PACIFIC ISLANDS CLIMATE OUTLOOK FORUM - 13

23 - 27 OCTOBER, 2023

NADI, FIJI

PACIFIC METEOROLOGICAL COUNCIL

WORLD METEOROLOGICAL ORGANIZATION

ClimSA

SPREP
Secretariat of the Pacific Regional Environment Programme

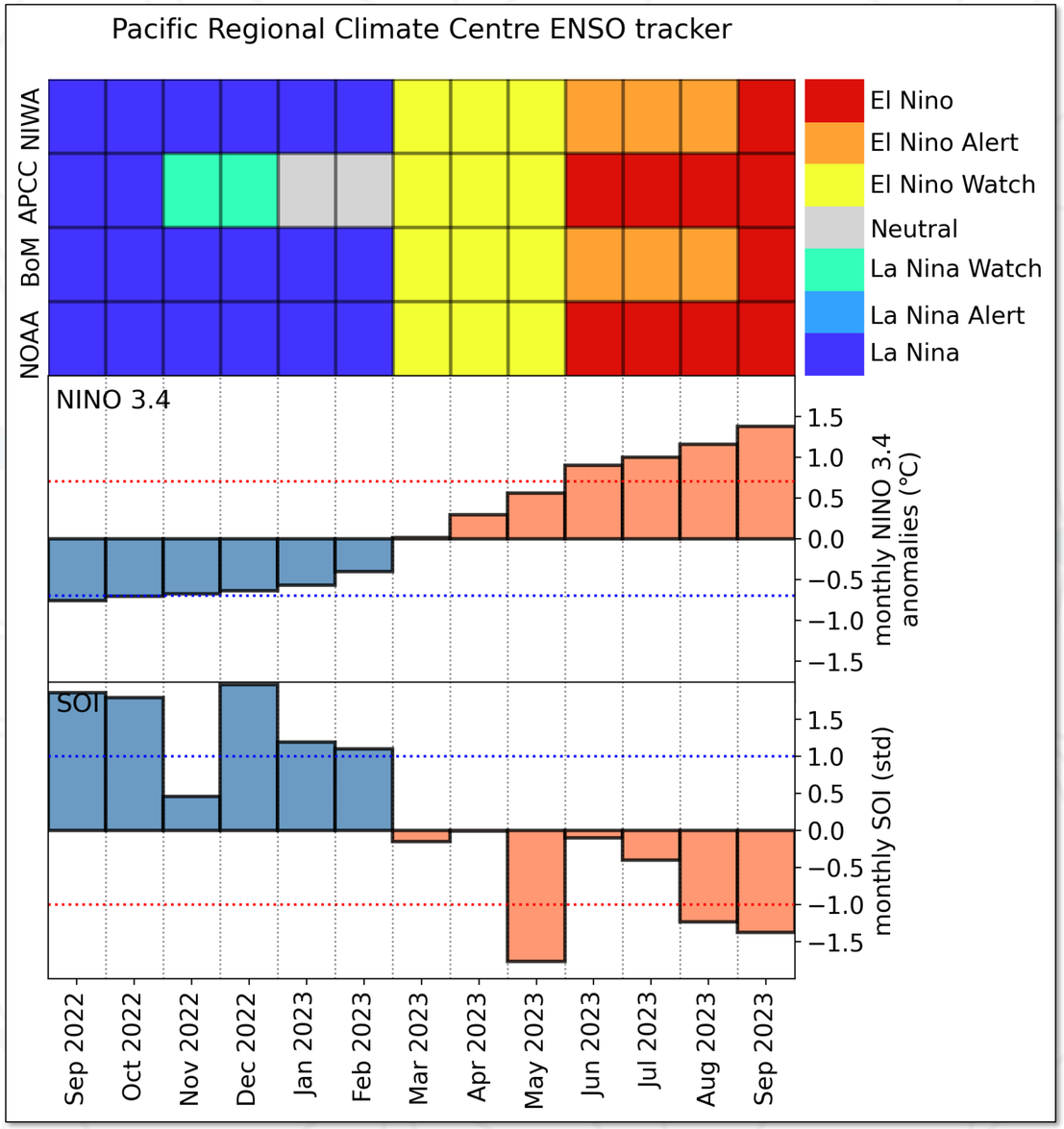
ENSO Status and Outlook

Daeun Jeong

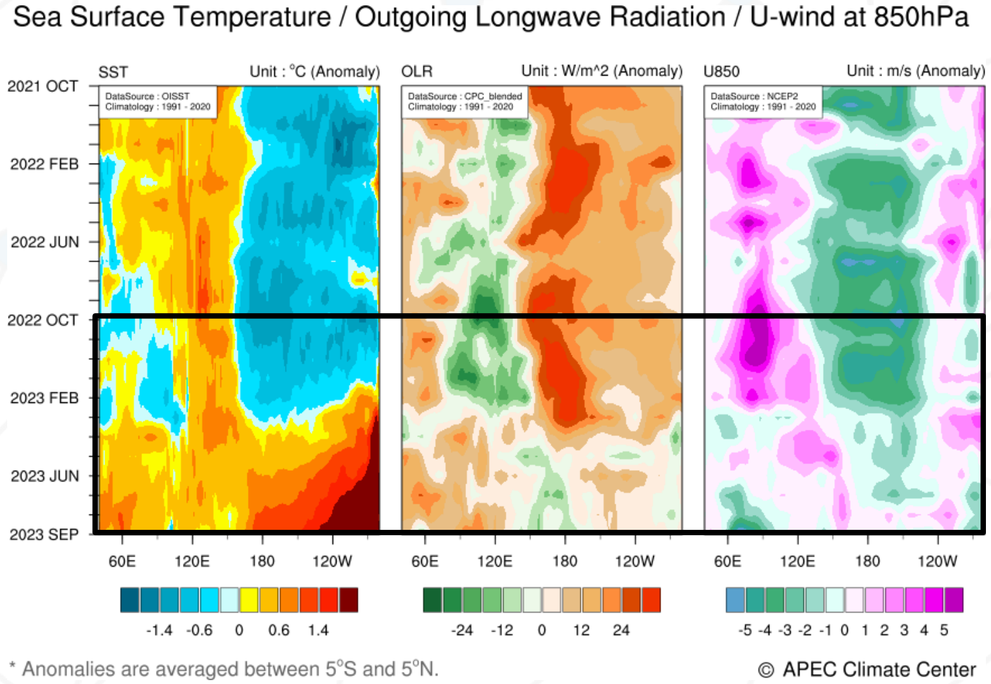
Researcher

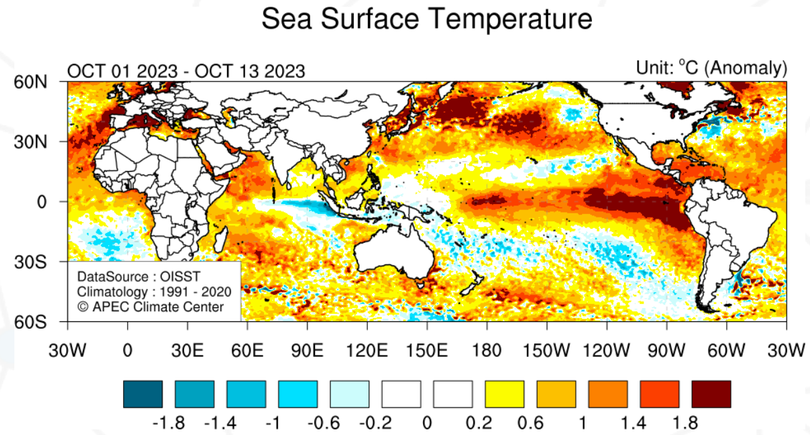
APEC Climate Center

Pacific RCC ENSO Tracker & Current Status



