



Overview of Climate impacts Nov 2022- April 2023

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Acknowledge NMS contribution to the presentation



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PICOF-11 Regional Statement

- Favour La Niña conditions in the tropical Pacific Ocean from November to February. Between February and April, La Niña will most likely transition to ENSO-neutral, with the second most likely outcome being a continuation of La Niña.
- Drier than normal conditions are favoured for island groups near and west of the Dateline that are located close to the equator. Drier than normal conditions are forecast to extend northeast and southeast from the Date Line towards the sub-tropics, especially in the Southern Hemisphere. Dry conditions in the norther hemisphere seem to zonally span (along the latitude 5° N) in the northeast direction
- The risk for coral bleaching is enhanced in the tropical west Pacific
- Sea level is favoured to be notably higher than normal for most of the countries in the region.
- Wetter than normal conditions are favoured for islands located between Palau and the central Marshall Islands in the North Pacific and from southeast Papua New Guinea (PNG) to the southernmost French Polynesian islands.
- There is an enhanced risk for TC activity in the western tropical Pacific. In the central part of the region, TC risks are generally near normal to below normal.



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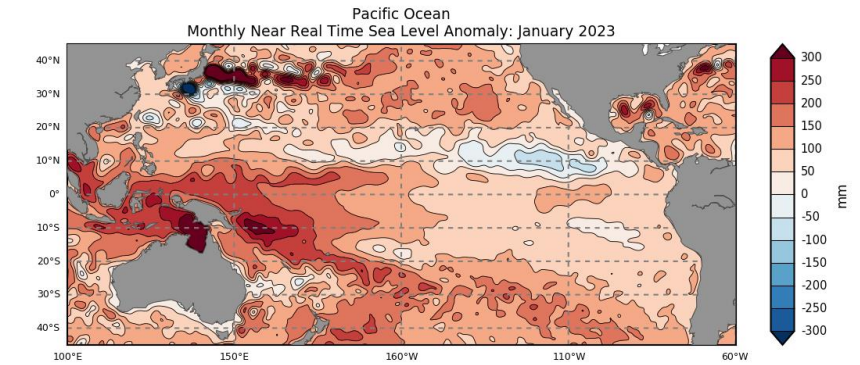
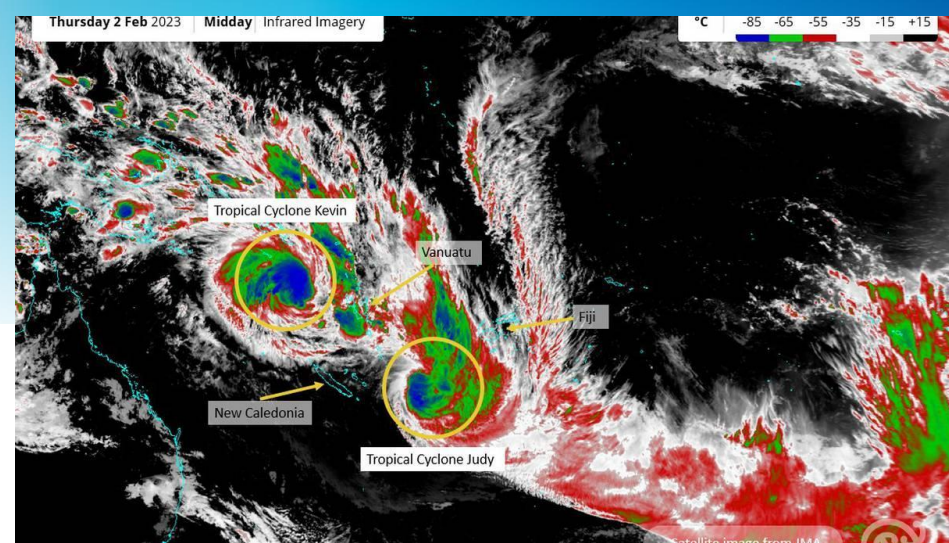
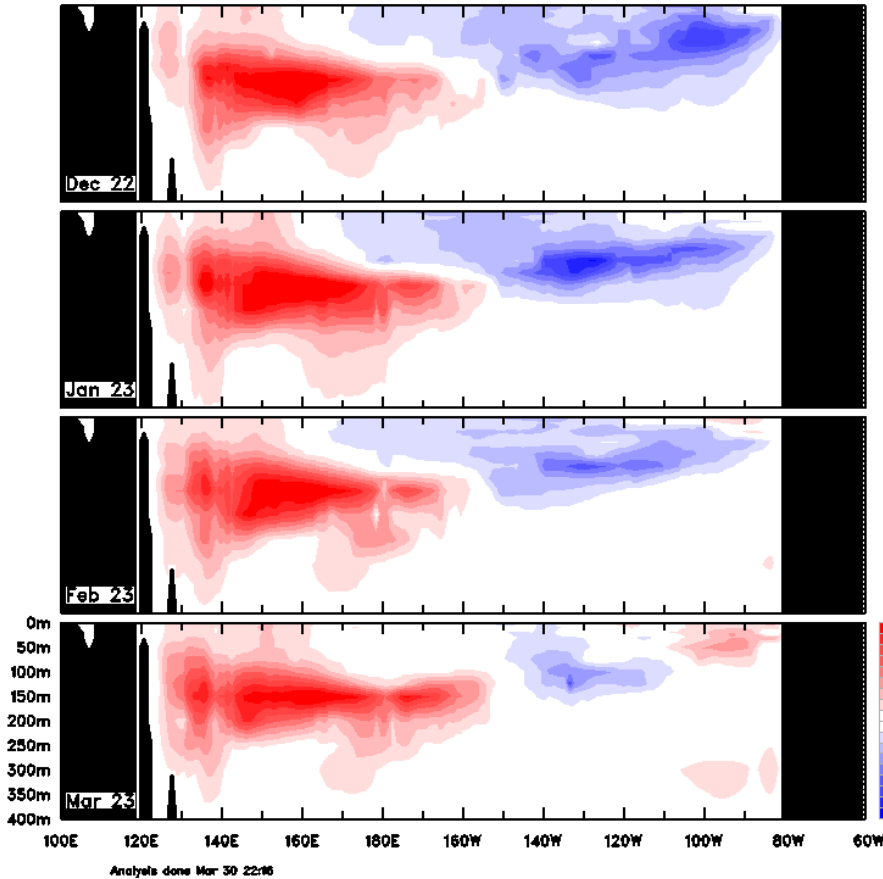
Main Climate Drivers

