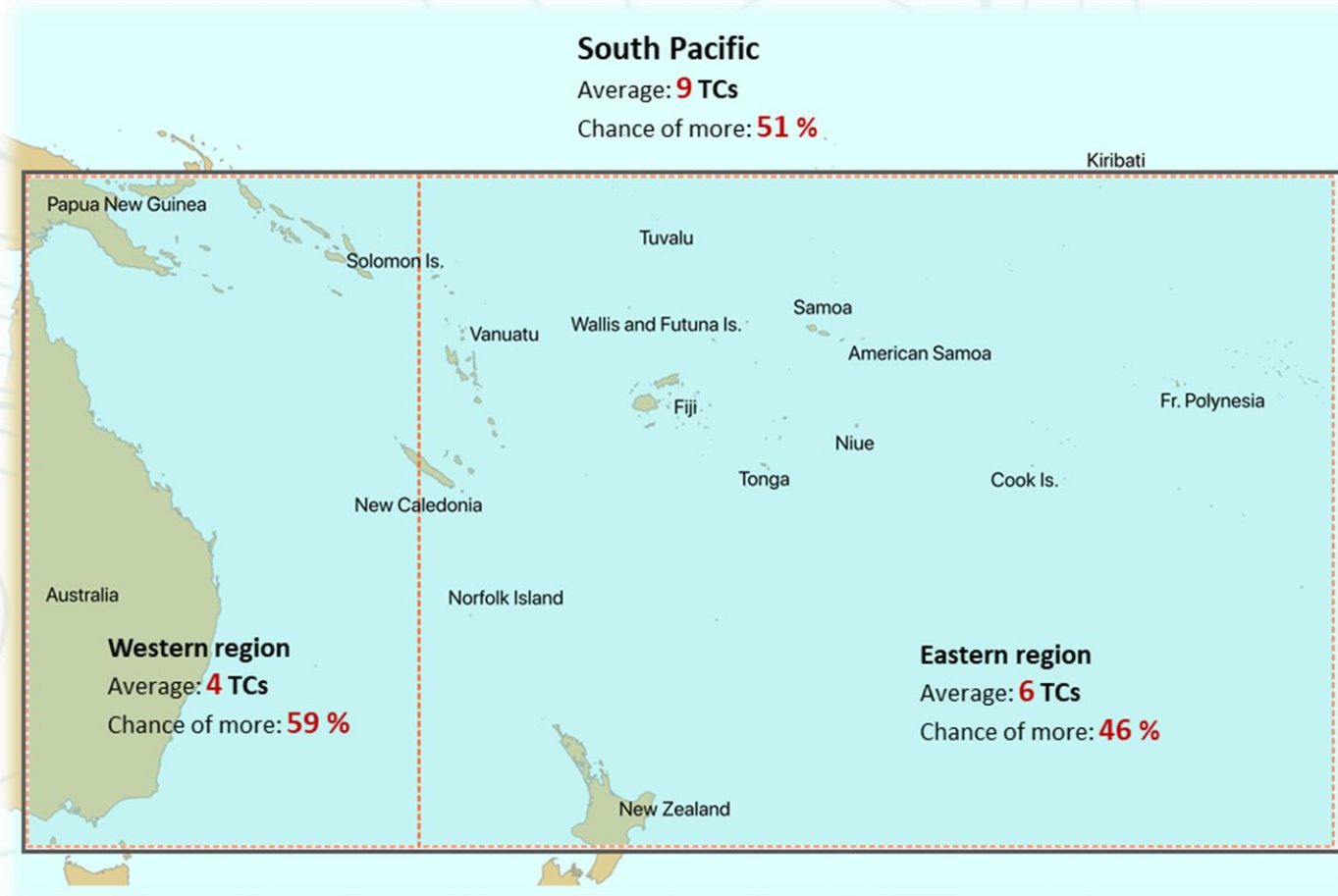
2021/22 tropical cyclone outlook

Agency	Prediction	
	Total TCs	Severe TCs
BoM (142.5°E - 120°W)	59% chance of above average (9)	
NIWA (135°E - 120°W)	9-12	3+

- **Enhanced risk** for tropical cyclone activity in the western part of the basin. In the central part of the region, cyclone risks are generally near normal, with reduced chances farther east.
- La Niña conditions were present

2021-22 BoM outlook

Above average numbers favoured in the west



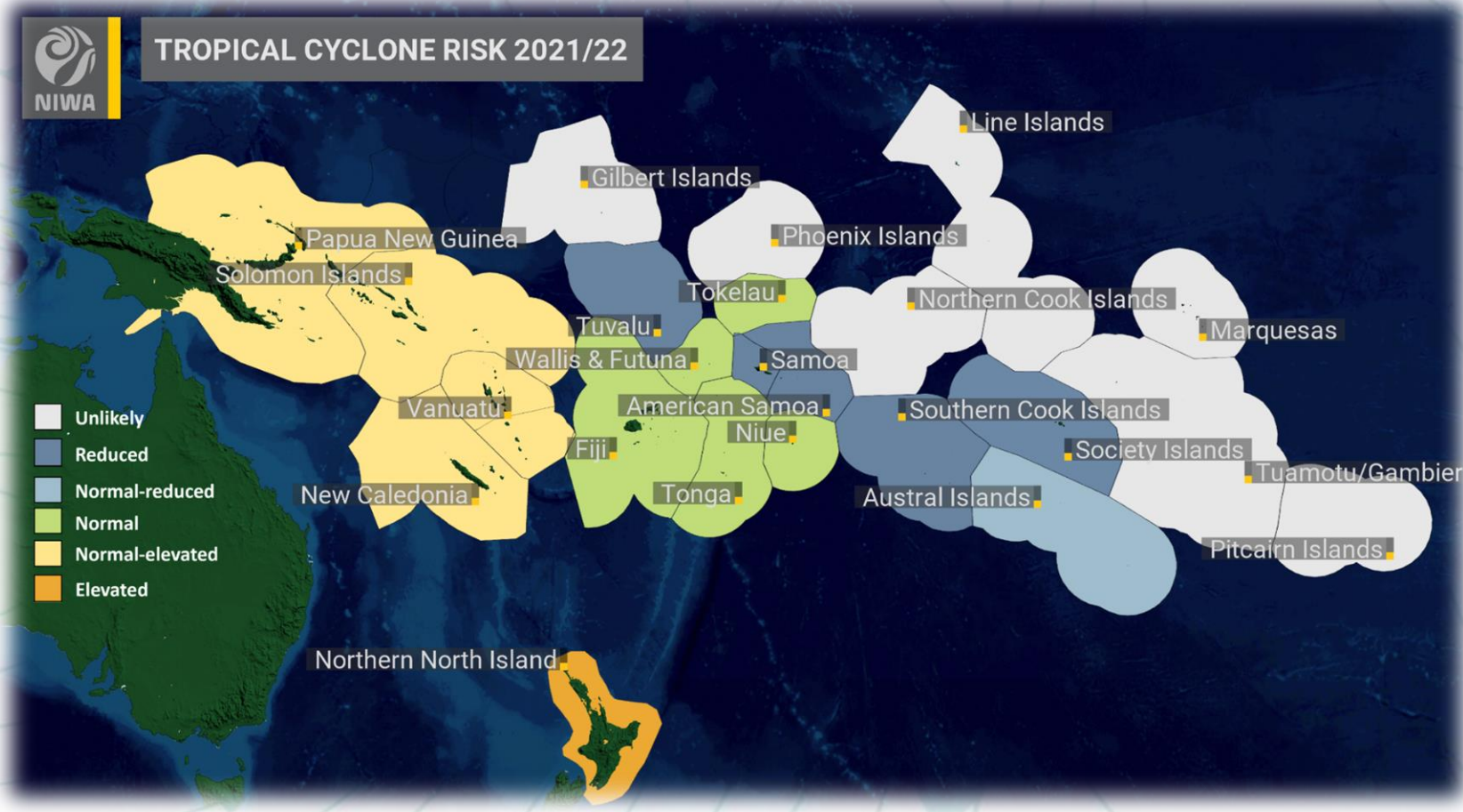
- Additional info: <http://www.bom.gov.au/climate/cyclones/south-pacific/#tabs=Outlook>