pacificmet.net/enso_tracker





APCC

Pacific RCC ENSO Tracker & Current Status

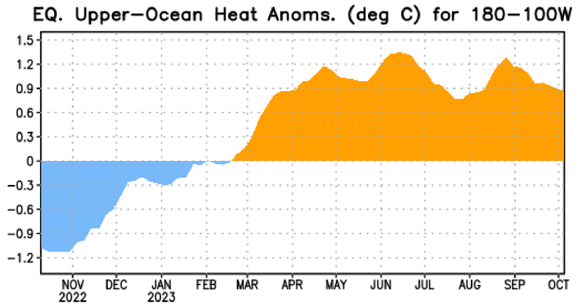
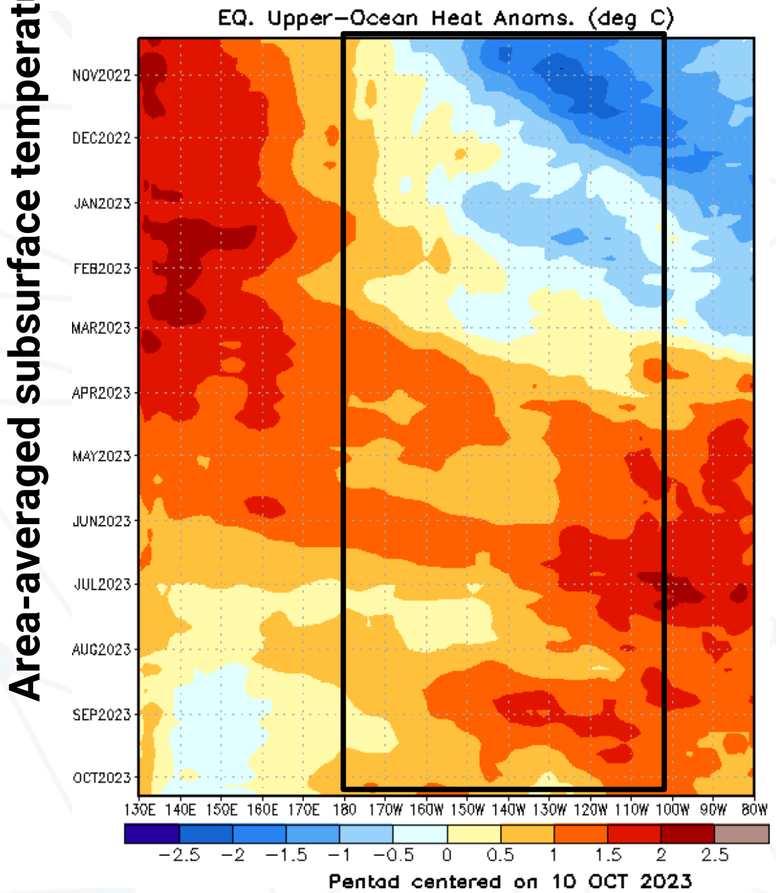
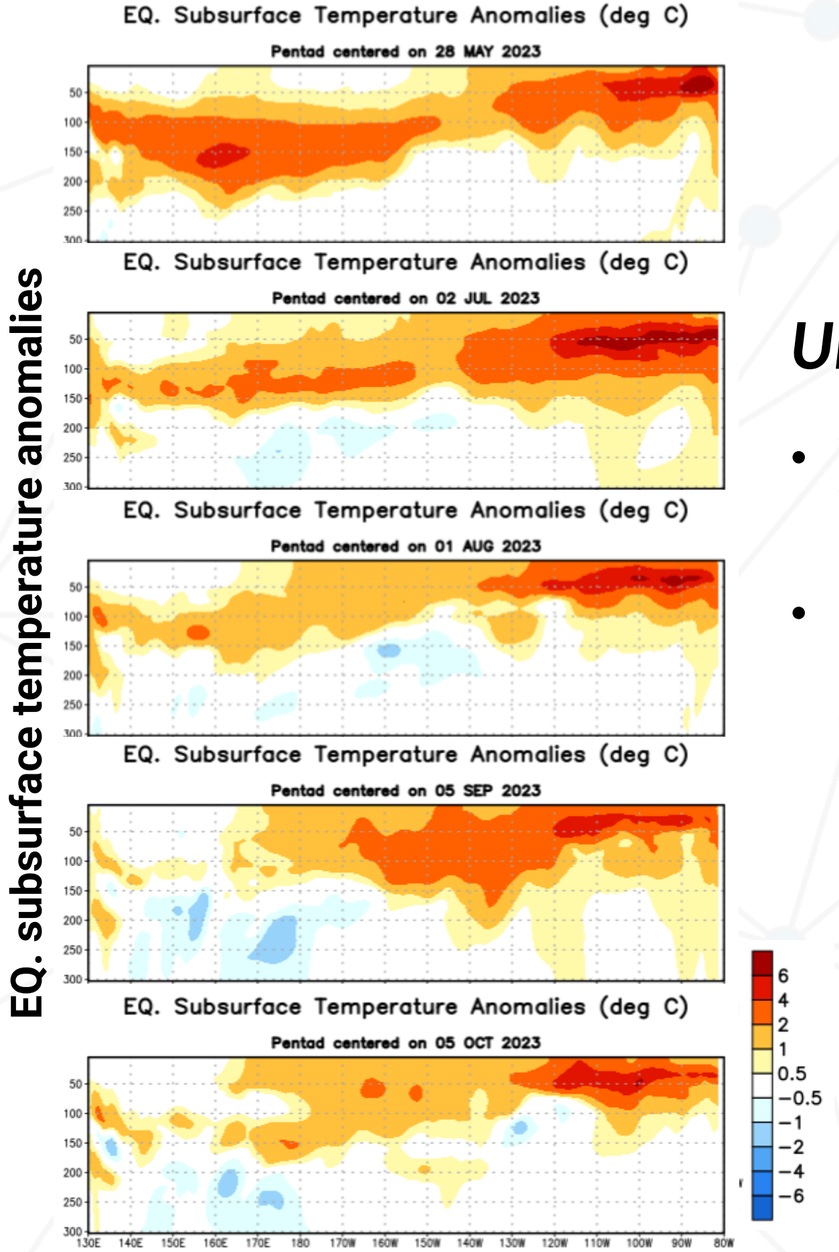


Figure 3. Area-averaged upper-ocean heat content anomaly (°C) in the equatorial Pacific (5°N-5°S, 180°-100°W). The heat content anomaly is computed as the departure from the 1991-2020 base period pentad means.