- La Niña event
- Active SPCZ and ITCZ
- Active Madden Julian Oscillation
- Trough systems
- Tropical cyclones

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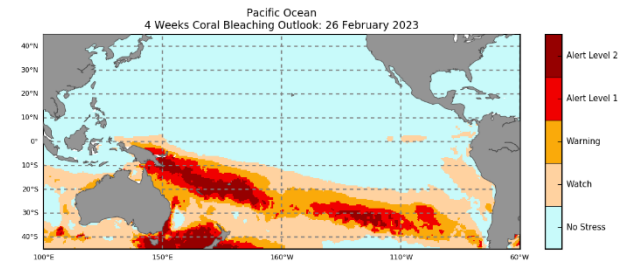
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Pacific Ocean Eq Anomaly $\Delta=0.5^\circ\text{C}$



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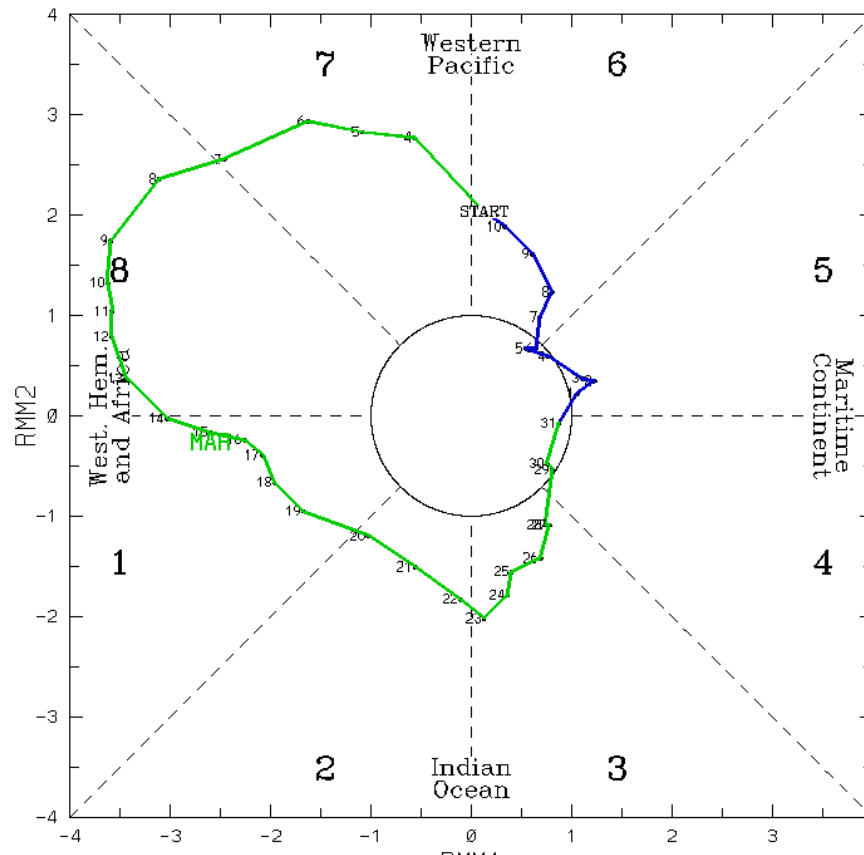


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NOAA Coral Reef Watch

Madden Julian Oscillation

(RMM1,RMM2) phase space for 3-Mar-2023 to 11-Apr-2023





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Impacts in different countries

- Flooding
- Drought
- Coastal inundation
- Storm surge
- Strong winds
- Landslide



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Fiji Government
Fiji Meteorological Service

Fiji



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Flash Flooding



Nasivi, Tavua (Western Div.) – 13th Dec 2022 (Source: Water Authority of Fiji)



Kings Road in Rakiraki inundated with floodwaters (Western Div.) - 13th Dec 2022 (Source: Fiji Roads Authority)



Flooded houses in Korovuto settlement, Nadi (Western Div.) – 13th Dec 2022 (Source: fjjvillage)



Lawai Crossing in Sigatoka inundated with floodwaters (Western Div.) - 30th Dec 2022 (Source: Fiji Roads Authority)



Marinitawa Crossing in Ba (Western Div.) – 30th Dec 2022 (Source: Fiji Roads Authority)



Rising flood waters at Navo Bridge in Nadi (Western Div.) – 31st Dec 2022 (Source: fjjvillage)



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Flash Flooding



Flooded Ba town (Western Div.) – 3rd Jan 2023 (Source: FBC News)



Toge Crossing in Ba (Western Div.) – 5th Jan 2023 (Source: Fiji Roads Authority)



Flooded road in Saweni, Lautoka (Western Div.) – 5th Jan 2023 (Source: The Fiji Times)



Qelemumu Crossing in Wainikoro (Northern Div.) – 11th Jan 2023 (Source: Fiji Roads Authority)



Flooded Soasoa Road, Vunivau in Labasa (Northern Div.) – 13th Jan 2023 (Source: Fiji Roads Authority)



Flooded Banikea Crossing on Kavula Road, Lekutu, Bua (Northern Div.) – 28th Jan 2023 (Source: Fiji Roads Authority)



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Flash Flooding



Flooding in Labasa town (Northern Div.) - 3rd Feb 2023 (Source: Fiji Sun)



A vehicle swept away at Munir Road in Seaqqa (Northern Div.) - 3rd Feb 2023 (Source: Fiji Roads Authority)



Fallen coconut trees due to torrential rainfall in Siberia, Labasa (Northern Div.) - 3rd Feb 2023 (Source: Fiji Roads Authority)



Nadi town inundated with floodwaters (Western Div.) - 17th Feb 2023 (Source: fijivillage)



Flooding in low lying areas of Tavua (Western Div.) - 17th Feb 2023 (Source: Women's Weather Watch)



Rabulu road (Tavua) damaged due to continuous flooding (Western Div.) - 17th Feb 2023 (Source: fijivillage)