2021-2022-BoM Cyclone Evaluation

- 7 Tropical Cyclones occurred in the Southwest Pacific (east of the tip of Cape York) of which two became Cat. 3 or higher.
- These are Ruby, Cody, Dovi, Eva, Fili, Seth and Tiffany. Cody and Dovi became hurricanes.
- BOM predicted higher than normal chances of TCs in the Western (Pacific) region (59%). There were 5 (not Cody and Eva) which is above the average of 4 so this outcome is a hit or consistent with the outlook.
- BOM predicted near average numbers of TCs in the Eastern (Pacific) region (46%). We had 5 (not Seth and Tiffany) which is close to the average of 6 so this outcome is a hit or consistent with the outlook.
- This is assuming there is no further activity this season.

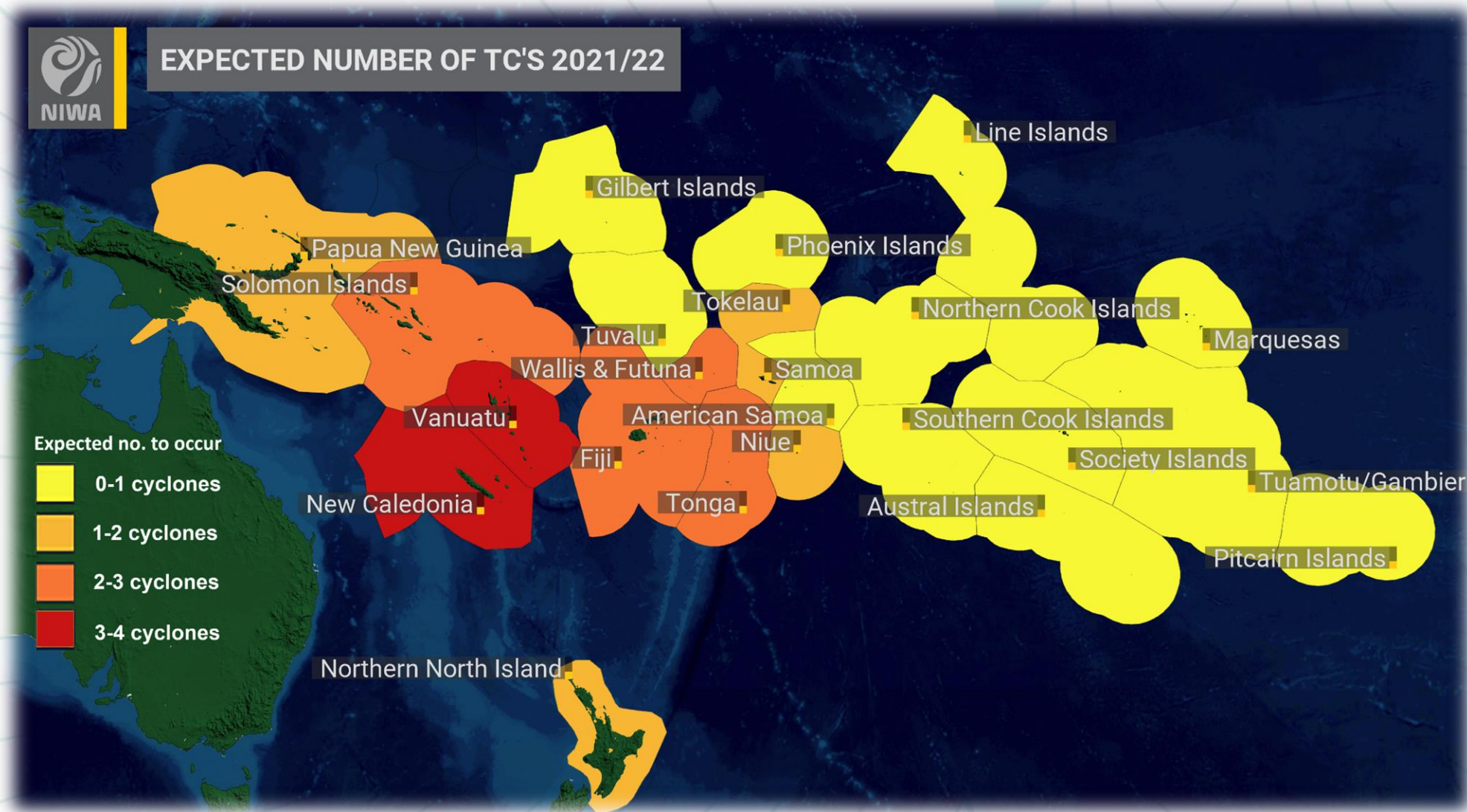