Under the sea…

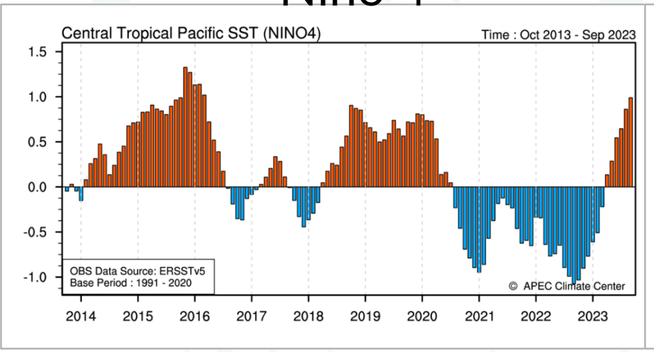
- Warm water from the West Pacific Warm Pool discharging eastward
- Subsurface temperatures warmer than normal across the central and eastern equatorial Pacific

https://www.cpc.ncep.noaa.gov/products/intraseasonal/heat_tlon.shtml

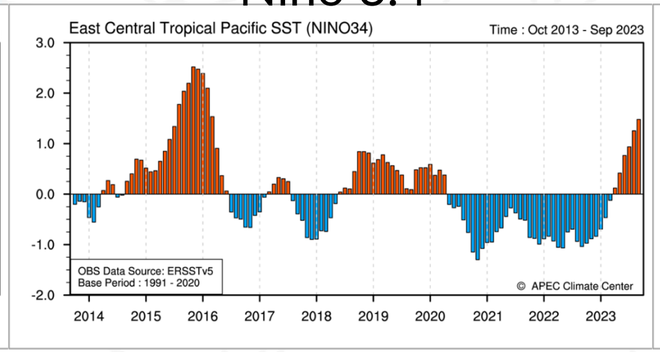
Pacific RCC ENSO Tracker & Current Status