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Flash Flooding



Flooding in Nadi town (Western Div.) – 6th Mar 2023 (Source: fijivillage)



Flooding in Ba town (Western Div.) – 6th Mar 2023 (Source: FBC News)



Flooded Waimari Road in Rakiraki (Western Div.) – 7th Mar 2023 (Source: Fiji Roads Authority)



Flooded Natawa Bridge in Tavua (Western Div.) – 7th Mar 2023 (Source: Fiji Roads Authority)



Flooded Tavakubu Road junction in Lautoka (Western Div.) – 22nd Mar 2023 (Source: Fiji Roads Authority)



Fallen trees on Drana Crossing in Rakiraki due to heavy rain – 30th Mar 2023 (Source: Fiji Roads Authority)

Landslide

The continuous heavy rainfall made the soil saturated and as a result, a number of landslides occurred across Fiji. Landslide occurred at Nadarivatu, Nakabuta settlement in Bua, at Paipai, Lautoka and at Balekinaga Village, Rakiraki during February and March.



Landslide in Nadarivatu (Western Div.) - 18th Feb 2023 (Source: Fiji Roads Authority)



Landslide at Nakabuta settlement, Kubulau road, Wainunu, Bua (Northern Div.) - 21st Feb 2023 (Source: The Fiji Times)



Landslide in Paipai, Lautoka after heavy downpour (Western Div.) - 23rd Feb 2023 (Source: Fiji Sun)



Landslide long Kings Road at Balekinaga Village, Rakiraki (Western Div.) - 11th Mar 2023 (Source: Fiji Roads Authority)



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Storm Surge

During 21st to 24th January 2023, moderate swells over Fiji waters generated by TC Irene and the King tide caused coastal inundation over some low-lying coastal areas of Fiji. There was a reported coastal sea flooding in Vabea Village on the island of Ono in Kadavu on the 20th.



Tidal waves at Vabea Village, Ono in Kadavu (Eastern Div.) – 20th Jan 2023 (Source: Cevakeiviji)



Tidal waves at Vabea Village, Ono in Kadavu (Eastern Div.) – 20th Jan 2023 (Source: Cevakeiviji)



