

Tonga Meteorological Services

El-Nino Southern Oscillation (ENSO) Update

National Emergency Management Office Meteorological Briefing #1

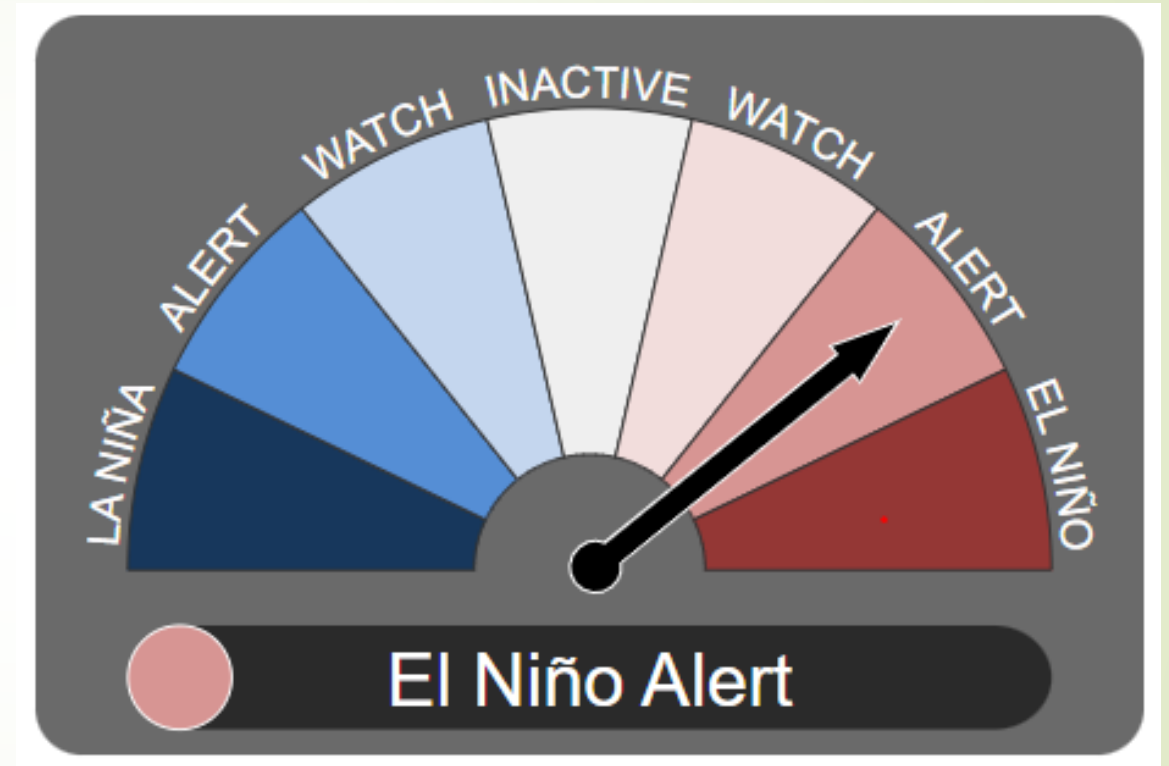
A brief by the Director of Meteorology to the Cluster Leads