For the past ten years…

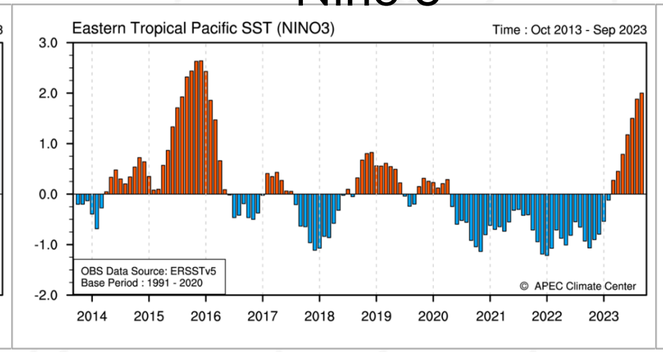
Niño 4



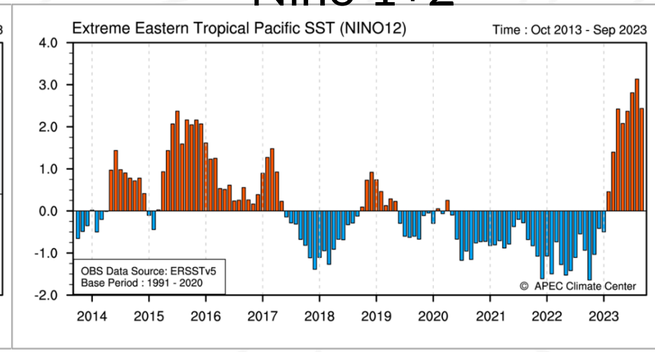
Niño 3.4



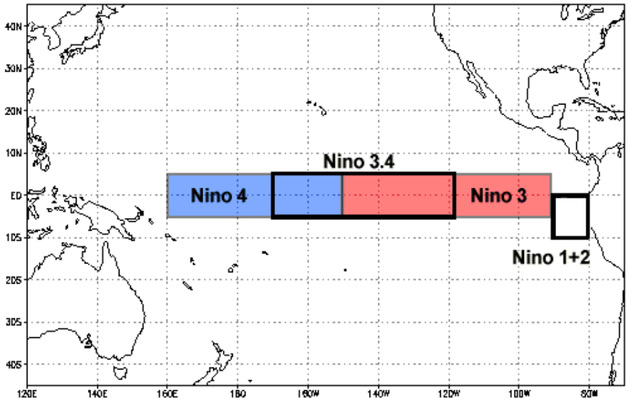
Niño 3



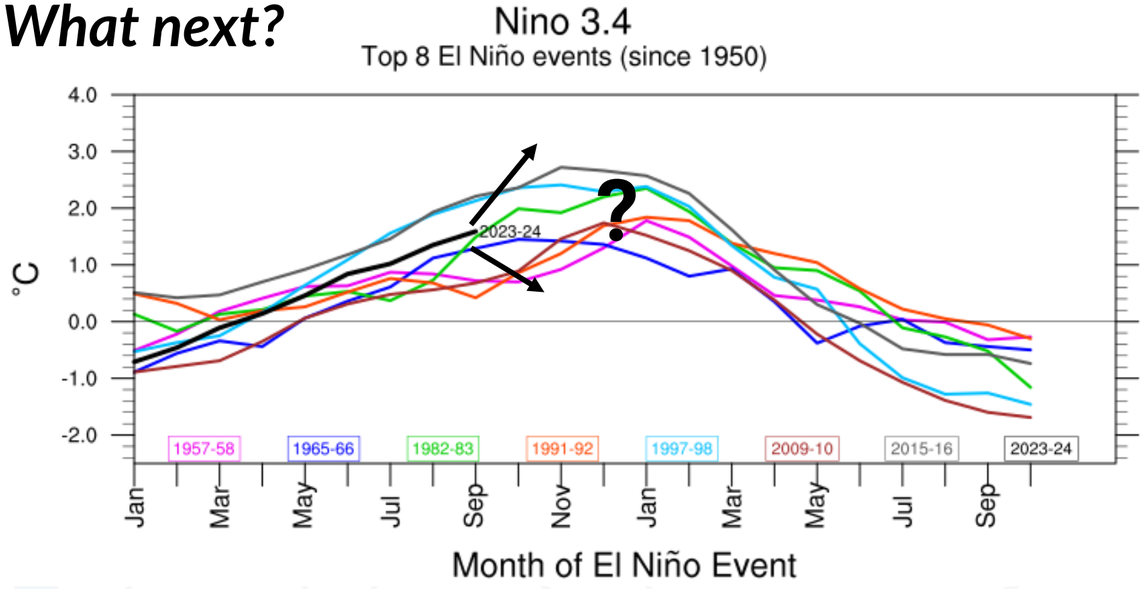
Niño 1+2



https://www.apcc21.org/ser/indic.do?lang=en

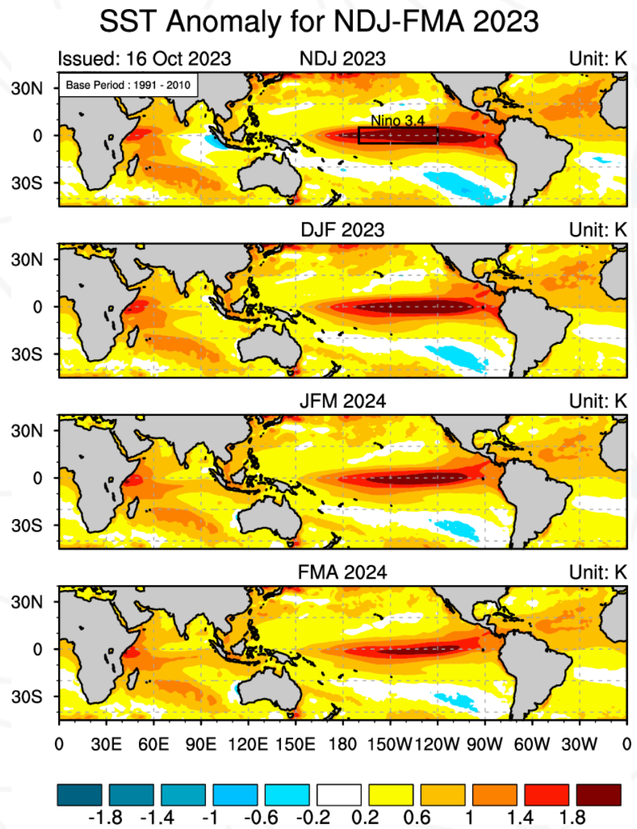


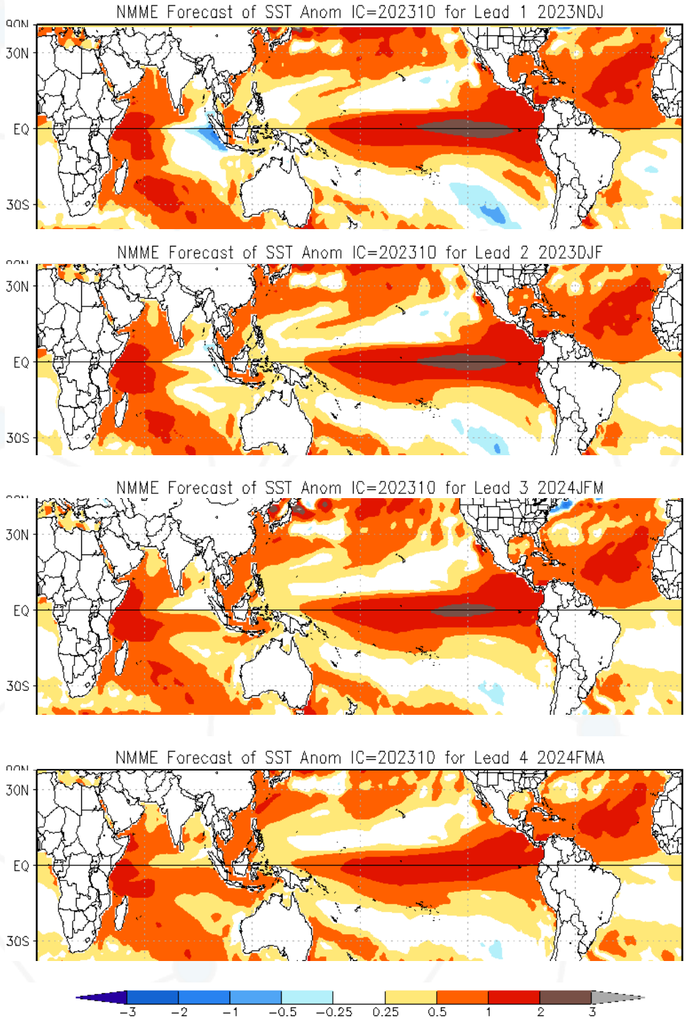
What next?