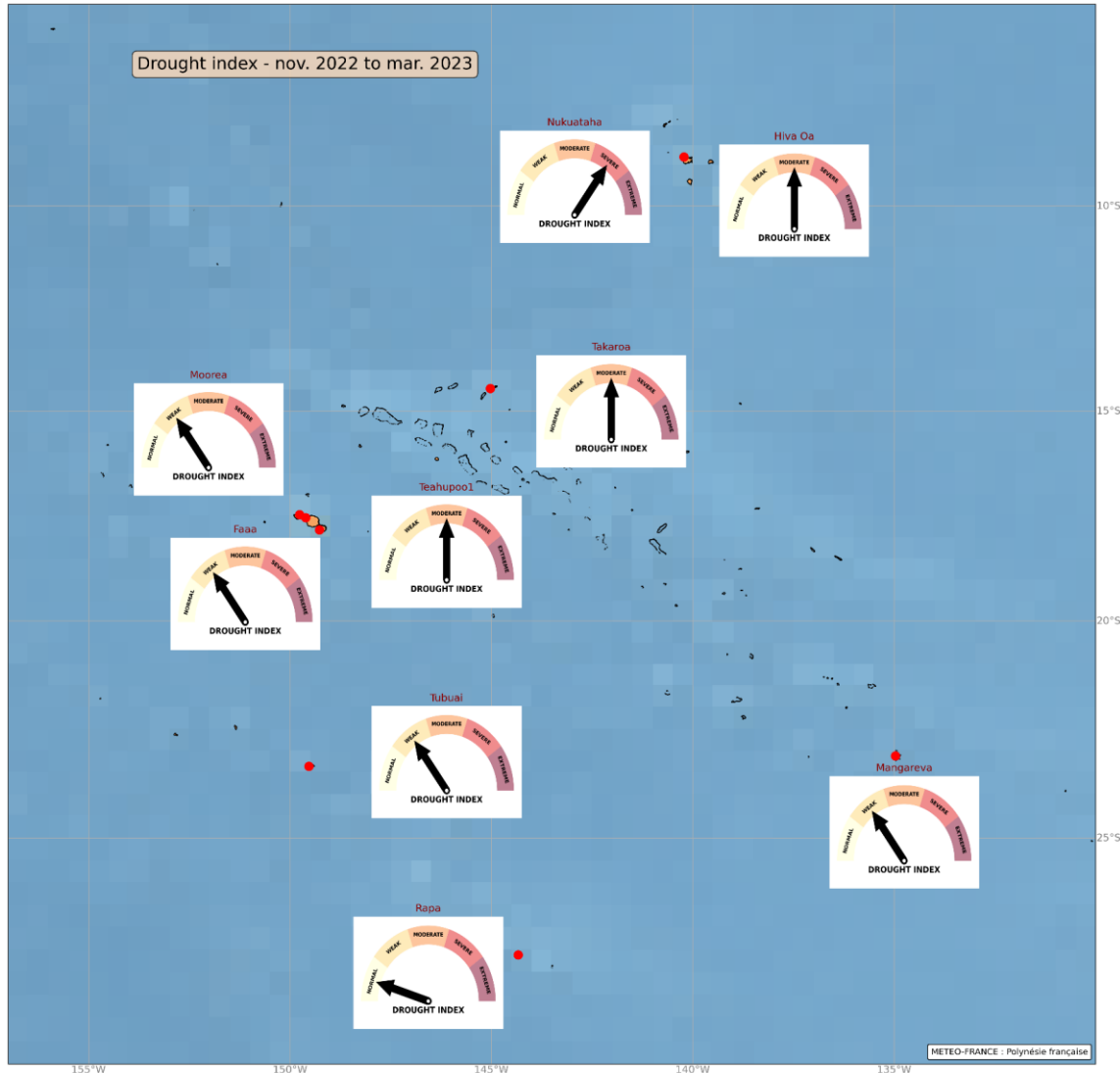
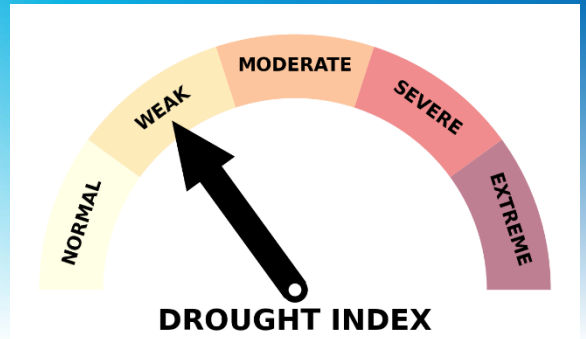
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French Polynesia

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Rain deficit in the north (Marquesas, north of Tuamotu) and excess in the extreme south of French Polynesia

Near normal elsewhere

Significant event : active SPCZ in november

Bad weather on November 06 caused the death of 5 people in Tahiti (flooding river).



Tahiti Infos

Mardi 8 novembre 2022 1P 2276 188 Fula





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Marshall Islands

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Inundation and strong winds



For three consecutive starting Saturday afternoon, the road next to Amata Kabua International Airport in Majuro was flooded and debris-strewn by a high tide driven by ongoing sea level rise and winds generated by a distant storm. Photo: Neritha Juda.



A child peers out of his vehicle at the lagoon salt water flooding onto the main road by the airport reservoirs during Monday's high tide. Photo: Eve Burns.



Flooding outside the EPA office in Majuro during the January 23, 2023 king tide, as predicted in the 2023 Tide Prediction Calendar. Photos: Neritha Juda.





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Nauru



Climate Drought

- Nauru experiencing drought during La nina stage.





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Climate Impacts

- The impact of drought with less rainfall, and the demand of water in the community is high.





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New Caledonia





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From November 2022 to April 2023, there were **9 episodes of heavy rainfall**, some of which generated accumulations with return periods of more than 10, 20, 50 or even 100 years.

