18th SESSION OF THE PACIFIC ISLANDS CLIMATE OUTLOOK FORUM PICOF -18

23 - 24 April, 2026 | Nadi, Fiji

WMO | PACIFIC REGIONAL CLIMATE CENTRE NETWORK | ClimSA | SPREP | COSPPac Climate and Oceans Support Program in the Pacific | Pacific Community Communauté du Pacifique | Australian Government Bureau of Meteorology | CSIRO | Earth Sciences New Zealand | APCC | METEO FRANCE

ENSO Status and Outlook

Presenter's Name: Brandon Bukunt
Organization: NOAA

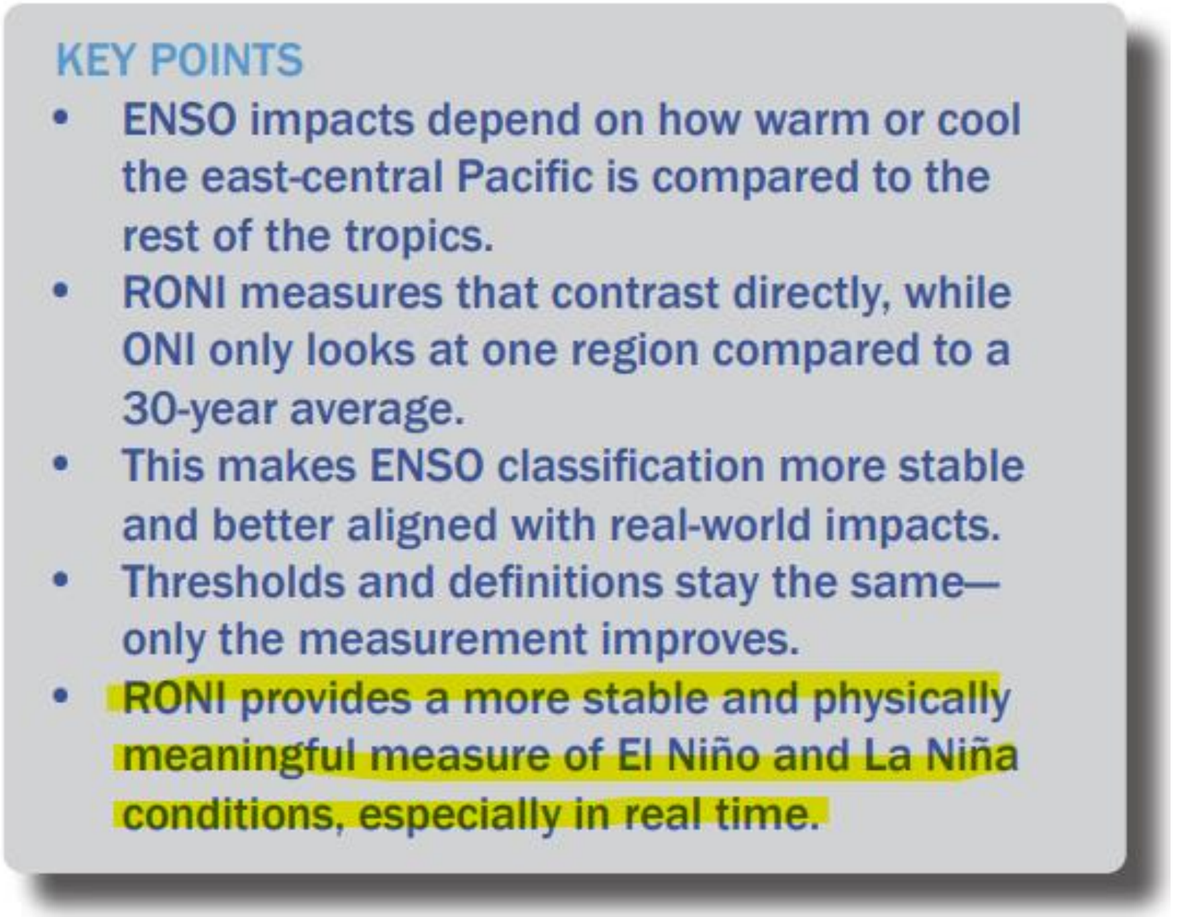
WMO
PACIFIC REGIONAL CLIMATE CENTRE NETWORK

Bottom Line Up Front

- ENSO Neutral prevails (Several agencies have issued an El Nino Watch)
- The last several months have shown classic precursors for the development of a strong El Nino later this year
  - Collapse of the trade winds in the equatorial West Pacific
  - Strong westerly wind bursts and attendant twin cyclones (Sinlaku / Maila)
  - Warming of surface and subsurface waters in the central and east Pacific
- Transition to El Nino is strongly favored during the next few months, but there is still uncertainty as to the magnitude. **A very strong El Nino event is a distinct possibility.**

Relative Oceanic Nino Index (RONI)

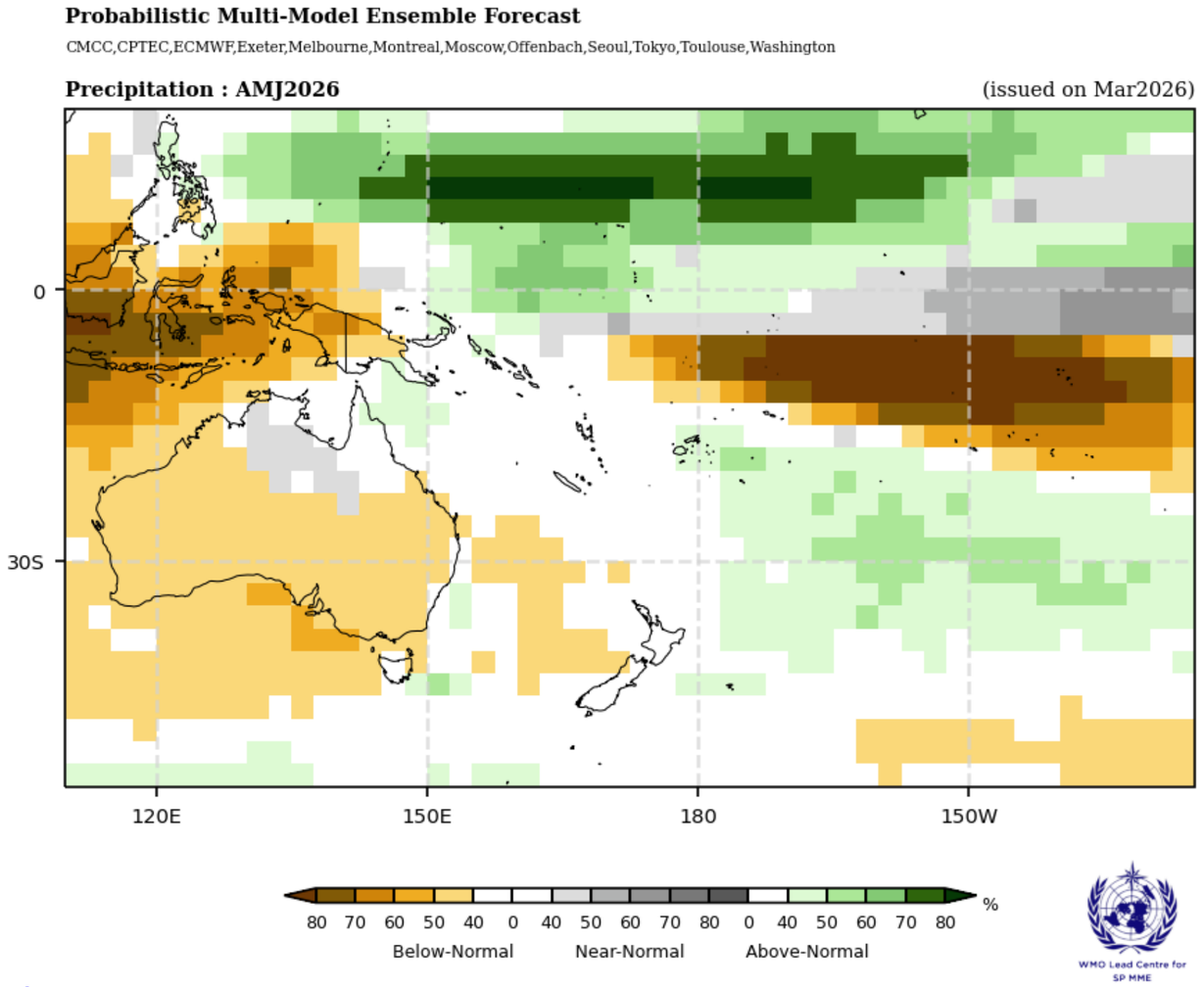
***Friendly reminder that ESNZ, BOM & NOAA are all using the relative oceanic nino index (RONI) operationally**