NEMO Office, Nuku'alofa

Tuesday 14th July 2023

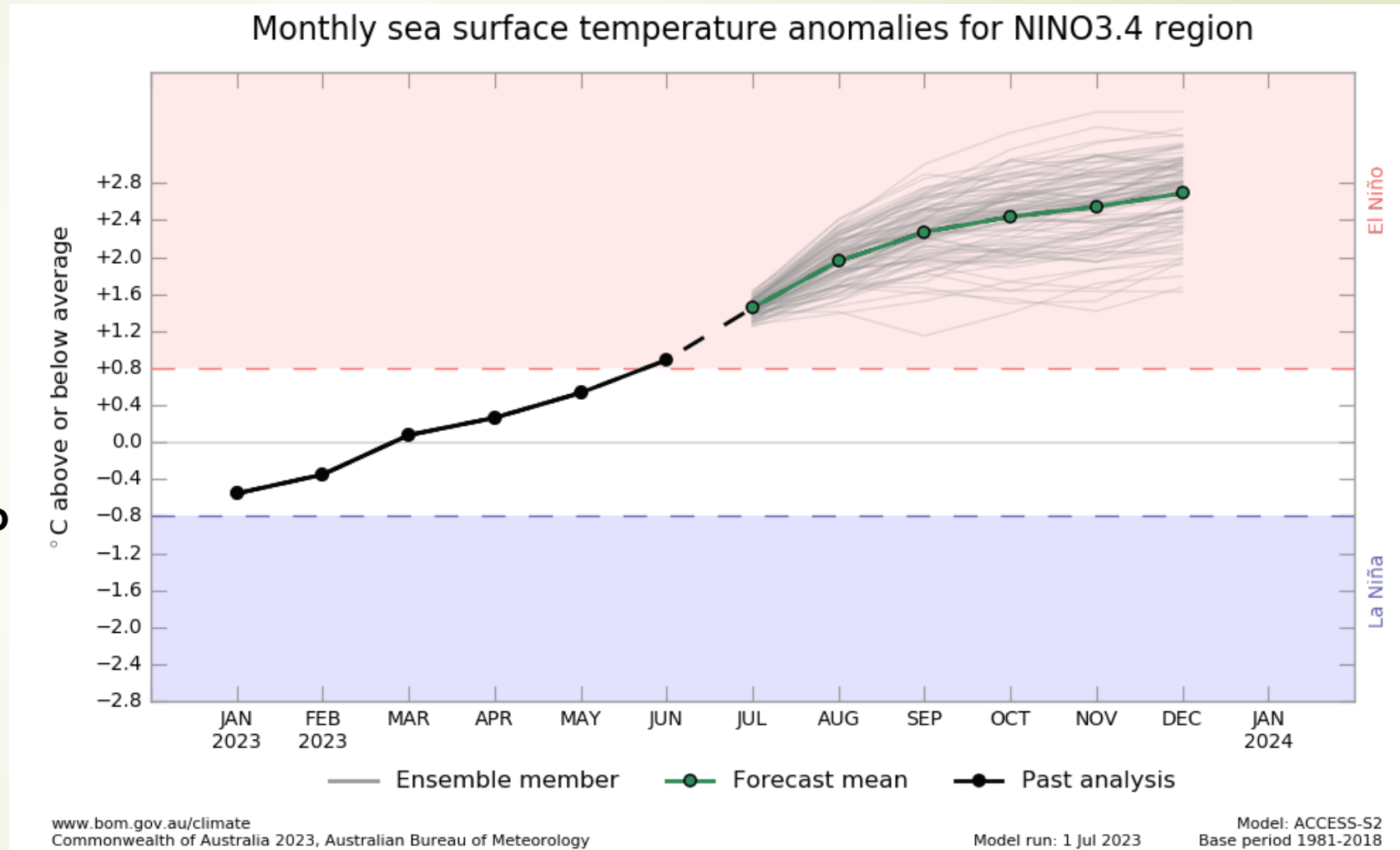
Current Status of the ENSO

- The Meteorology Department has issued an El Niño ALERT for Tonga
 - This means there is a 70% chance of El Niño forming this year.
 - It is predicted that El Niño thresholds will be reached and will be declared during the time frame of July - August 2023.



Current Status of the ENSO

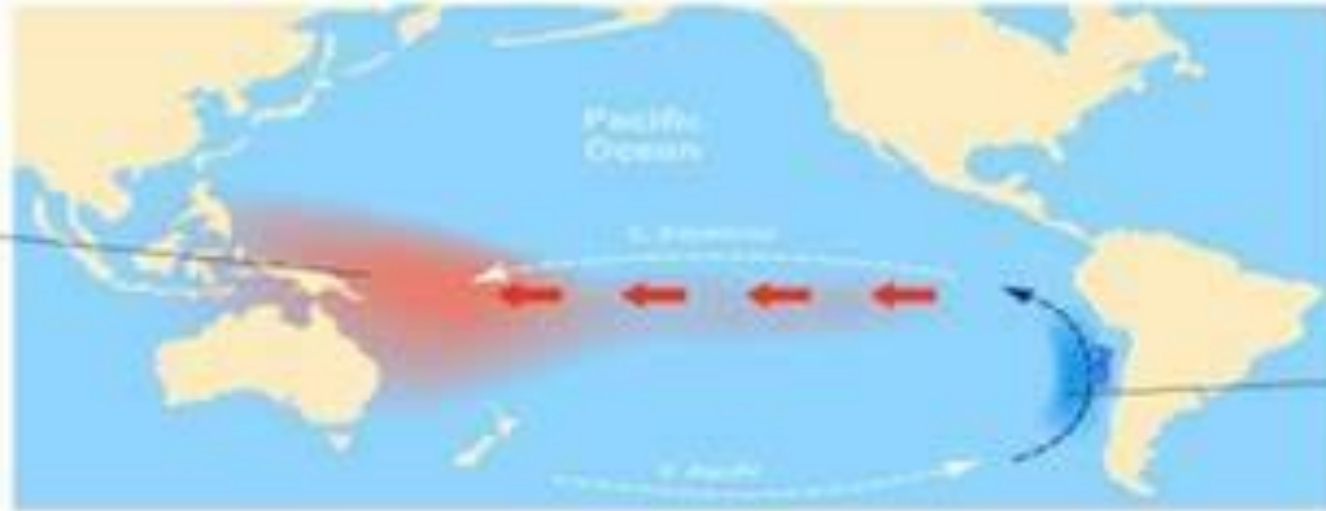
- Global climate models monitored by the Department are forecasting the likelihood of further warming and that these SSTs will remain above El Niño thresholds at least into the last quarter of this year (2023).
- A strong El Niño event