During this period, New Caledonia also experienced rainfall generated by the moderate tropical depression **HALE** (2023/01), the strong tropical depression **IRENE** (2023/01), a weak tropical depression (2023/01), the tropical cyclone **GABRIELLE** (2023/02), the tropical cyclone **JUDY** (2023/03) and the intense tropical cyclone **KEVIN** (2023/03)

On average over the country, monthly rainfall balances are in surplus from November 2022 to January 2023. The monthly rainfall balance for February 2023 is close to normal and that of March 2023 is very slightly deficient. **December 2022 ranks as the 4th wettest December since 1952, with a monthly surplus of +185%.**

The main consequences of the heavy and numerous rainfalls that have affected New Caledonia since November 2022 have been the **frequent closure of many flooded roads**, the **deterioration of many roads**, **landslides**, **flooding and destruction of many crops**, especially on the west coast of Grande Terre.

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Flooded road in Bourail
2022/12/08
© a web user / NC la 1ère

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Flooded crops in Bourail
2022/12/20
© Photo Facebook

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Landslide at Mont-Dore
2022/12/20
© Sarah Maquet

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Flooded road in Païta.
2022/12/20
©Photo Facebook



Flooded road in Dumbéa.
2022/12/20
©Photo Facebook

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Flooded road and crops in La Tontouta

2022/12/26

©Lina Waka Ceou / NC La 1ère

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Floods in Yaté, Mont-Dore and Dumbéa.

2023/03/16

©Info routes NC

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Flooding at Dumbéa golf course.
2023/04/18
©Info routes NC



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Niue



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RAINFALL

- Above normal rainfall observed throughout November 2022 – April 2023.
- Highest monthly rainfall observed for Niue with a total of 522.2mm of rain for the month of February 2023.
- Highest daily rainfall recorded was 147.4mm on Sunday 05th February 2023.



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RAINFALL

- Power Disruption or outage due to heavy rainfall and overcast days resulting in less sunlight for solar panel recharge to help with the Islands power supply.

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*Photo Credit: Raquel Tanaki New
Heavy Rainfall which resulted in flooding in
low lying areas.*



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FOOD SECURITY

- Crops become more prone to mold and the spread of fungus disease that affects the overall growth of crops.
- Change of some animal behavioural patterns e.g. (Wild Pigs, Dogs, Cats and Chickens) from weather and climate.



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Palau

Flooding – January 2023



Samoa



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Solomon Islands

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Date of event: 8th November 2022
General situation: A trough lies over Solomon Islands.
Location: Ambu Village
Coordinate: (8°46'44.81"S, 160°42'4.62"E)



Date of event: 23rd December 2022
General situation: A trough lies just south of the Solomon Islands.
Location: Foueda artificial Island, Malaita province
Coordinate: (8°24'51.87"S, 160°49'40.36"E)



Date of event: 21st January 2023
General situation: A trough south of the Solomon Islands.
Location: Buala village, Isabel province
Coordinate: (8° 9'23.22"S, 159°37'17.27"E)

Very High tide...affect Ngadeli island..



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Date of event: 23rd January 2023

General situation: East to northeast wind flow is over the Solomon Islands.

Location: Taro Island, Choiseul province

Coordinate: (8°24'51.87"S,
160°49'40.36"E)

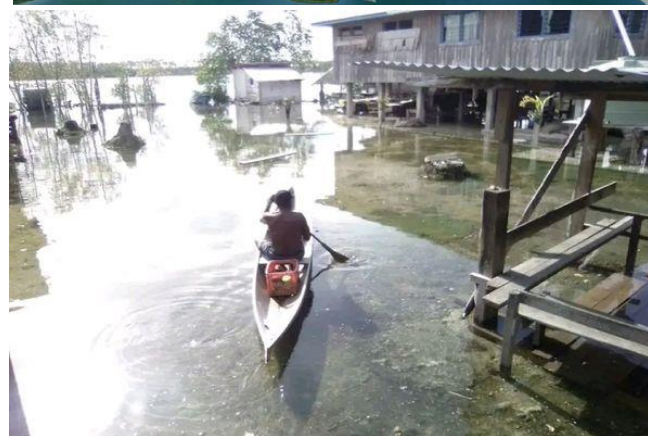


Date of event: 23rd January 2023

General situation: East to northeast wind flow is over the Solomon Islands.