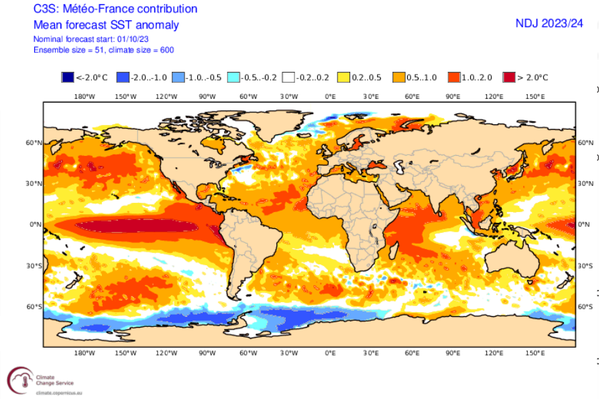


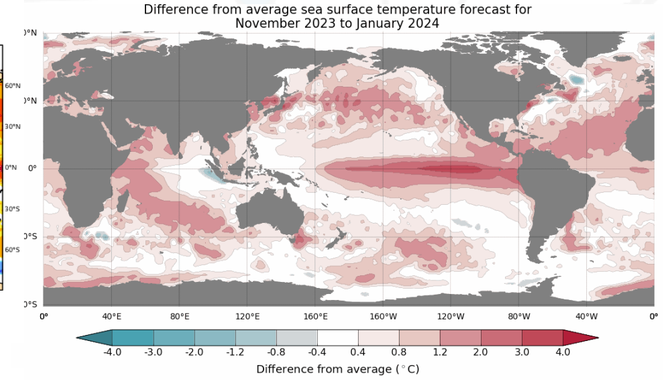
psl.noaa.gov/enso/dashboard.html

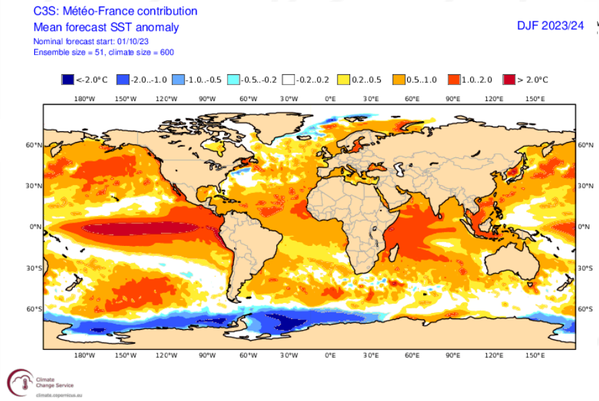
Outlook: Spatial distribution of SST

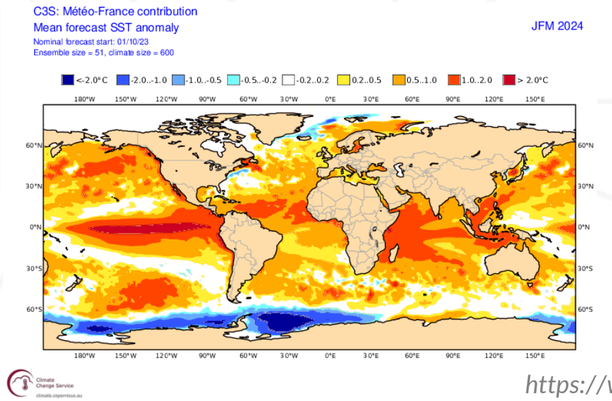








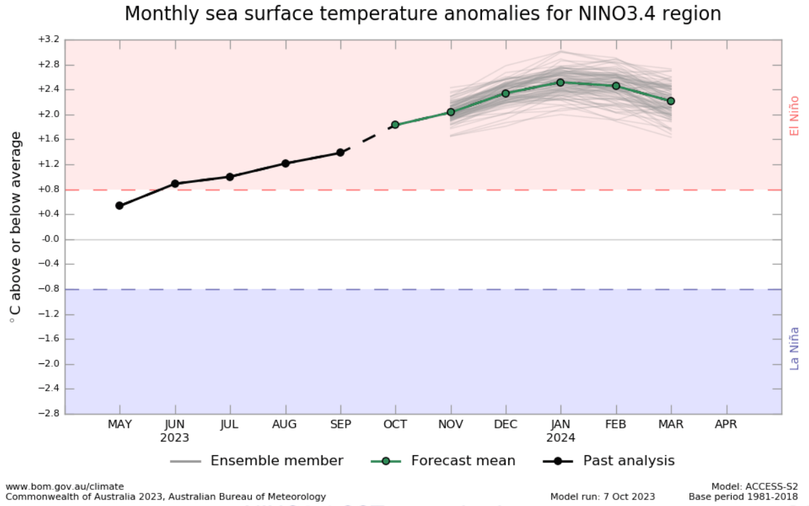


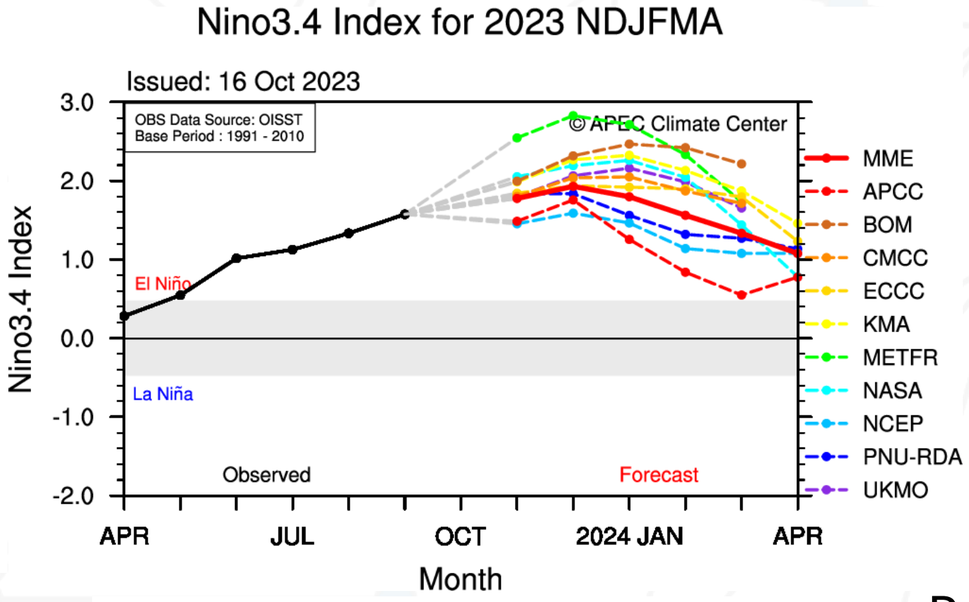


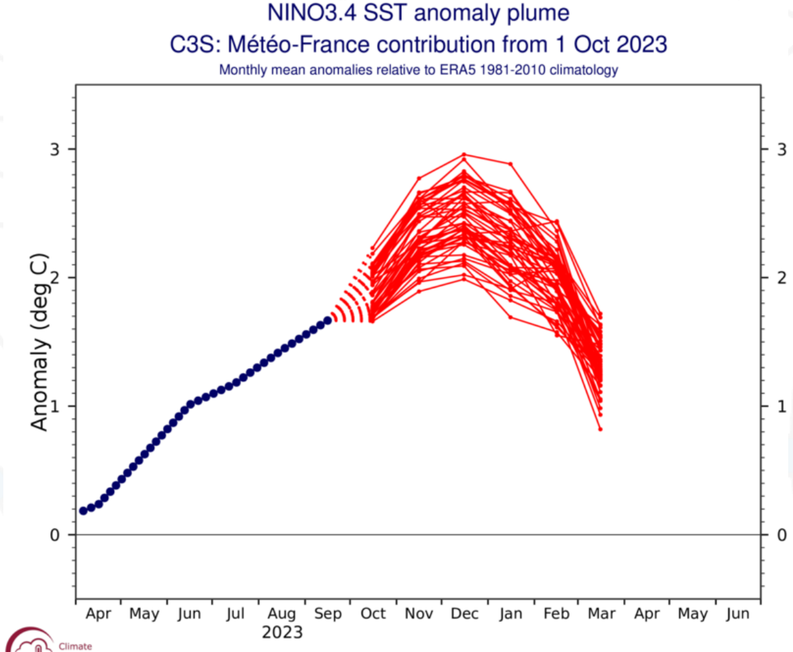
Warmer than normal SST along the equatorial Pacific

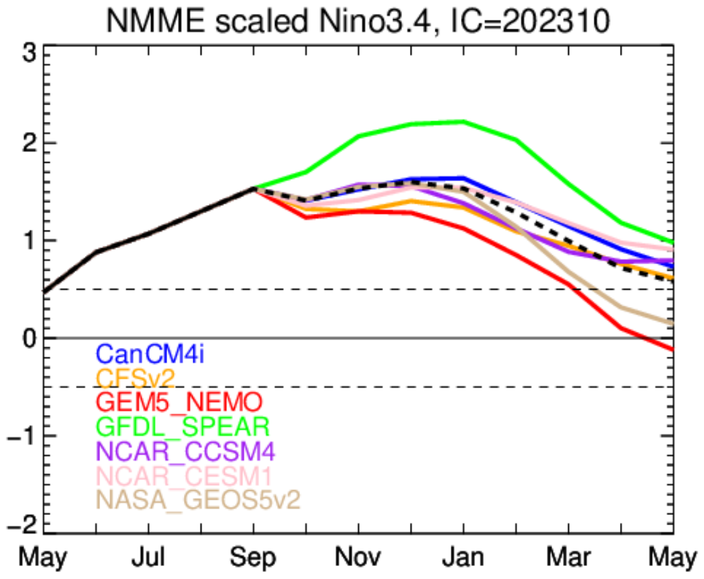
https://www.apcc21.org/ser/enso.do?lang=en
https://www.cpc.ncep.noaa.gov/products/NMME/seasanom.shtml
https://climate.copernicus.eu/charts/packages/c3s_seasonal/
http://www.bom.gov.au/climate/enso/#overview-section=Sea-surface

Outlook: Timeseries of Niño3.4





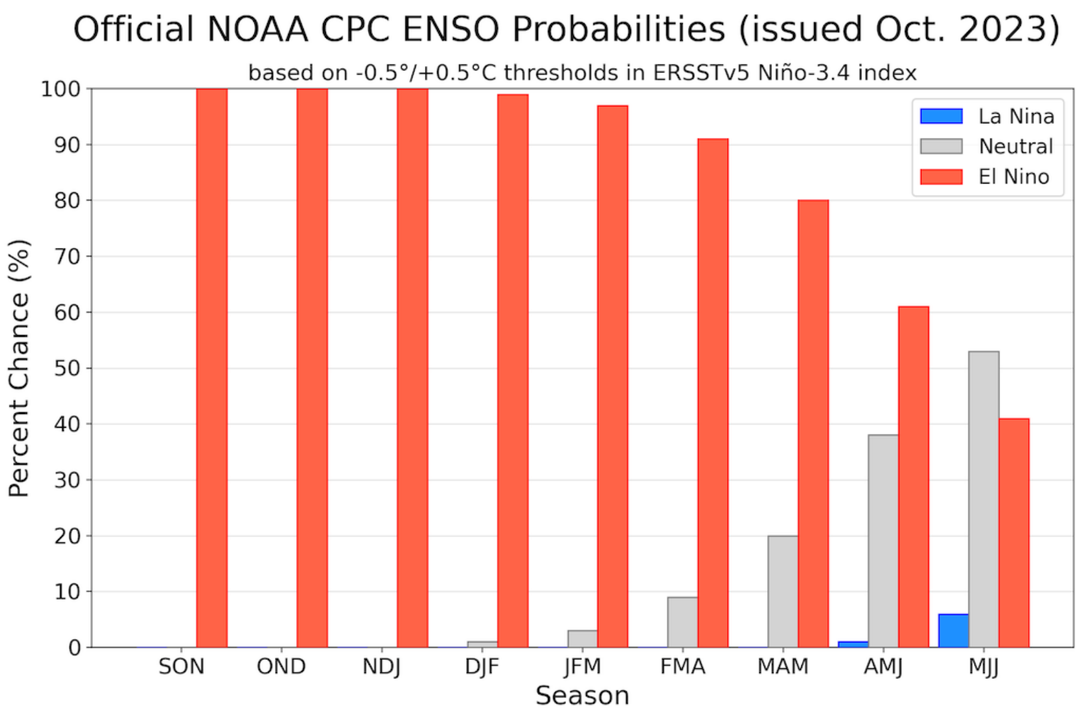




- Peak at boreal winter 2023/24
- Likely to decrease but still stay moderate to strong until boreal spring

https://www.cpc.ncep.noaa.gov/products/NMME/seasanom.shtml
https://climate.copernicus.eu/charts/packages/c3s_seasonal/
https://www.cpc.ncep.noaa.gov/products/NMME/current/plume.html
https://www.apcc21.org/ser/enso.do?lang=en