THE EL NIÑO PHENOMENON

NORMAL YEAR

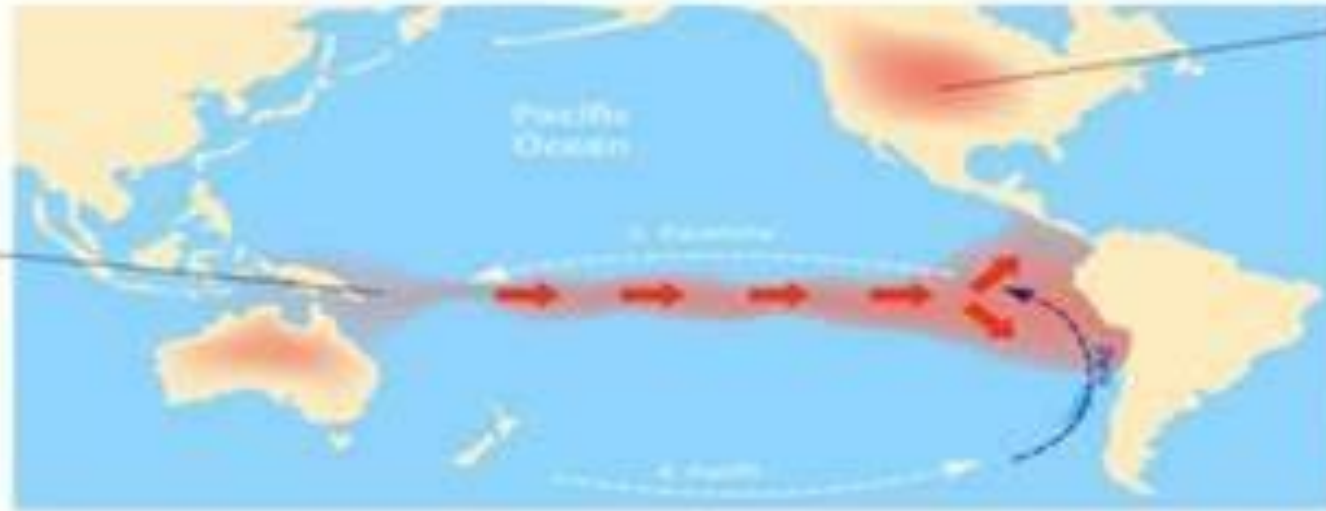
Equatorial winds gather warm water pool toward the west.



Cold water along South American coast.

EL NIÑO YEAR

Easterly winds weaken. Warm water to move eastward.



Warmer winter

Impacts of El Nino to Tonga

- **Prolonged Drought periods**
 - **Less rainfall for Tonga**
- **More Tropical Cyclones (TCs)**
 - **At least 3 to 4 TCs expected**
 - **At most 2 Severe TCs expected**
 - **Category 3, 4 or 5**
- **Cooler night temperature**
- **Coral Bleaching due to warmer ocean temperatures**
- **Multi-sector impacts**

Past Rainfall Observations

Rainfall totals from last 6 months, December 2022 – May 2023 (mm)

	January	February	March	April	May	June
Niuafono'u	243.4	156.0	328.0	259.6	362.0	153.8
Niutoputapu	219.3	219.5	369.5	102.5	644.4	167.5
Vava'u	207.2	299.3	295.7	101.0	357.6	103
Ha'apai	245.7	419.5	221.6	110.6	338.8	113.5
Fua'amotu	215.7	498.1	295.5	296.7	75.5	86.8
Nuku'alofa	282.6	421.0	304.0	198.5	119.5	89.5
'Eua	306.6	695.4	380.5	281.5	142.8	66.2

Rainfall Outlook

Rainfall Outlook

	August 2023 (% chance) , (mm)	August — October 2023 (% chance) , (mm)	November 2023 — January 2024 (% chance), (mm)
Niufo'ou	35 - 45, (64 - 127)	30 - 40, (314 - 476)	35 - 40, (697 - 965)
Niuatoputapu	40 - 50, (53 - 104)	30 - 45, (271 - 513)	41 (597 - 863)
Vava'u	30 - 40, (62 - 127)	30 - 40, (335 - 475)	50 (491 - 821)
Ha'apai	30 - 40, (59 - 116)	30 - 40, (244 - 364)	54 (332 - 599)
'Eua	35 - 45, (70 - 133)	35 - 40, (280 - 403)	50 (392 - 623)
Tongatapu	35 - 40, (64 - 136)	35 - 40, (267 - 398)	60 (281 - 421)
Below average		Average (usual)	Above average

Recommendations

- ▶ **That the Tonga Meteorological Service continues to update Cabinet of the El Nino status monthly and conducts public awareness in collaboration with the National Emergency Management Office (NEMO) Less rainfall for Tonga.**
- ▶ **El Nino bill-boards to be installed**
- ▶ **Government Ministries follow closely the climate outlooks over the following month make the necessary preparations for lower-than-normal rainfall from September 2023 to March 2024 and more Tropical Cyclone activity than normal in the next Tropical Cyclone Season from November 2023 to April 2024.**



MALO 'AUPITO