2021-22 NIWA cyclone risk outlook

Normal to slightly above normal season predicted

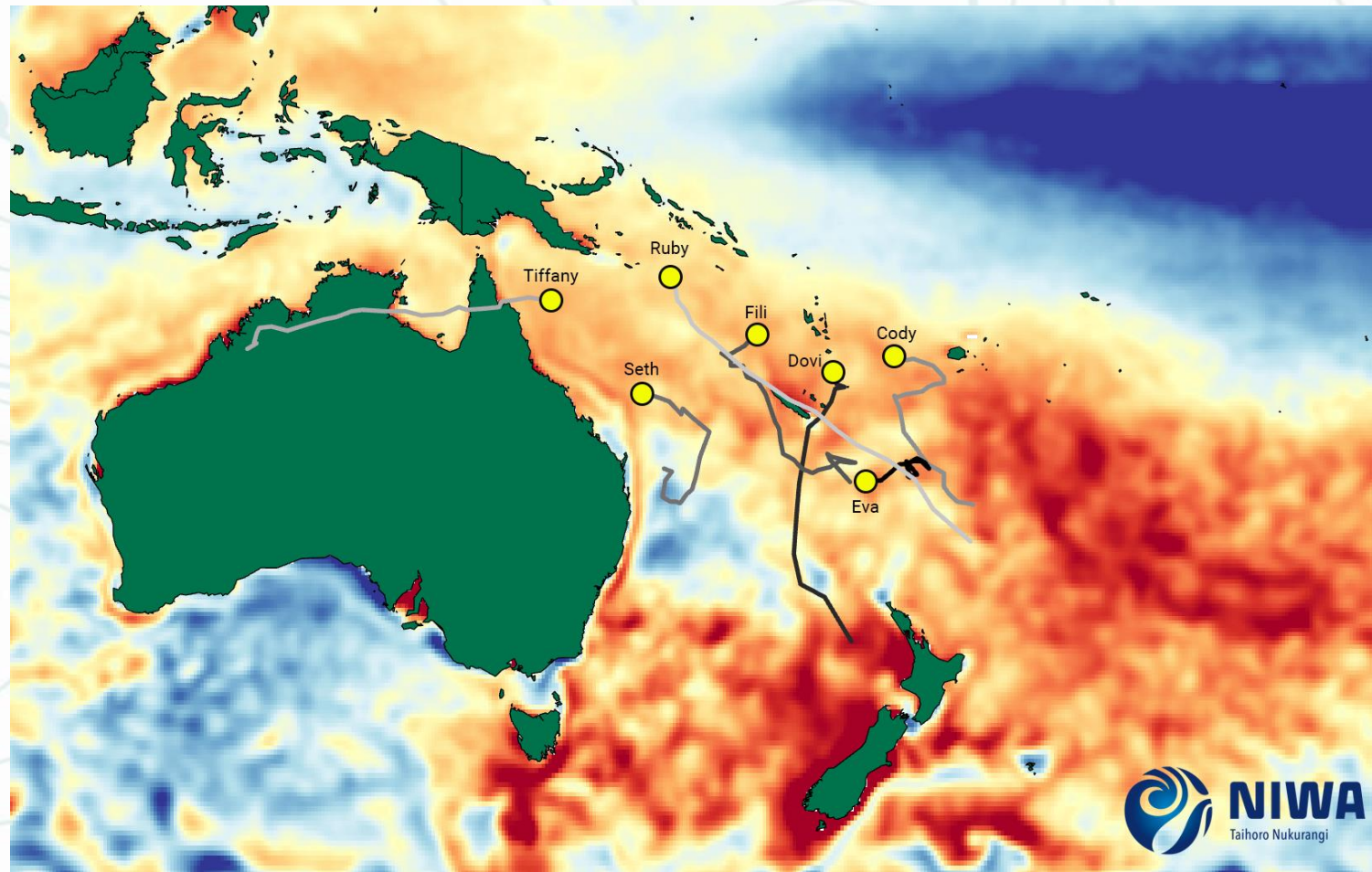


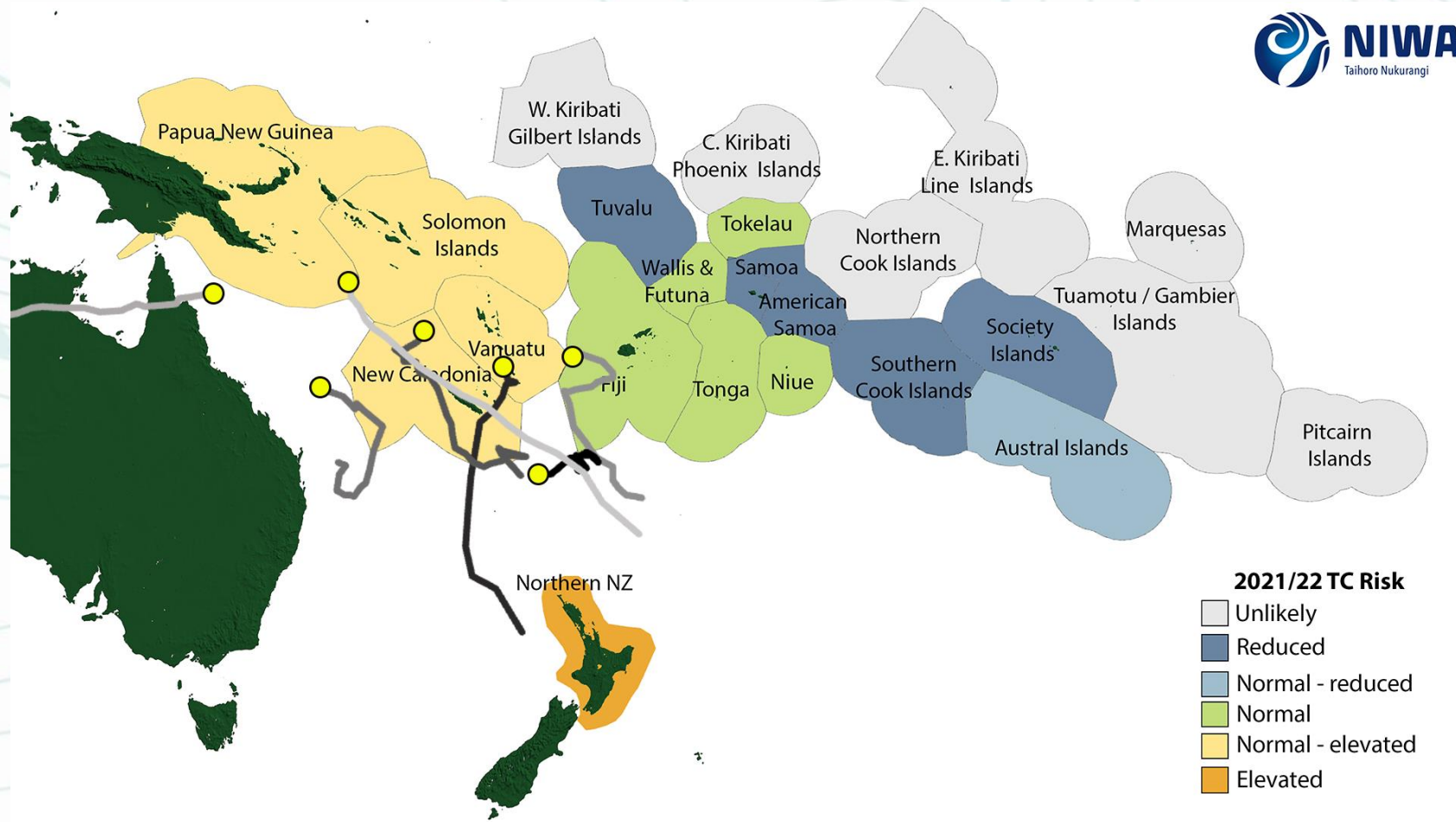
2021-22 NIWA cyclone number outlook

9 to 12 named storms predicted



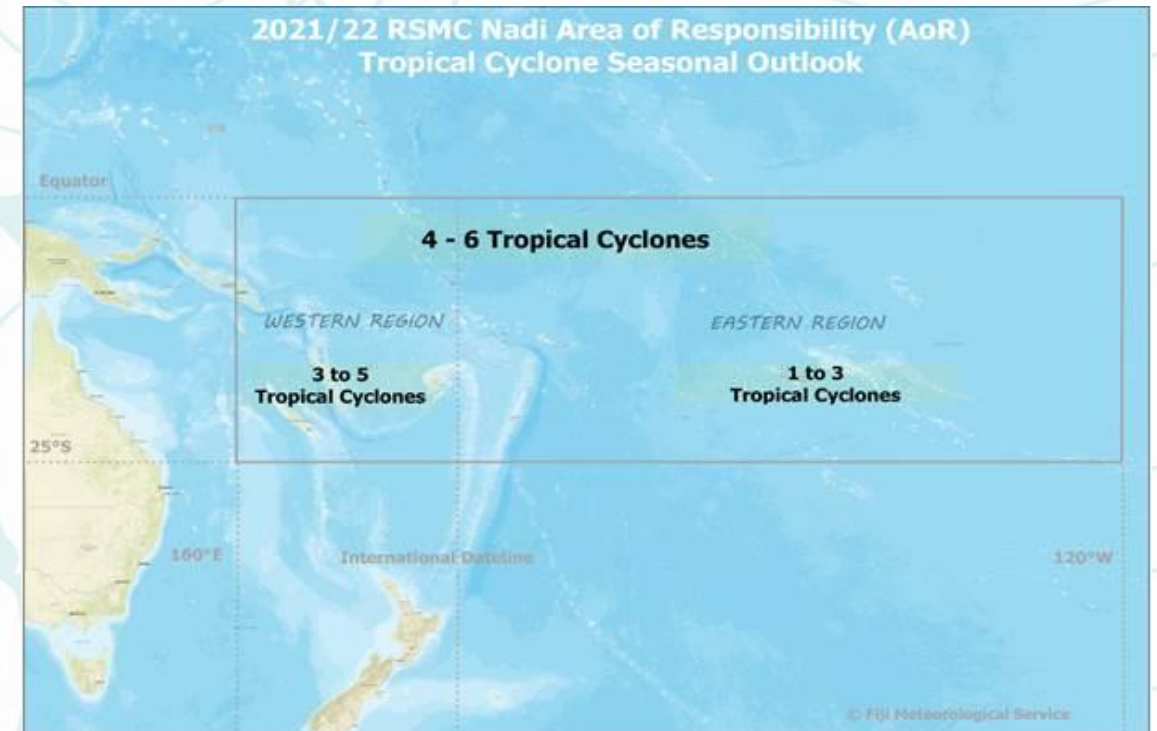
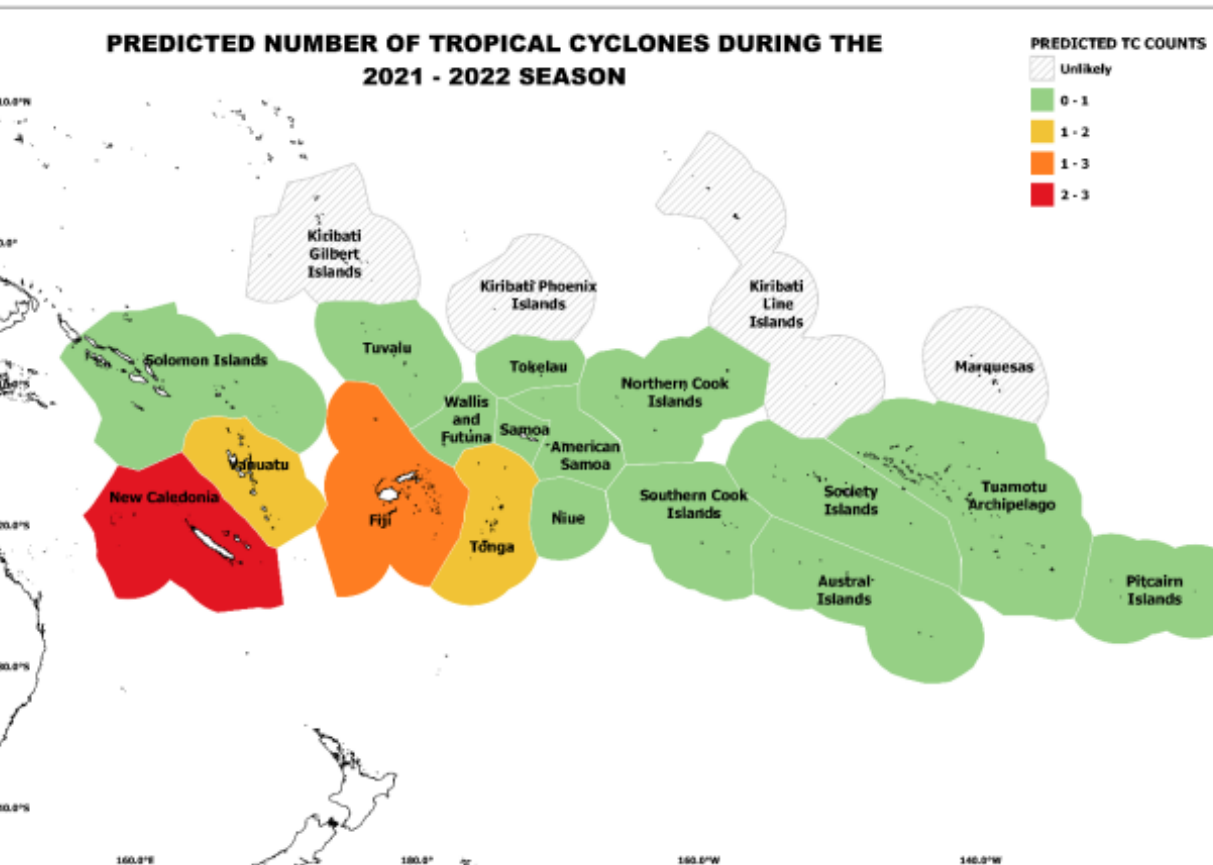
2021-2022 cyclone season- NIWA Evaluation