https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso/roni/announcement.php

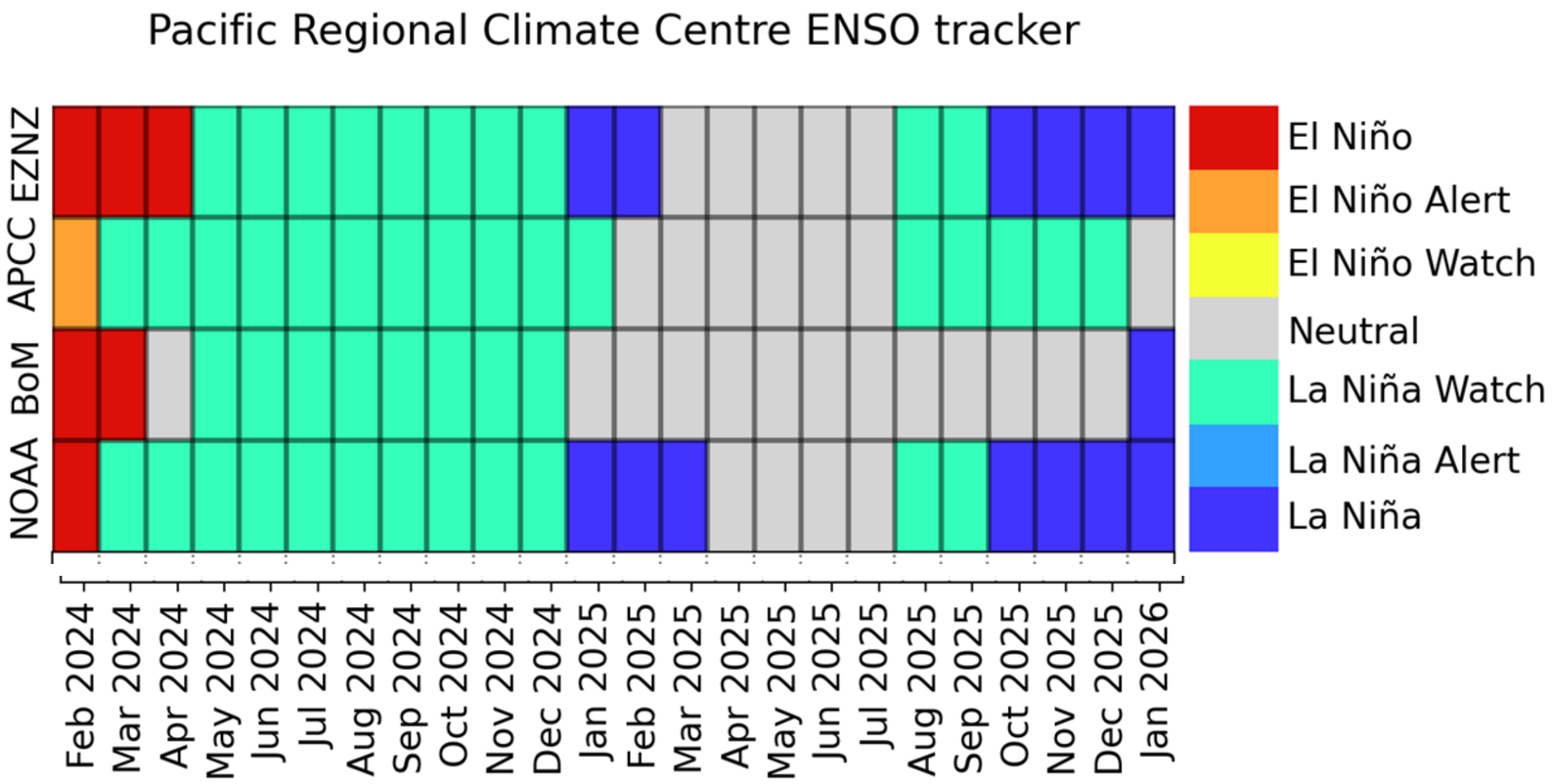
WMO El Nino / La Nina Update

- **Rapid El Niño Onset:** Forecasts show an exceptionally tight consensus for a rapid transition into El Niño by May, with a strong event likely developing by July.
- **Widespread Ocean Warming:** Sea surface temperatures will be broadly above normal across the North and South Pacific, especially east of the Date Line.
- **Equatorial Rain Surge:** A broad, zonal band of above-normal rainfall will dominate north of the equator between **150°E** and **150°W**.
- **Flanking Dry Zones:** This intense equatorial wet zone will be surrounded by distinct corridors of below-normal rainfall, stretching across the South Pacific and centered over the Maritime Continent (Indonesian archipelago)



https://wmo.int/publication-series/el-ninola-nina-updates

Pacific RCC ENSO Tracker



As of April 2026…

ESNZ → El Nino Watch

APCC → El Nino Watch

BOM → ENSO neutral

NOAA → El Nino Watch

https://www.pacificmet.net/enso-tracker

ENSO PHENOMENON & FORECASTING TIMELINE

DEC - FEB

EARLY SEASON SIGNAL DETECTION

- Early Signals
- Limited Lead Time

MAR - MAY

MAR - MAY (Barrier)