Location: Lilisiana village, Malaita province

Coordinate: (8°46'31.99"S,
160°41'38.30"E)





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Tonga



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Damage to 'Eua harbour from heavy rain during TC Kevin path 3-3-5 March 2023





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Damage again to the bridge in 'Eua cutting it due to heavy water flow from heavy rain during the period of 16-21 March 2023





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Drought in 2022, these photos taken in November – December 2022 at Niuatoputapu, showing plantation and dryness affecting the island and also showing water pumping and purification to water tanks in the island.





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Again photos from the drought in 2022 from Niuatoputapu.





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Flooding at low lying areas in Tongatapu during heavy rain on the 27-28 Mar 2023





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Tuvalu

Drought (La Nina): Oct to Dec, 2022

SOE: 11th Nov 2022.

- People on the island of Funafuti, depend to have 6 buckets per household family rational water from the PWD with desalination water.



King Tide: 1st Feb, 2023

- Sea level rise: 3.325 Mtr
- Time: 17.12 pm





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Vanuatu

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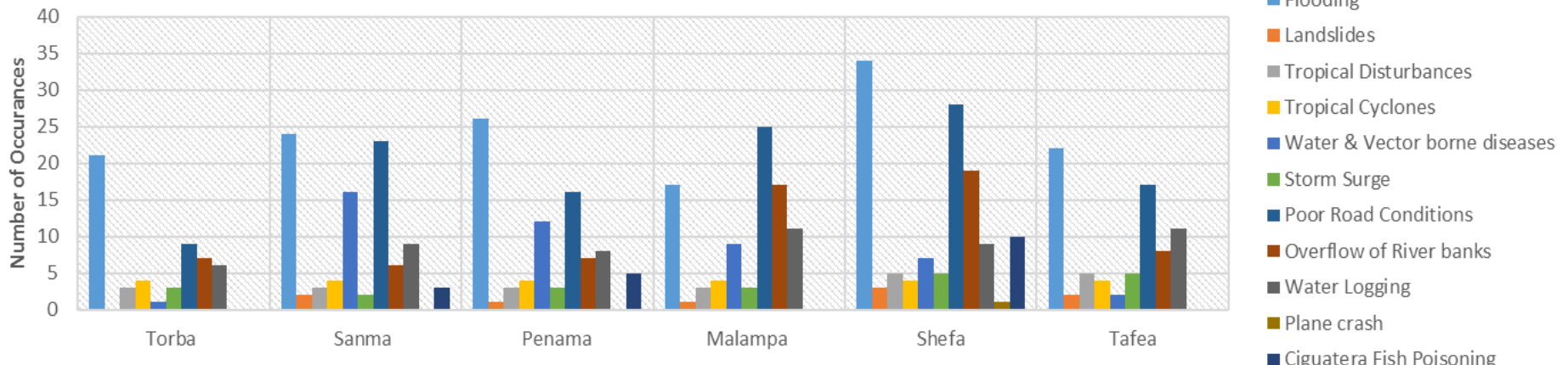
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1. 2022/2023 La Niña Impacts for Vanuatu