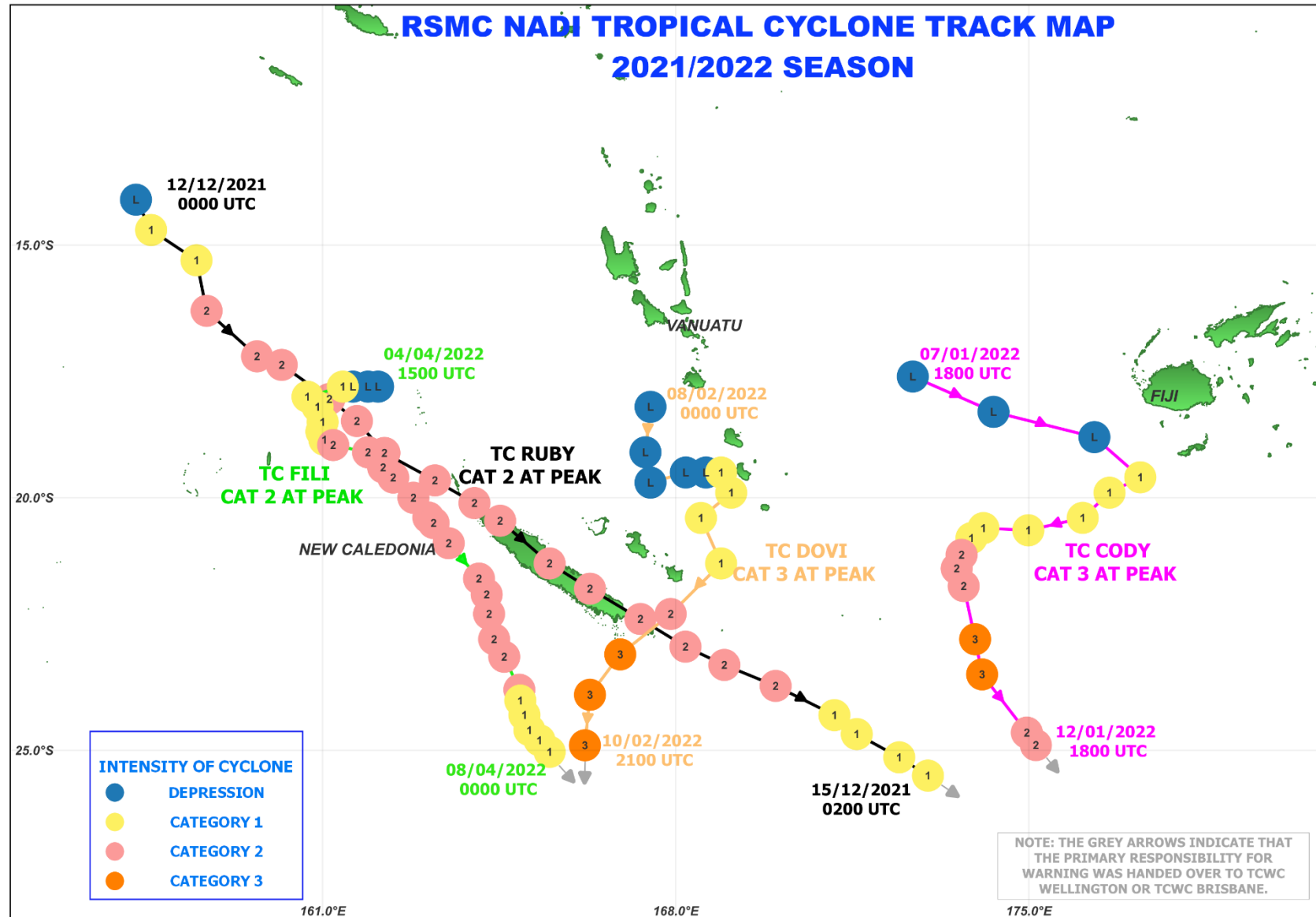


Fiji Met Services- Forecast

- 4-6 cyclones predicted

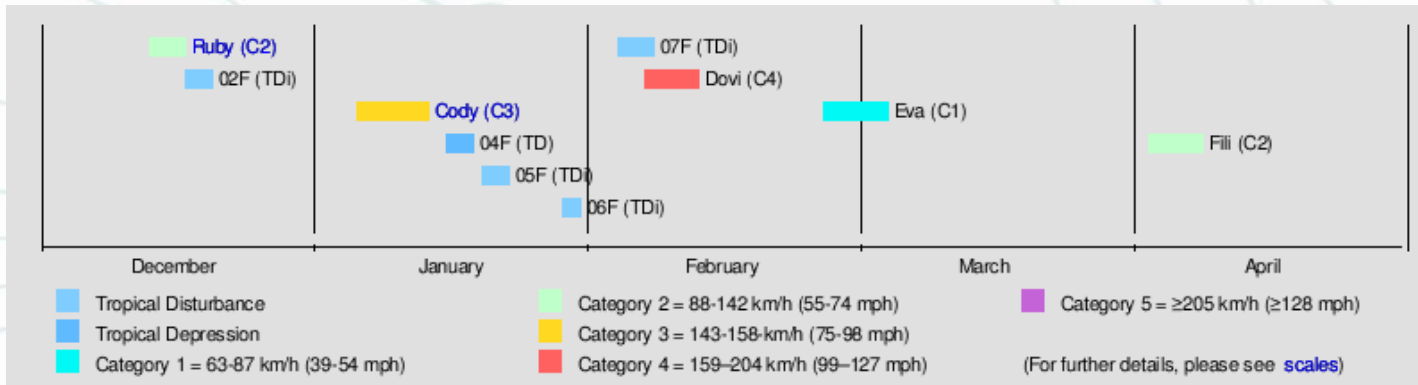


Fiji NMS cyclone forecast Evaluation



2021-22 Cyclone Seasonal summary

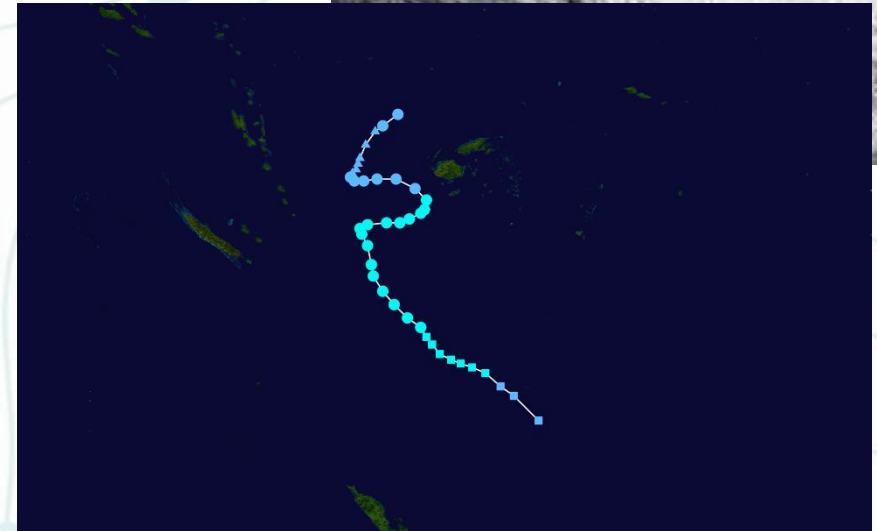
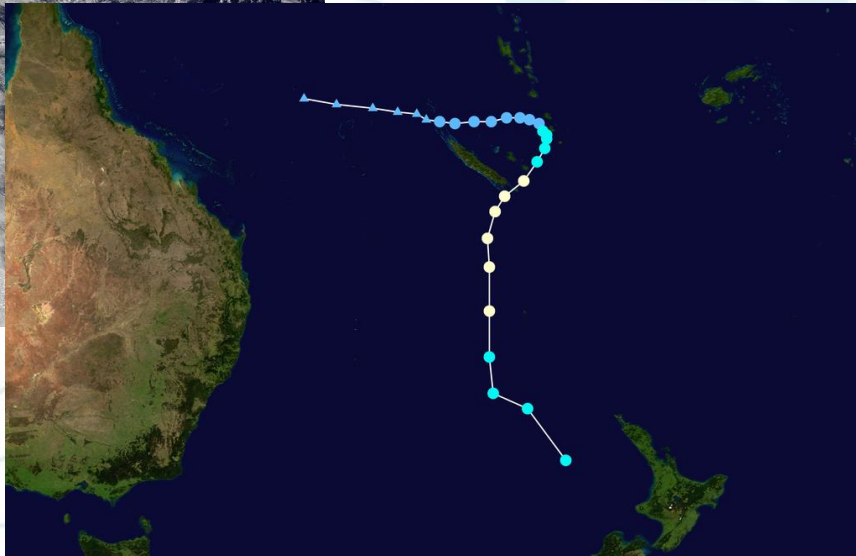
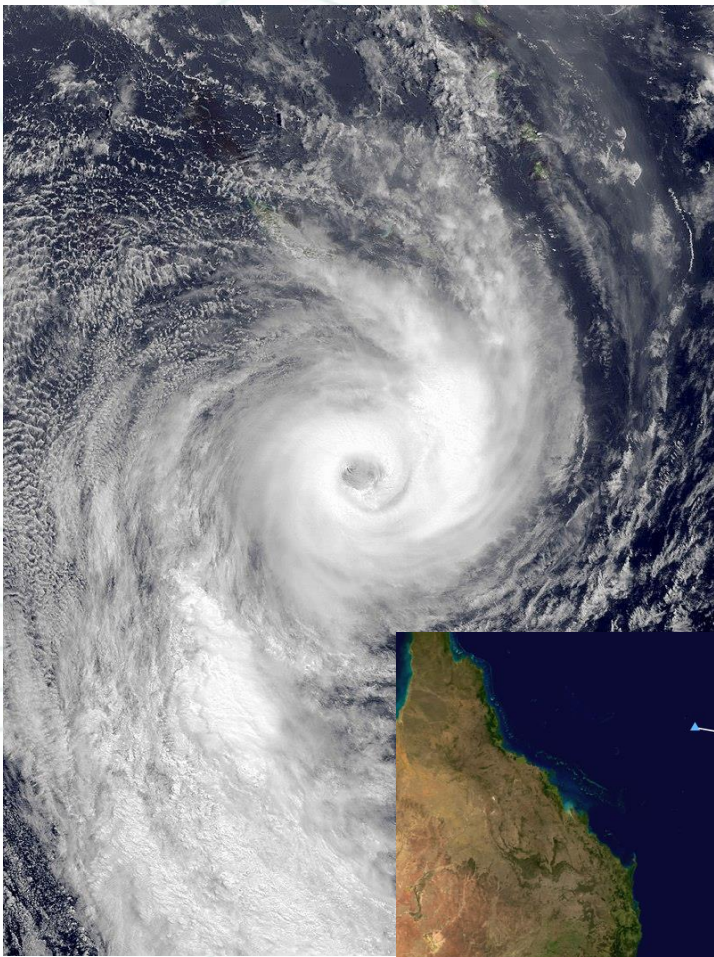
- Seven tropical cyclones (Ruby, Seth, Cody, Dovi, Tiffany, Eva and Fili) for the southwest Pacific region.



- Dovi was a category 4 cyclone
- We have seen more cyclones occurred in the western Pacific during the 2021-2022 season, and can conclude that there were more risk in the west of the region compare to the east and this is well capture in both BoM and NIWA validated cyclone number

Significant events

Tropical cyclone Dovi and Cody



Fiji - Pictures of cyclone/La Niña impacts

Severe Tropical Cyclone Cody



Tavua Town (Western Div.) – 8th Jan 2022 (Source: FRA)



Sabeto Rd, Nadi (Western Div.) – 9th Jan 2022 (Source: FRA)



Ba (Western Division) Town – 10th Jan 2022 (Source: FBC)



Nadi Town (Western Div.) – 9th Jan 2022 (Source: FRA)



Rakiraki Town Bridge (Western Div.) – 9th Jan 2022 (Source: FRA)



Sigatoka Town (Western Div.) – 10th Jan 2022 (Source: FRA)

Fiji - Pictures of cyclone/La Niña impacts

Severe Tropical Cyclone Cody