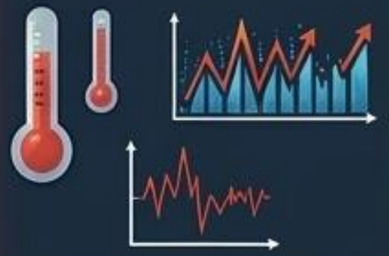
SPRING PREDICTABILITY BARRIER (SPB)

Major Forecasting Challenge

Models Diverge Significantly

- Reduced Forecast Skill

JUN - AUG



SIGNAL EMERGENCE & CLARITY

- Improved Prediction Confidence
- Increased Data Stability

SEP - NOV

PEAK PREDICTION SKILL

- Model Convergence
- Reliable Phase Predictions

DEC - JAN

ENSO MATURITY & GLOBAL IMPACTS

Defined ENSO Phase (e.g., El Niño)

Real-World Outcomes

Spring Predictability Barrier

Spring Predictability Barrier

- It is important to keep in mind that the spring predictability barrier is relevant to both sides of forecast projections… **it is simply a time of increased uncertainty**

By the end of 2026… we could experience a weaker scenario than the current model consensus…

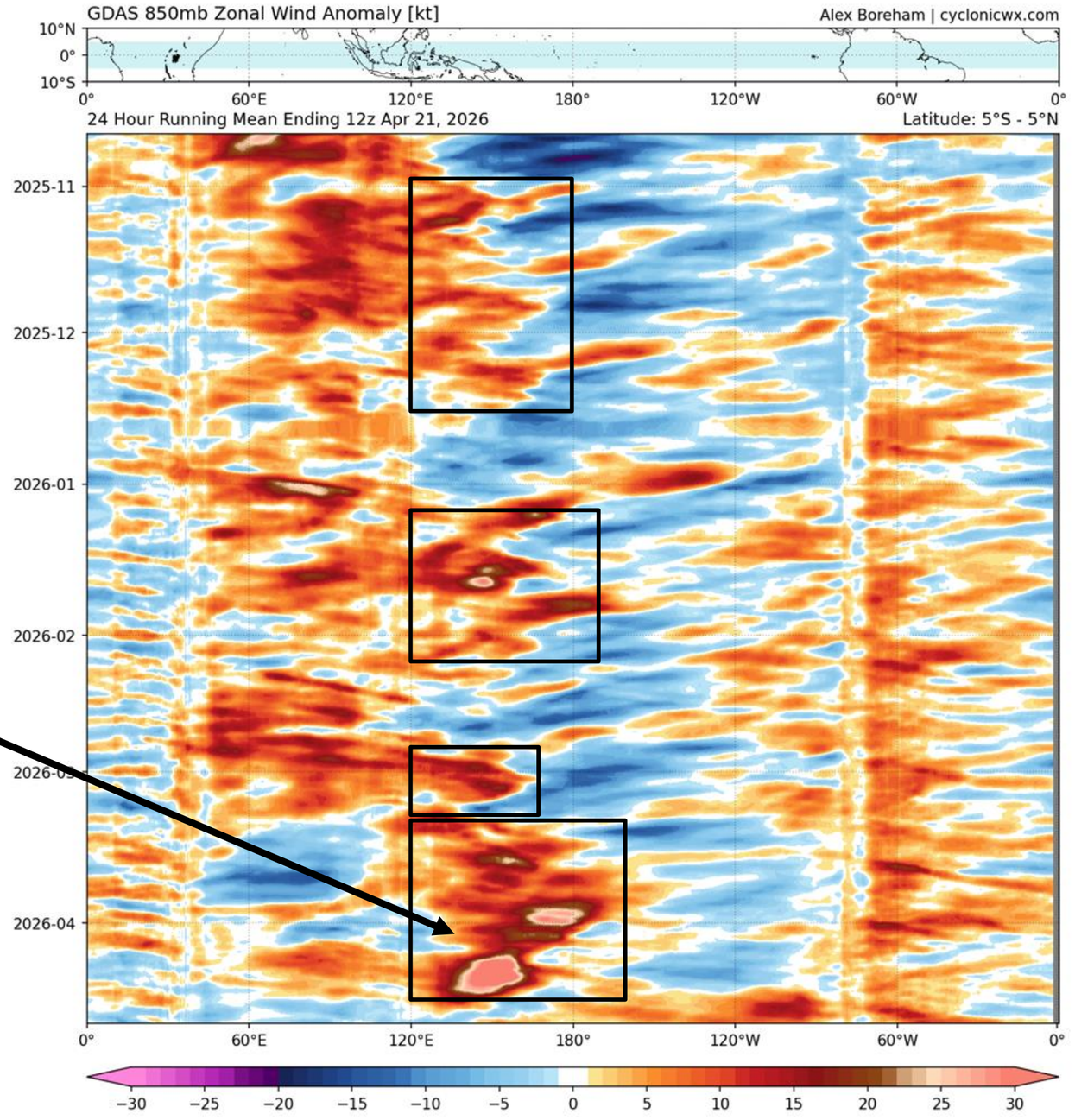
OR

We could experience a much stronger event that punches above the already aggressive El Nino projections