2022/2023 La Niña Impact Summary for Vanuatu

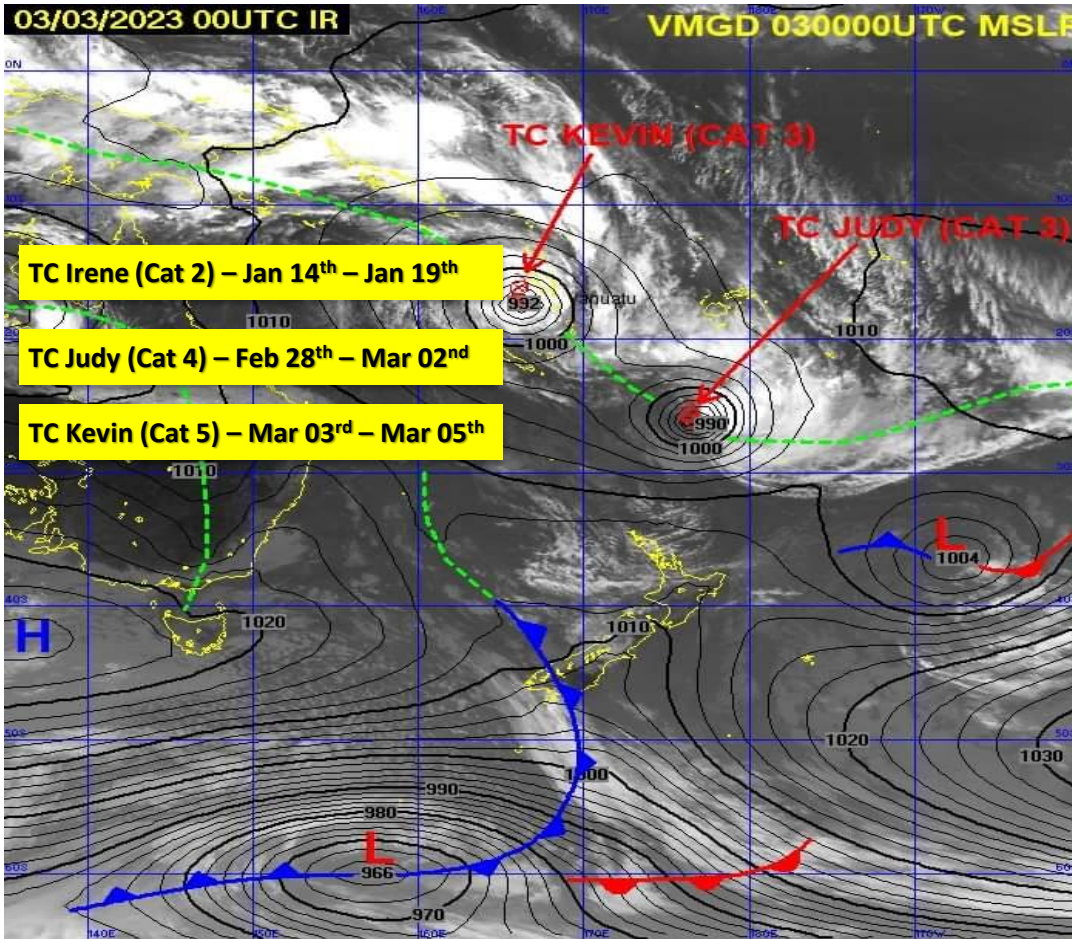


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2. 2022/23 TC Season Impacts for Vanuatu



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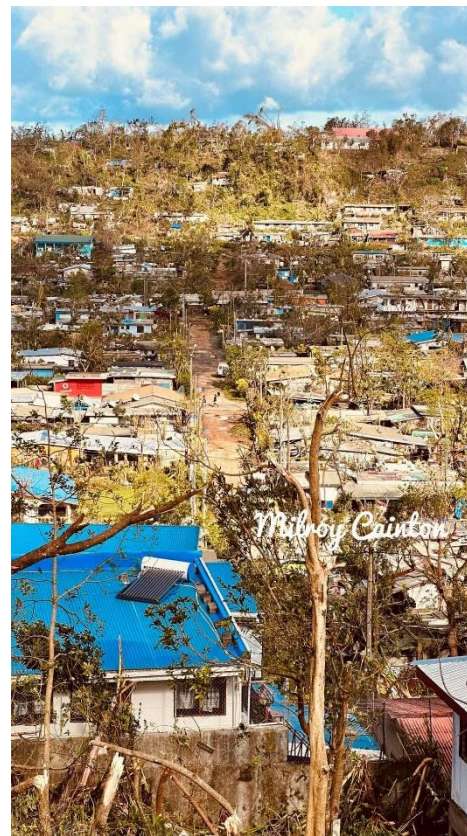
Aviation





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Livelihood





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Presentation summary

- La Nina event; Tropical cyclones, Higher sea level to the west, Coral beaching
 - Extreme rainfall
 - Tropical cyclones
 - Flooding
 - Landslides
 - Storm surges
 - Impact on sectors
 - Infrastructures (Road, bridge, wharf)
 - Aviation
 - Water
 - Agriculture
 - Health
 - Shipping
 - Tourism
 - **Deaths**