Sawani Serea Road (Central Div.) – 10th Jan 2022 (Source: *Fijian Government*)



Tailevu (Central Div.) – 10th Jan 2022 (Source: *FBC*)



Landslide at Wailoku Road (Central Div.) – 9th Jan 2022 (Source: *FRA*)



Nakama Crossing, Savusavu (Northern Div.) – 10th Jan 2022 (Source: *FRA*)



Qawa Crossing, Labasa (Northern Div.) – 10th Jan 2022 (Source: *FRA*)



Daria crossing, Bua (Northern Div.) – 11th Jan 2022 (Source: *The Fiji Times*)

Fiji - Pictures of cyclone/La Niña impacts

Severe Tropical Cyclone Coby



Saivou District Rakiraki (Western Div.)
– 10th Jan 2022 (Source: FRA)



Nadarivatu (Western Div.) – 10th Jan
2022 (Source: FRA)



Bureta Bridge, Ovalau (Eastern Div.)
– 10th Jan 2022 (Source: FRA)



Baulevu Road (Central Div.) – 10th
Jan 2022 (Source: FRA)



Wailotua (Central Div.) – 10th Jan
2022 (Source: NDMO)



Transinsular Road (Central Div.) –
12th Jan 2022 (Source: FRA)

Palau - Picture of cyclone/La Niña impacts

October 2021 and onset/revival of La Niña

- 17 numerous landslides/mudslides
 - Five were major slides
 - Three were main roads
- Flooding in many areas
- Inundation to low-lying areas
- Damages to property
- Disrupted Public Utilities pumping stations

Figure 1 Windy.com Eumetsat Visible and IR satellite imagery over Palau and western Micronesia with a monsoon trough north of 10N on Oct 4, 2021.