ENSO Status - Atmospheric primer

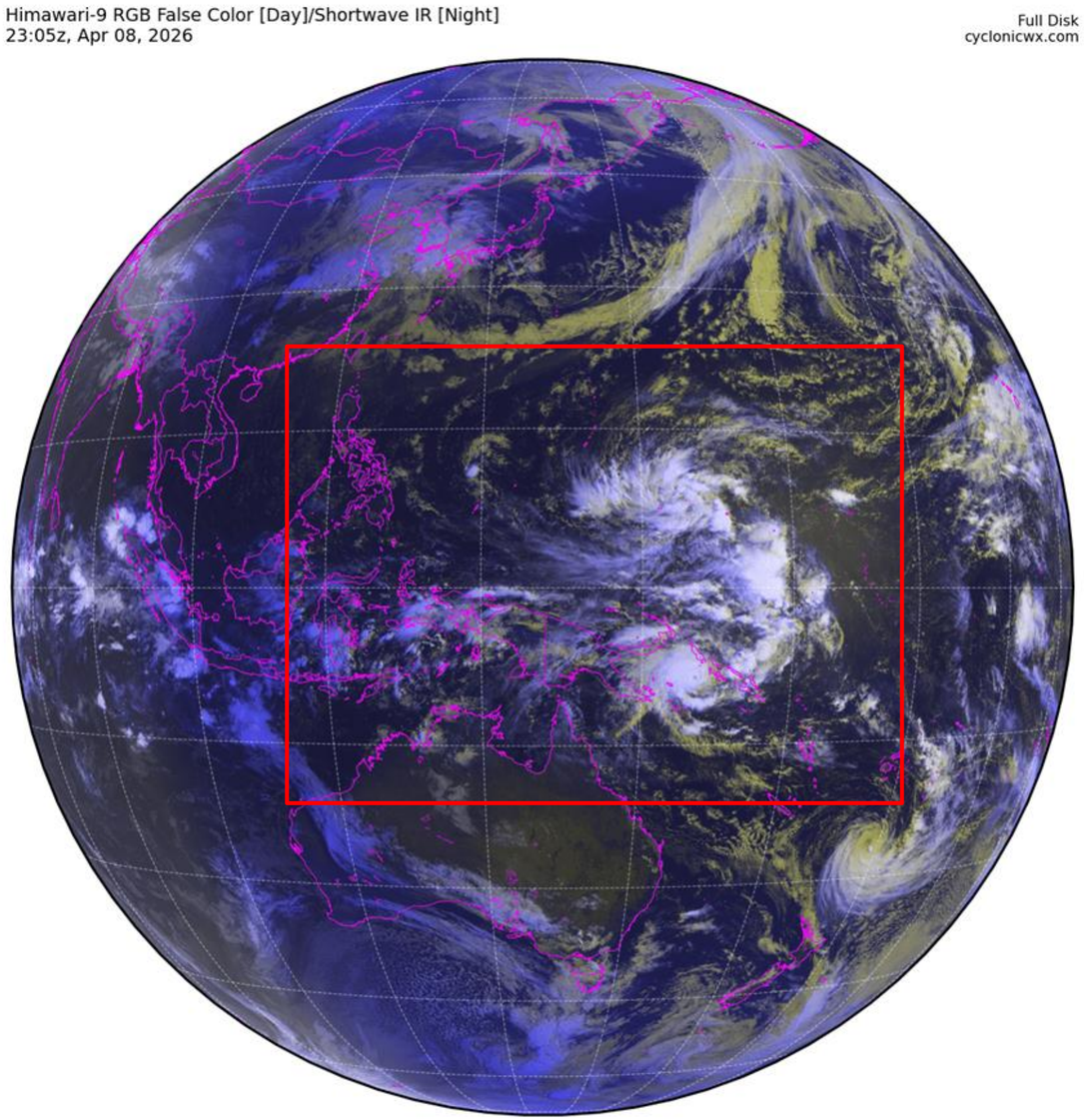
A series of westerly wind bursts (WWB) have occured since late 2025…

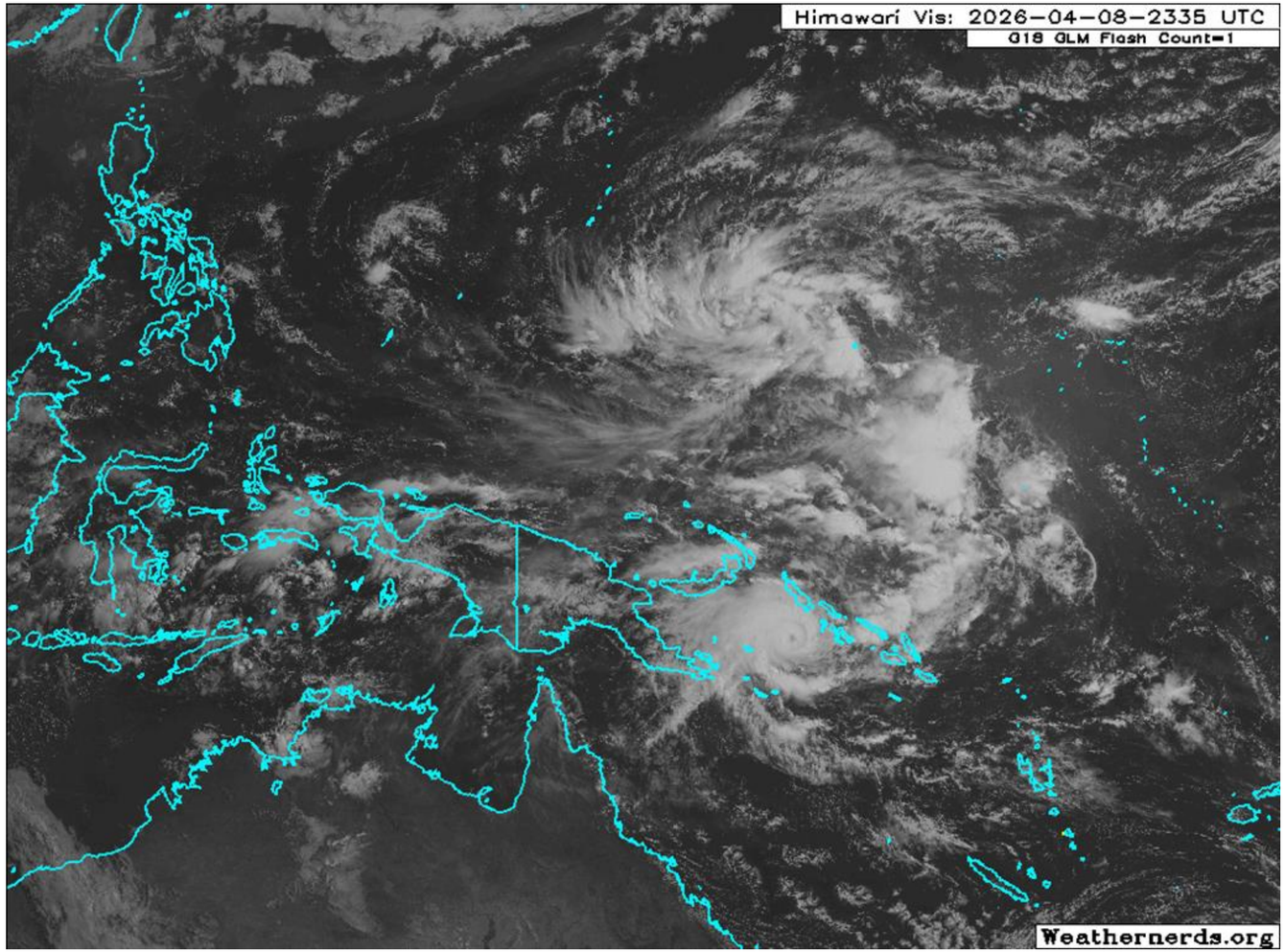
- The recent WWBs have been extremely strong with over 30 knots of anomalous westerly winds