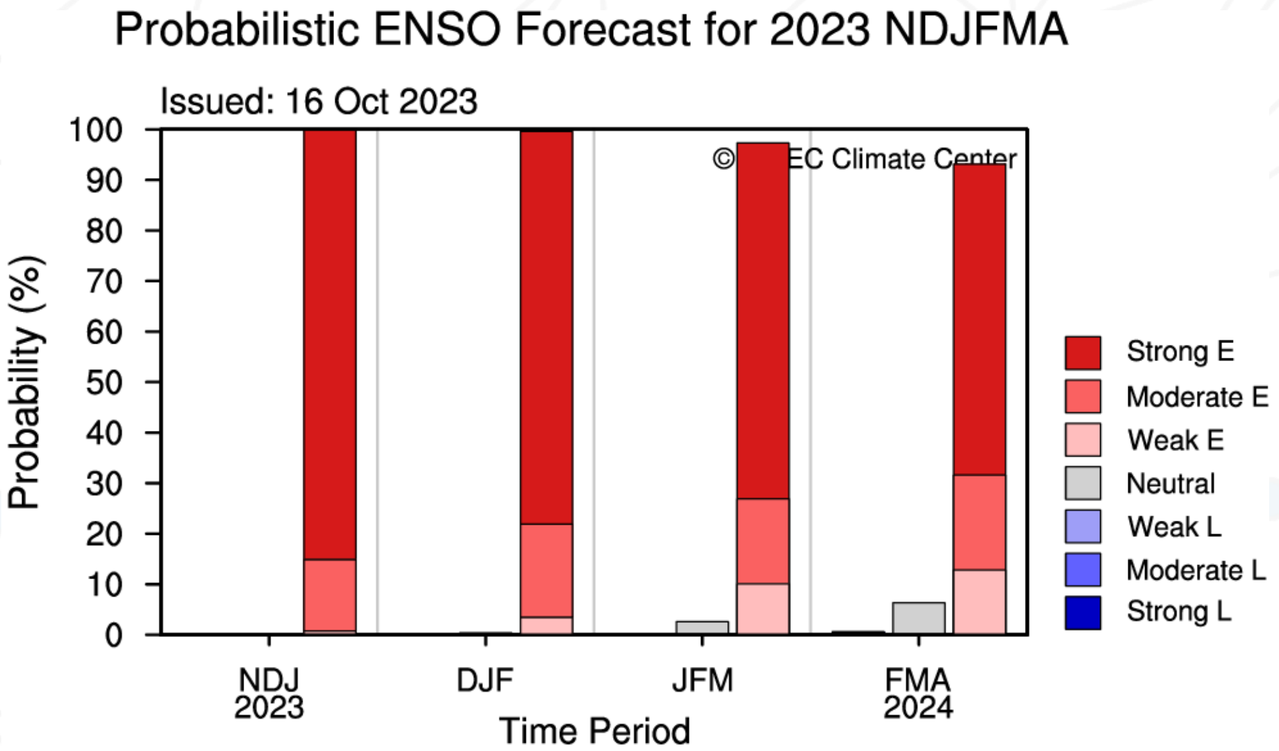
Outlook: ENSO Probabilities



NIWA

Data: IRI

Season	La Niña	Neutral	El Niño
SON	0%	0%	100%
OND	0%	0%	100%
NDJ	0%	0%	100%
DJF	0%	1%	99%
JFM	0%	3%	97%
FMA	0%	9%	91%
MAM	0%	20%	80%
AMJ	1%	38%	61%
MJJ	6%	53%	41%

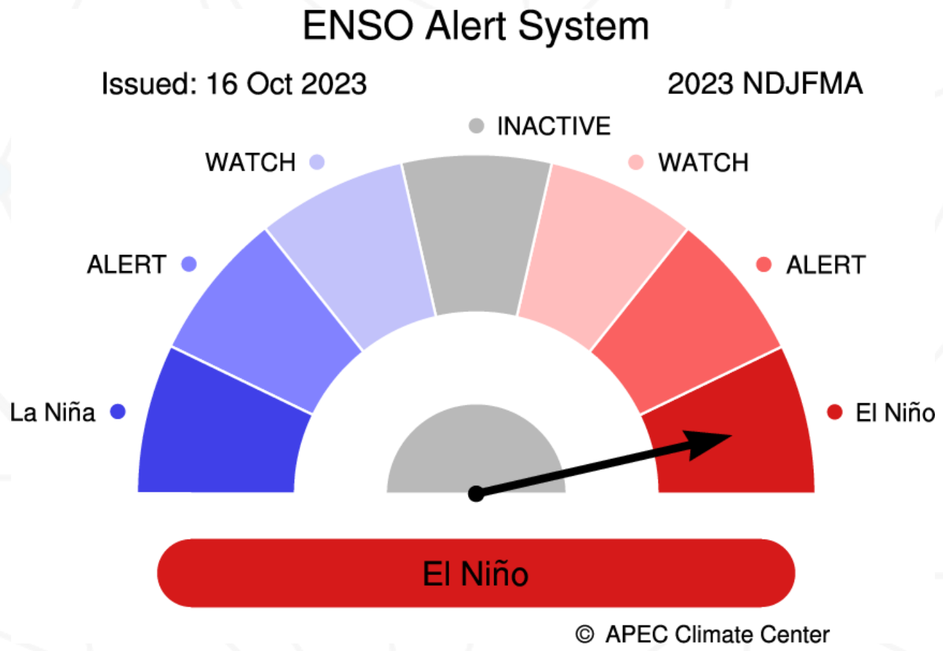


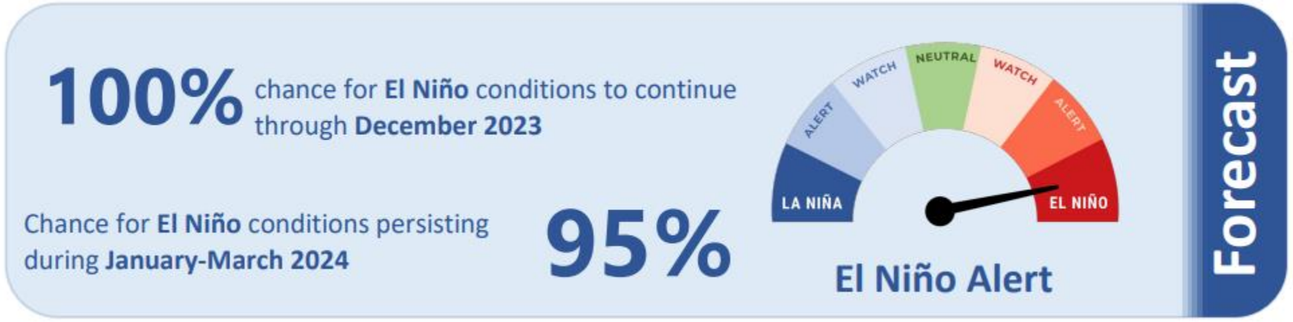
* ENSO Intensity based on 3M Mean Nino3.4 SST Anomaly (Category Boundaries: +/-1.5, 1.0, 0.5°C)