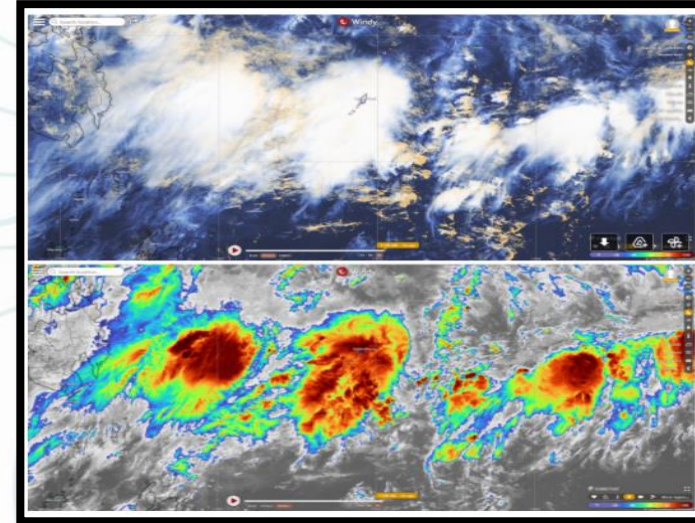


Figure 2 Oct 8, 2021: Evidence of tidal and monsoon surge at Bdelul a Chang or T-Dock in Koror facing northwest. PC: Office of the President, Republic of Palau.

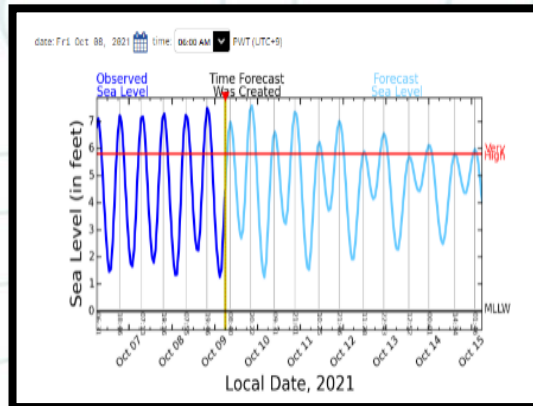


Figure 3 Pacific Islands Ocean Observing System (PacIOOS) Six-Day High Sea Level Forecast for Malakal for Oct 7 to Oct 15 2021. Data provided by PacIOOS (www.pacioos.org), which is a part of the U.S. Integrated Ocean Observing System (IOOS®), funded in part by National Oceanic and Atmospheric Administration (NOAA) Award #NA16NOS0120024.

<http://www.pacioos.hawaii.edu/shoreline/highsea-malakal/>

Palau - Picture of cyclone/La Niña impacts

Cyclone Nyatoh

Monsoon trough with 28th TC Nyatoh December 3, 2021

- Above Normal rainfall
- Torrential rainfall
- Strong gusts
- Inundation
- Flooded roadways
- Hazardous Marine conditions

Figure 1 Snipped image from WFO Guam Facebook page of Typhoon Nyatoh and its monsoon trough on Dec 3 2021 at 10:00am ROPST (0100Z).

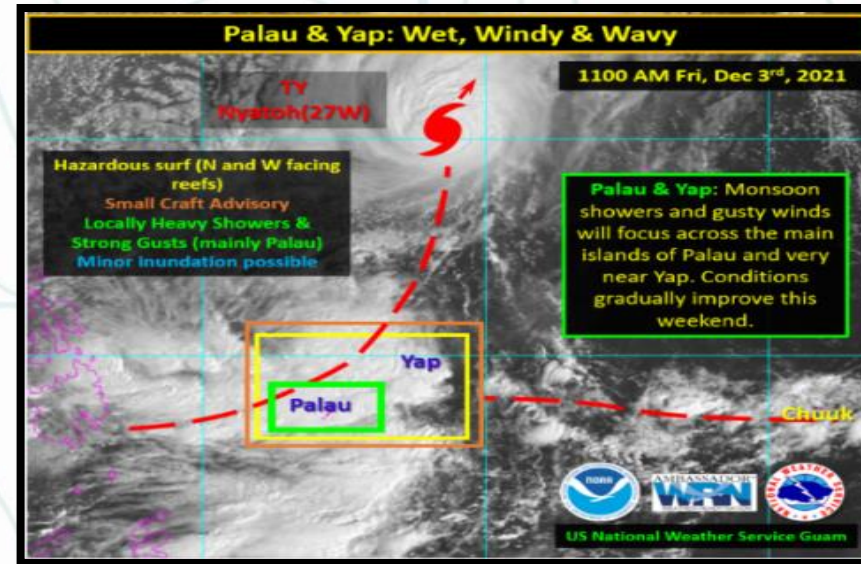


Figure 2 and 3, Dec 3 Left image: Malakal flooding due to heavy rainfall and poor drainage areas. Photos provided by Kyonori Tellames, Legislator of Koror. 2021 Right image: Wet slope east of Babeldaob near Ngatpang.



Palau - Picture of cyclone/La Niña impacts

KAYANGEL

Tropical Storm Rai Dec 14, 2021

Northern most State of Palau

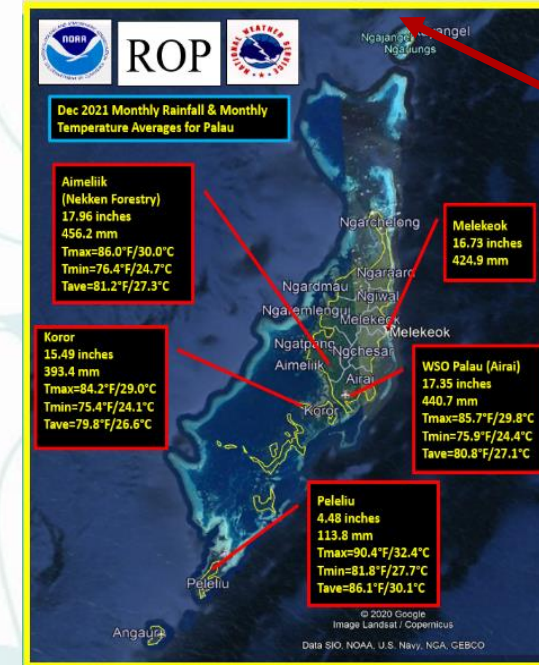
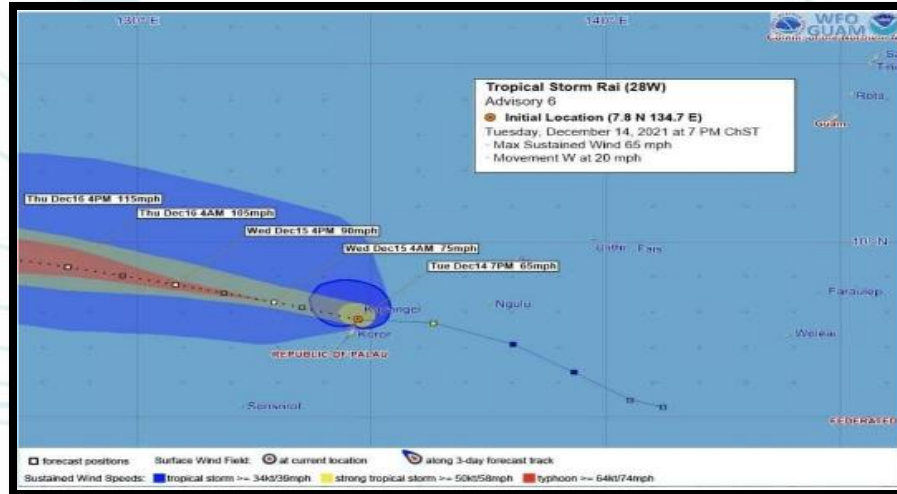