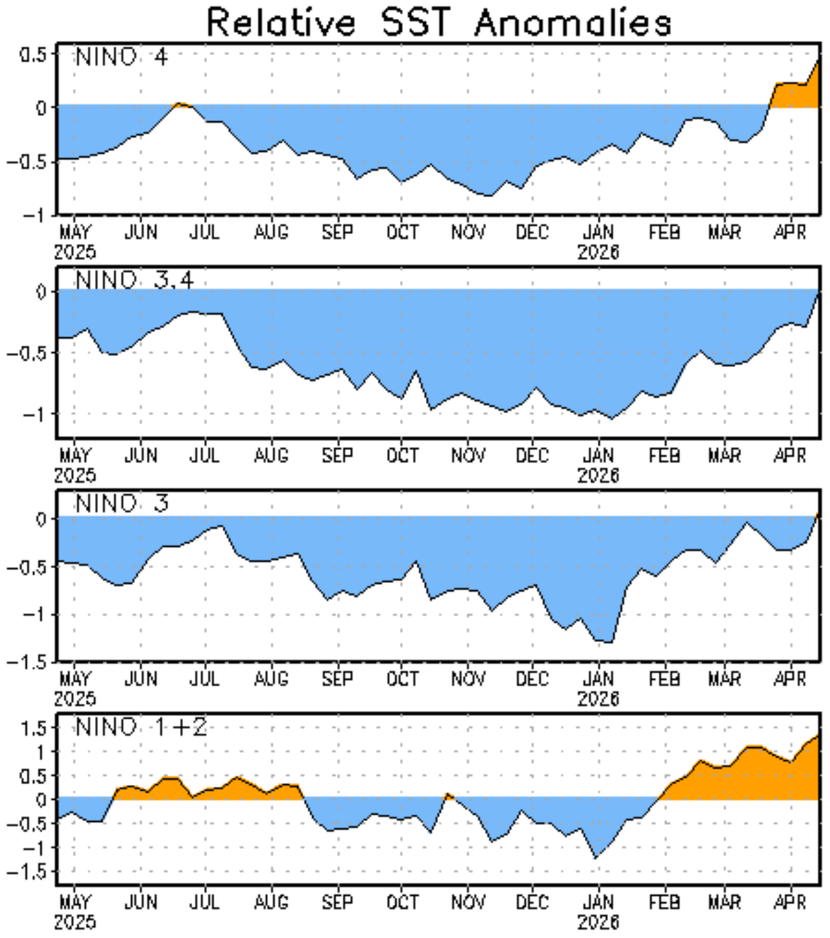
https://cyclonicwx.com/analysis/

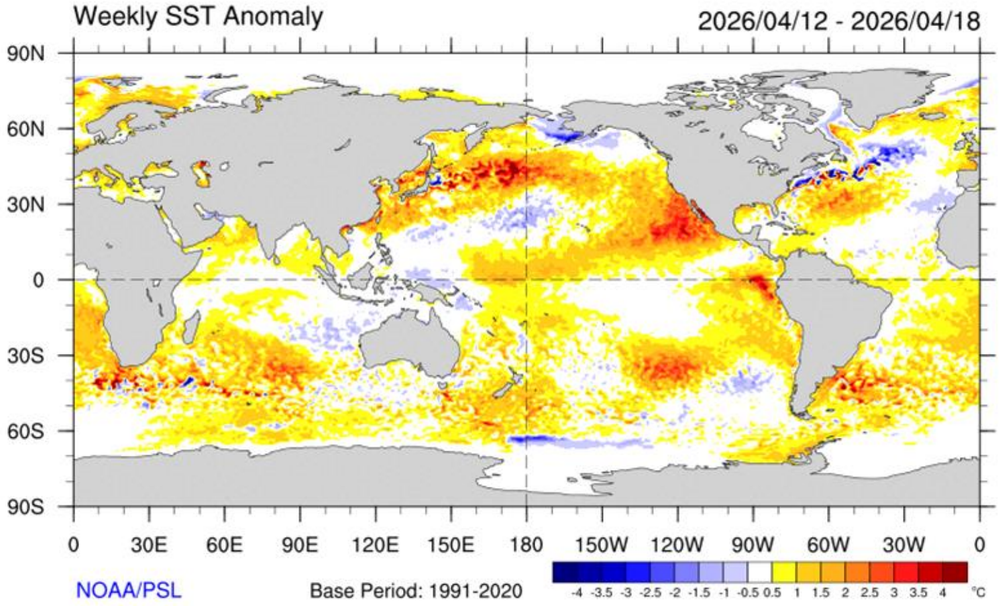
ENSO Status - Atmospheric primer (early April 2026)