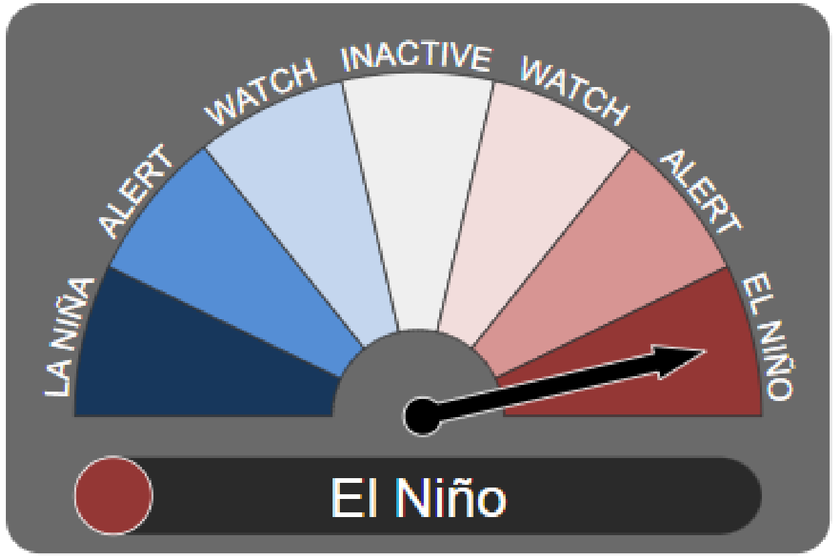
- El Niño conditions are highly probable.
- The most likely category is ‘Strong El Niño’.

https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/
https://www.apcc21.org/ser/enso.do?lang=en
NIWA

Outlook: ENSO Alert







Summary

ENSO Alert System Status: El Niño Advisory

El Niño conditions are observed.*

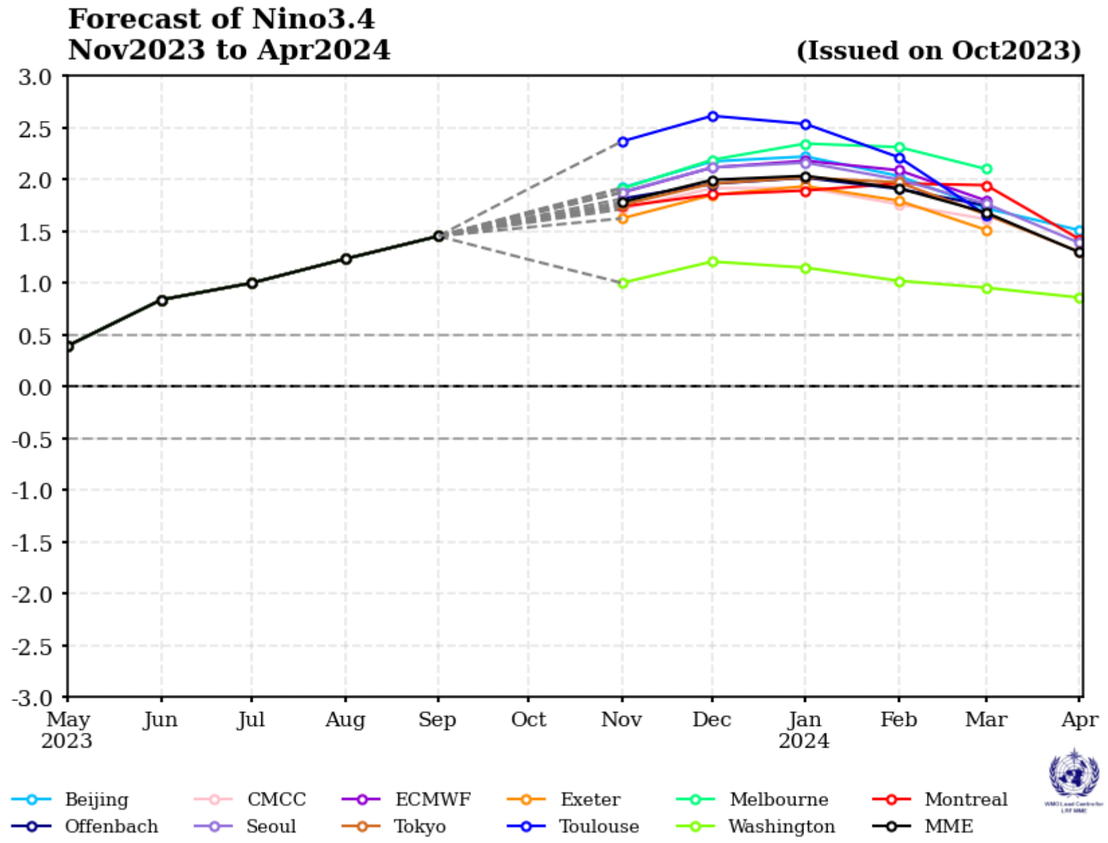
Equatorial sea surface temperatures (SSTs) are above average across the central and eastern Pacific Ocean.

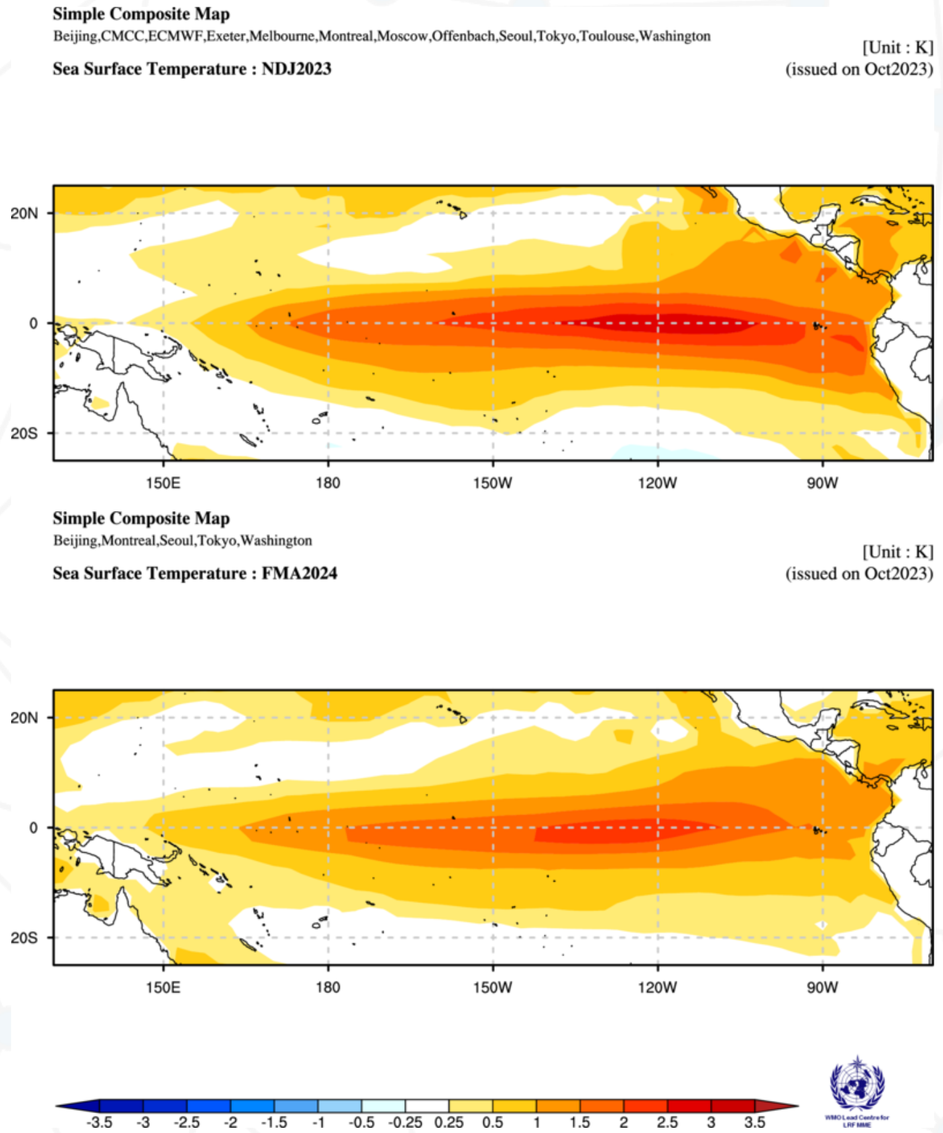
The tropical Pacific atmospheric anomalies are consistent with El Niño.