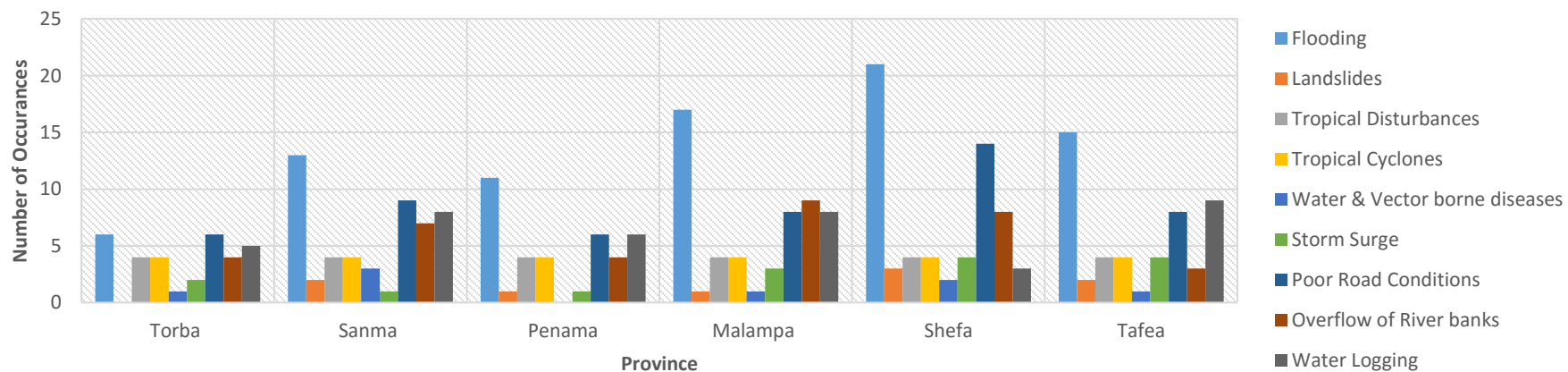
Figure 1 and 2, Google Earth Pro images, left image: December 2021 Monthly Rainfall and Monthly Temperature Averages across majority of the main islands of Palau. Right image: Most northern State of Palau, Kayangel State, Tropical Storm Rai passed 20 miles south of Kayangel in the early evening of Dec 14, 2021.

Vanuatu - Picture of cyclone impacts

1. La Niña Impacts

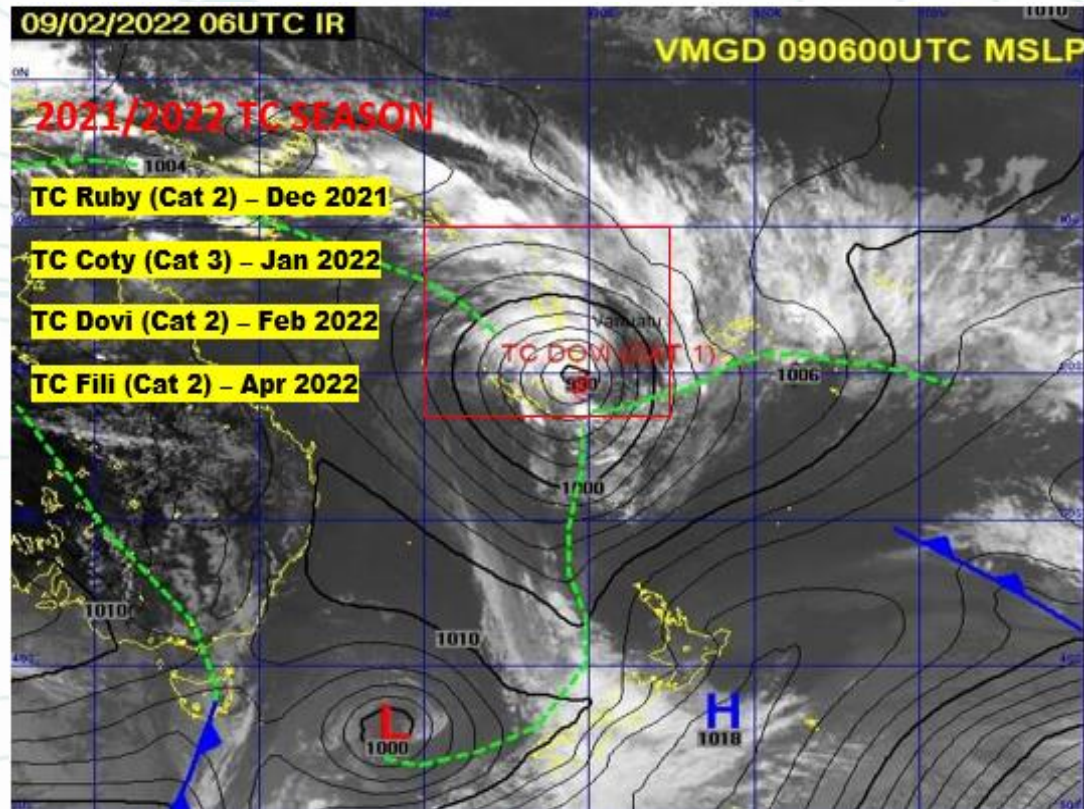


2021/2022 La Nina Impact Summary for Vanuatu



Vanuatu - Picture of cyclone impacts

2. Tropical Cyclone Impacts



The background features a complex pattern of thin, teal-colored wavy lines that resemble topographical contour lines or fluid flow paths. These lines are interspersed with small, solid teal circles and triangles, some of which are positioned along the lines, suggesting a vector field or a series of data points. The overall aesthetic is clean and modern, with a light teal color palette.

THANK YOU