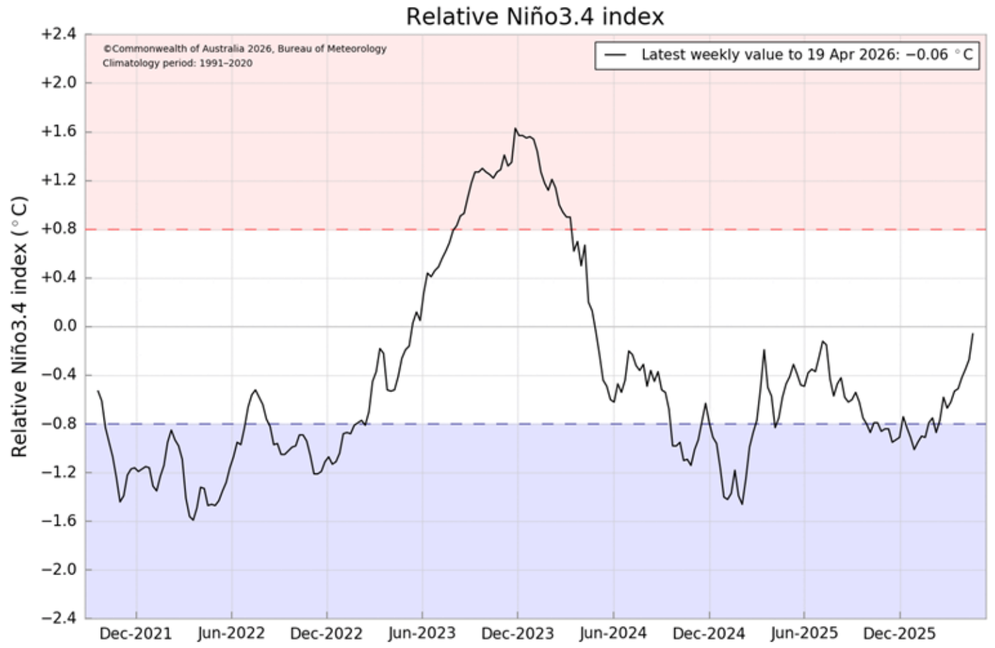




ENSO Status - surface

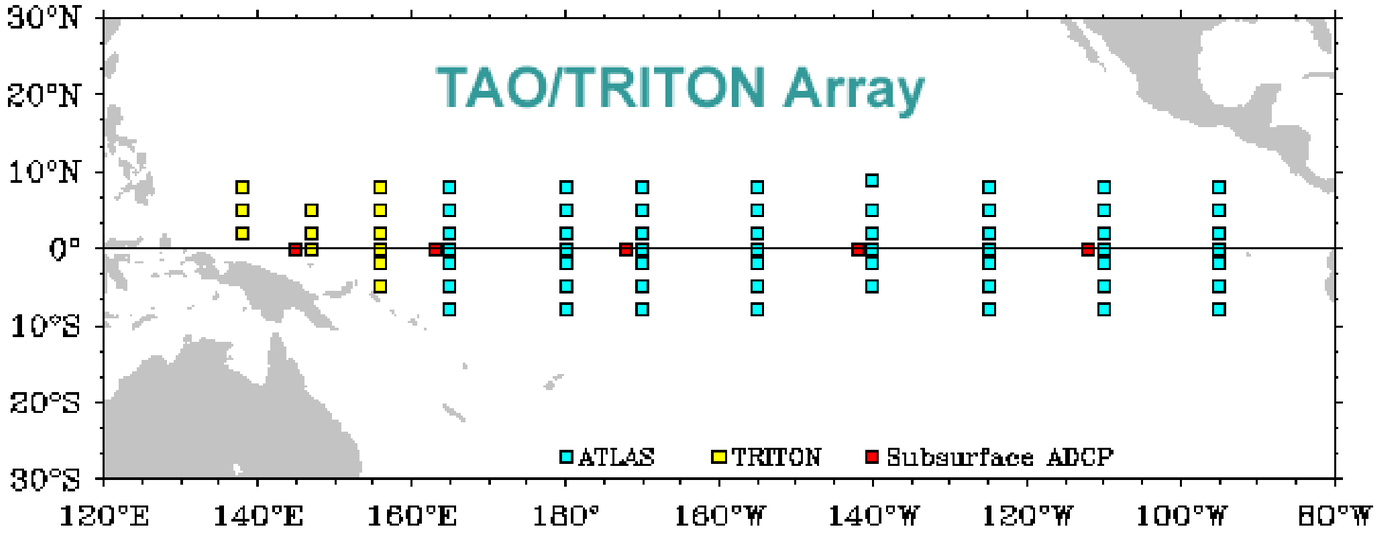


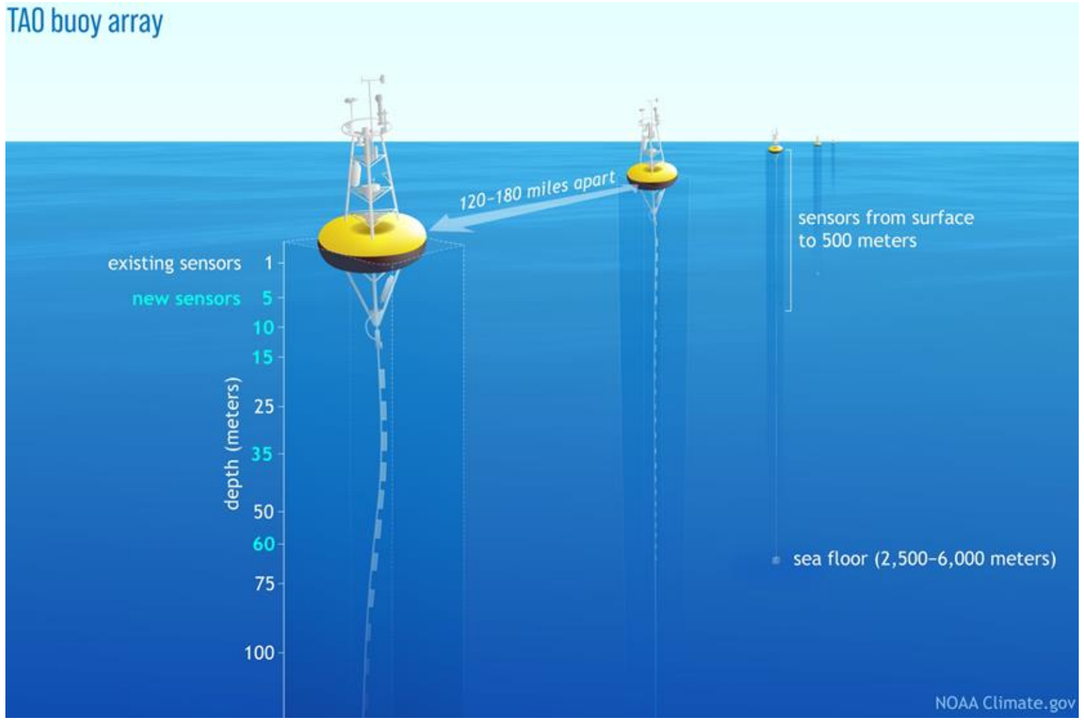




https://psl.noaa.gov/map/clim/sst.shtml
https://www.bom.gov.au/climate/enso/?ninoIndex=nino3.4&index=rnino34&period=weekly#tabs=Pacific-Ocean
https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_update/ssta_c.gif

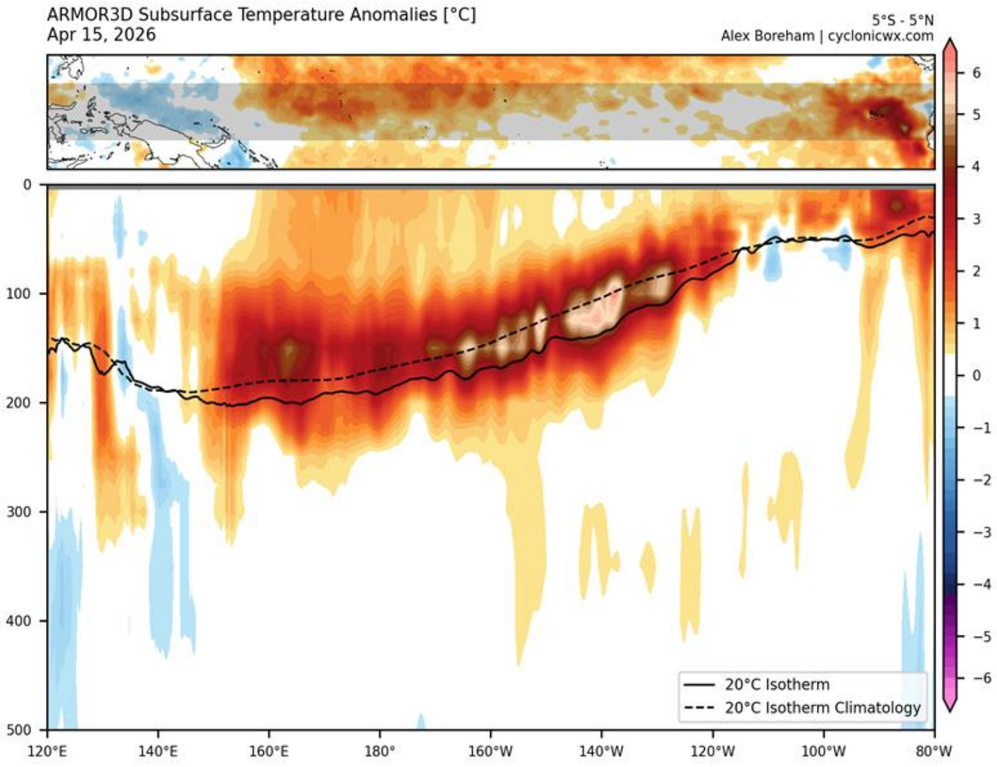
ENSO Status - Quick nod to the obs network