El Niño is anticipated to continue through the Northern Hemisphere spring (with an 80% chance during March-May 2024).*

https://www.apcc21.org/ser/enso.do?lang=en
Island Climate Update 276 - October 2023
http://www.bom.gov.au/climate/enso/outlook/
https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf

WMO LC-LRFMME





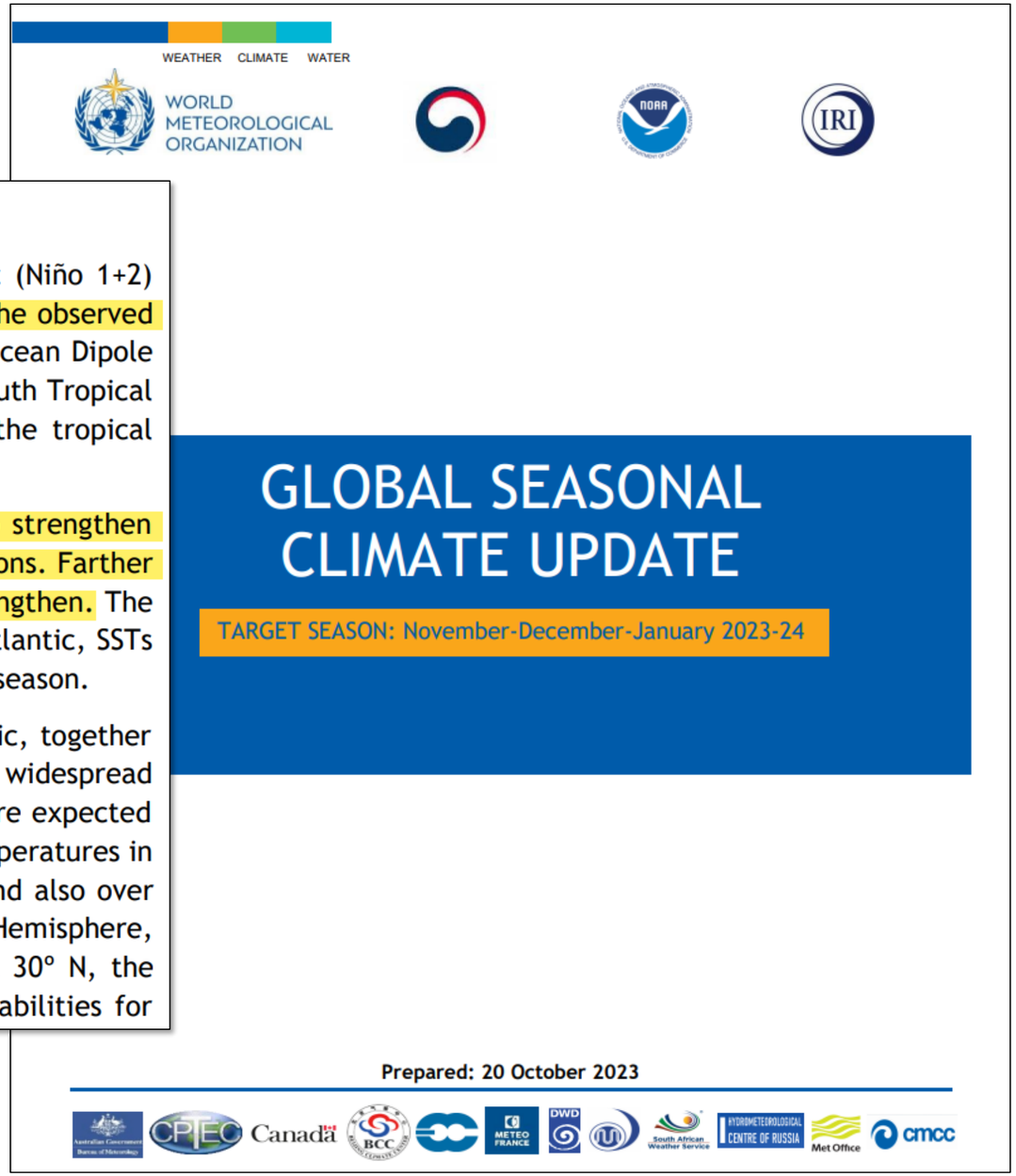
Global Seasonal Climate Update

Summary

During July-September 2023, Pacific Niño sea-surface temperature (SST) index in the eastern Pacific (Niño 1+2) were much above-normal and the other three indices in the central Pacific were also above-normal. The observed SST conditions in the equatorial Pacific were characterized by an El Niño state. The observed Indian Ocean Dipole (IOD) was also above-normal. The North Tropical Atlantic (NTA) SST index was above-normal and the South Tropical Atlantic (STA) SST index was near-normal (but was positive) and reflected widespread warmth in the tropical Atlantic north of the equator.

Above-normal sea-surface temperature anomalies in the Niño 3.4 and Niño 3 regions are predicted to strengthen during the November-January (NDJ) 2023-24 season, indicating possible amplification of El Niño conditions. Farther west in the Niño 4 region, above-normal sea-surface temperature anomalies are also predicted to strengthen. The Indian Ocean Dipole (IOD) index is predicted to stay in the above-normal category. In the equatorial Atlantic, SSTs are predicted to be above-normal in both the northern (NTA) and the southern (STA) regions during the season.

Consistent with the anticipated development of an El Niño in the equatorial central and eastern Pacific, together with the prediction of above-normal sea-surface temperatures over much of the global oceans, there is widespread prediction of above-normal temperatures over almost all land areas. Positive temperature anomalies are expected over almost the entire Northern Hemisphere. The largest increase in probabilities for above-normal temperatures in the Northern Hemisphere is predicted generally south of about 40° N (except over North America), and also over north-eastern parts of North America, and in the regions north of 65° N. Elsewhere in the Northern Hemisphere, including Greenland, Europe and Asia between 45° and 65° N, and in North America north of about 30° N, the probabilities for above-normal temperature are moderately increased. There are also enhanced probabilities for



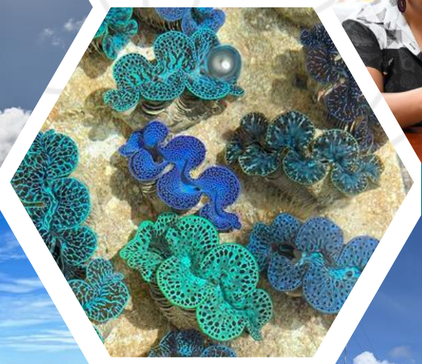
Summary

- Since the PICOF-12, El Niño conditions have strengthened and persisted.
  - Warmer than normal SSTs along the central and eastern equatorial Pacific
  - Warmer than normal subsurface temperatures
  - Westerly wind anomalies along the central equatorial Pacific
  - Enhanced convection for the western Pacific

- El Niño conditions are likely to be amplified through the winter 2023/24.
  - Strong agreement from the models on sustained above normal SSTs
  - Above 90% chance of El Niño conditions









Thank You

PACIFIC METEOROLOGICAL COUNCIL

WORLD METEOROLOGICAL ORGANIZATION

ClimSA

SPREP
Secretariat of the Pacific Regional Environment Programme

Pacific Community
Communauté du Pacifique

Australian Government
Bureau of Meteorology

CSIRO

NIWA
Taihoro Nukurangi

APCC
APEC CLIMATE CENTER

NOAA
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE

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