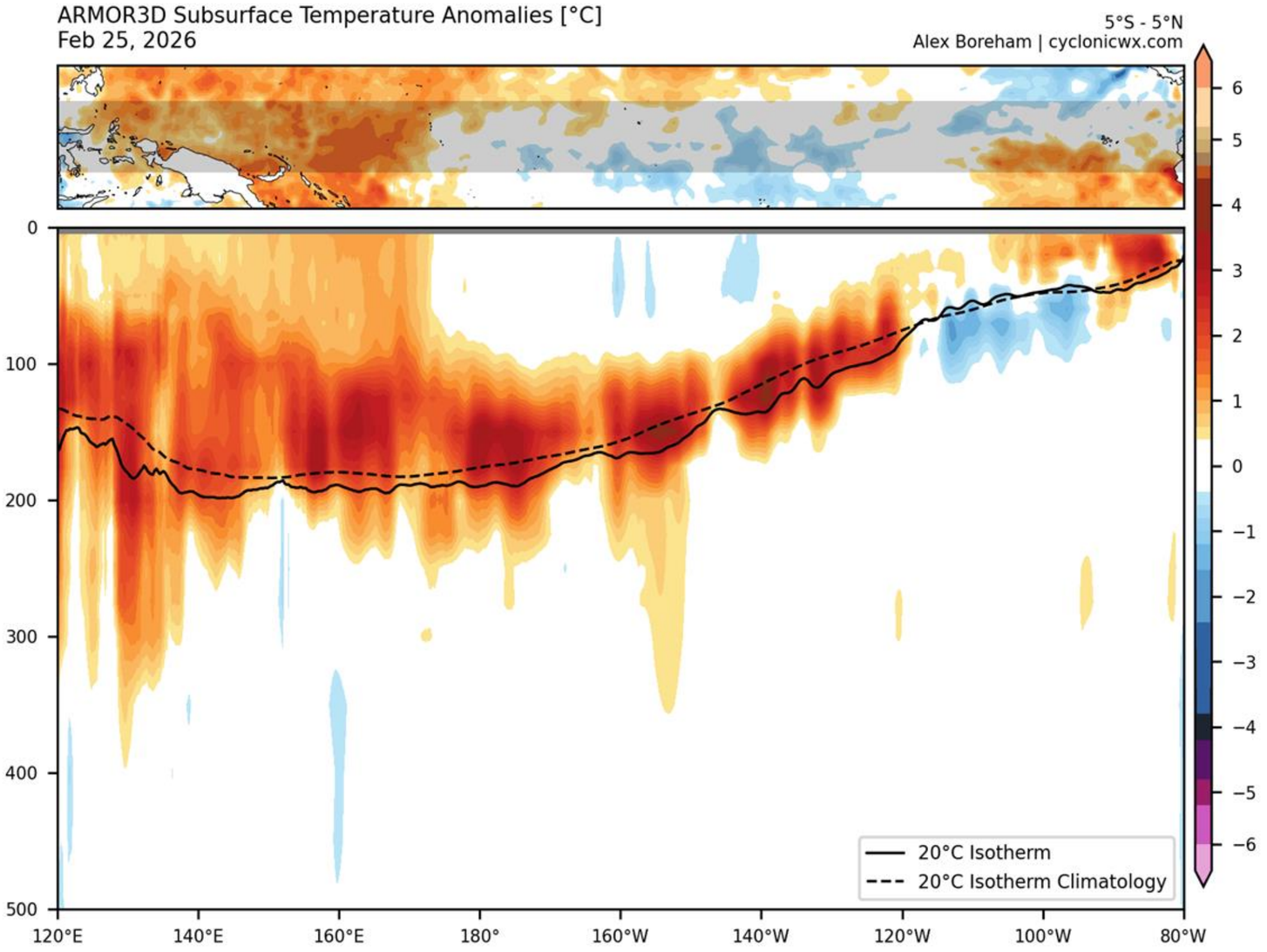


ENSO Status - subsurface

Latest subsurface



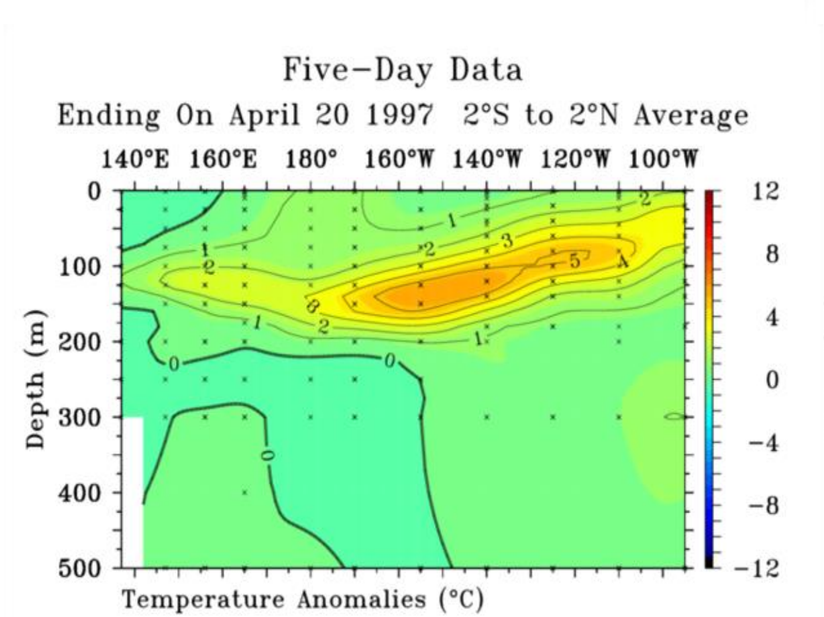
February 25 to April 15 animation



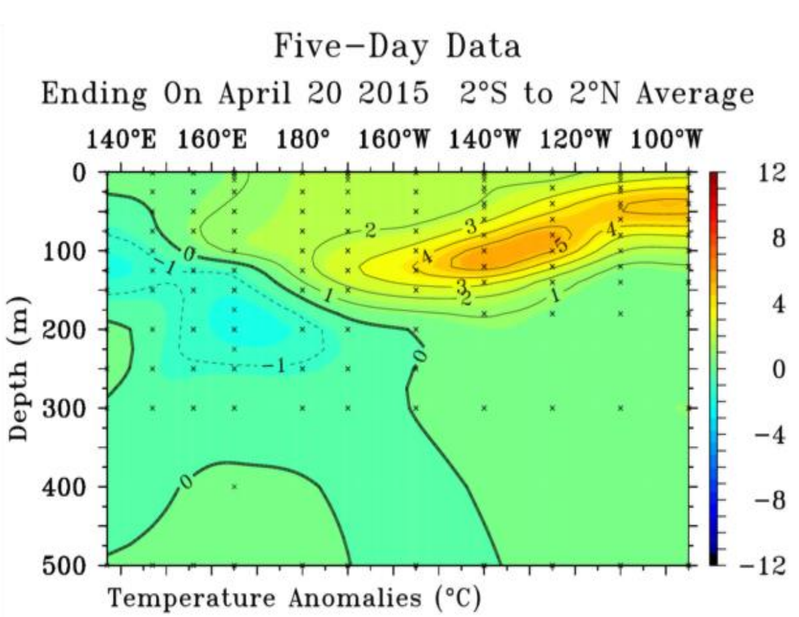
https://cyclonicwx.com/sst/

ENSO Status - subsurface (comparison to 1997 & 2015)

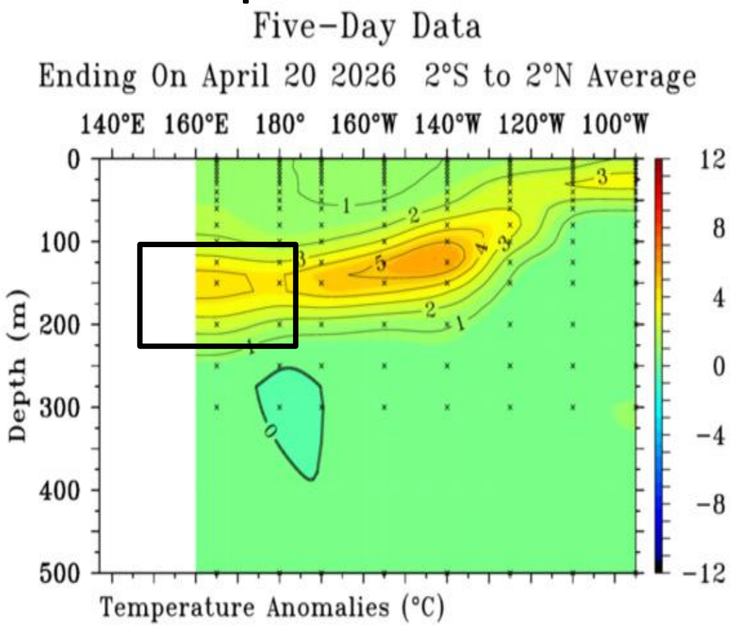
April 1997



April 2015



April 2026



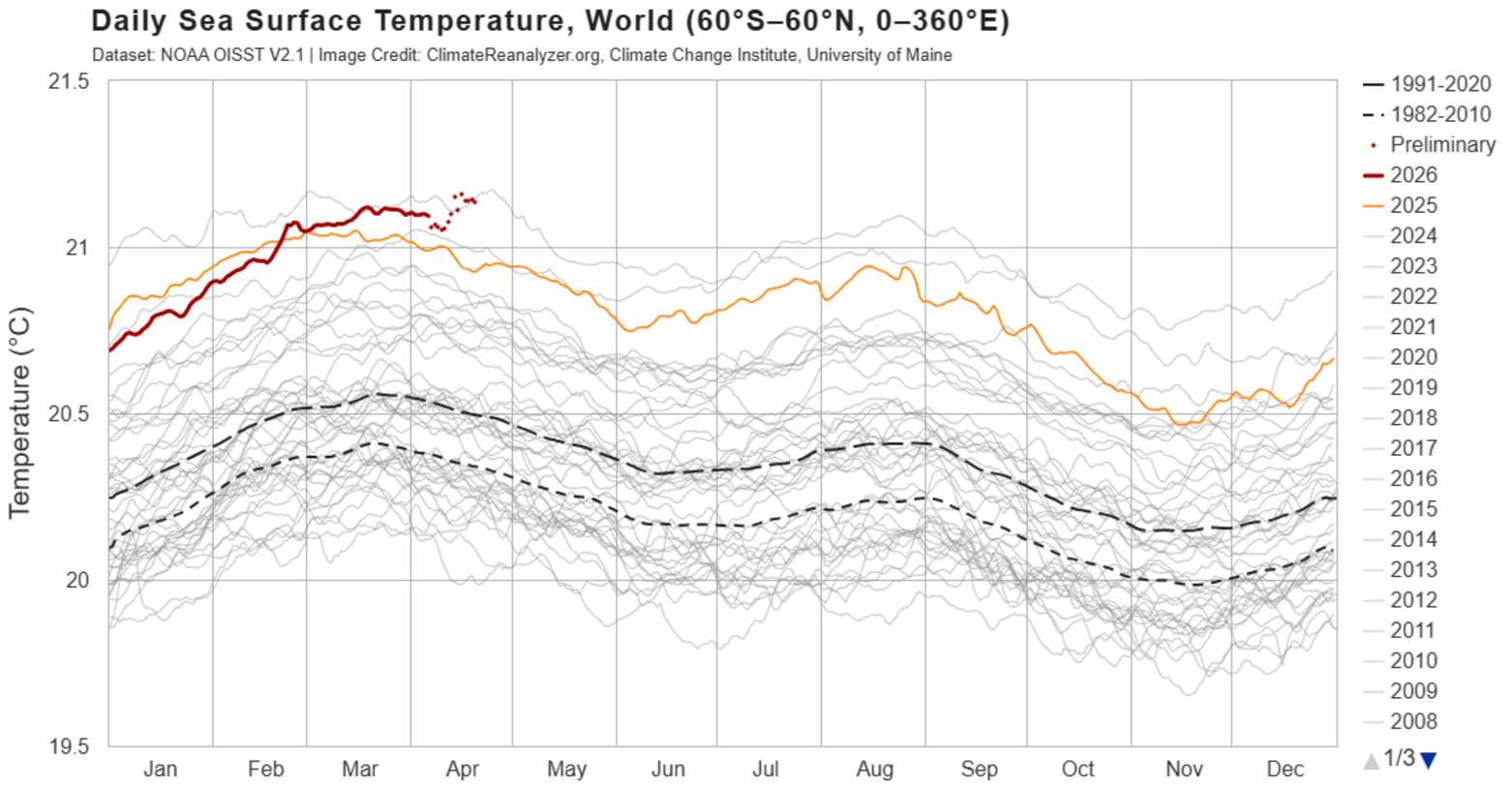
https://www.pmel.noaa.gov/tao/drupal/disdel/

Coupling is essential…

- Quick reminder that coupling between the ocean and the atmosphere is essential to ENSO status
- These impressive oceanic signals need to be “felt” by the atmosphere to make that transition to El Nino

Global SST Warmth

- Global SSTs are at near-record levels and competing with 2024
- It is unclear how this will influence the developing ENSO, especially for teleconnections to the midlatitudes during the mature phase during the Dec-Feb period



https://climatereanalyzer.org/clim/sst_daily/?dm_id=world2

ENSO Status - Initial Atmospheric Response

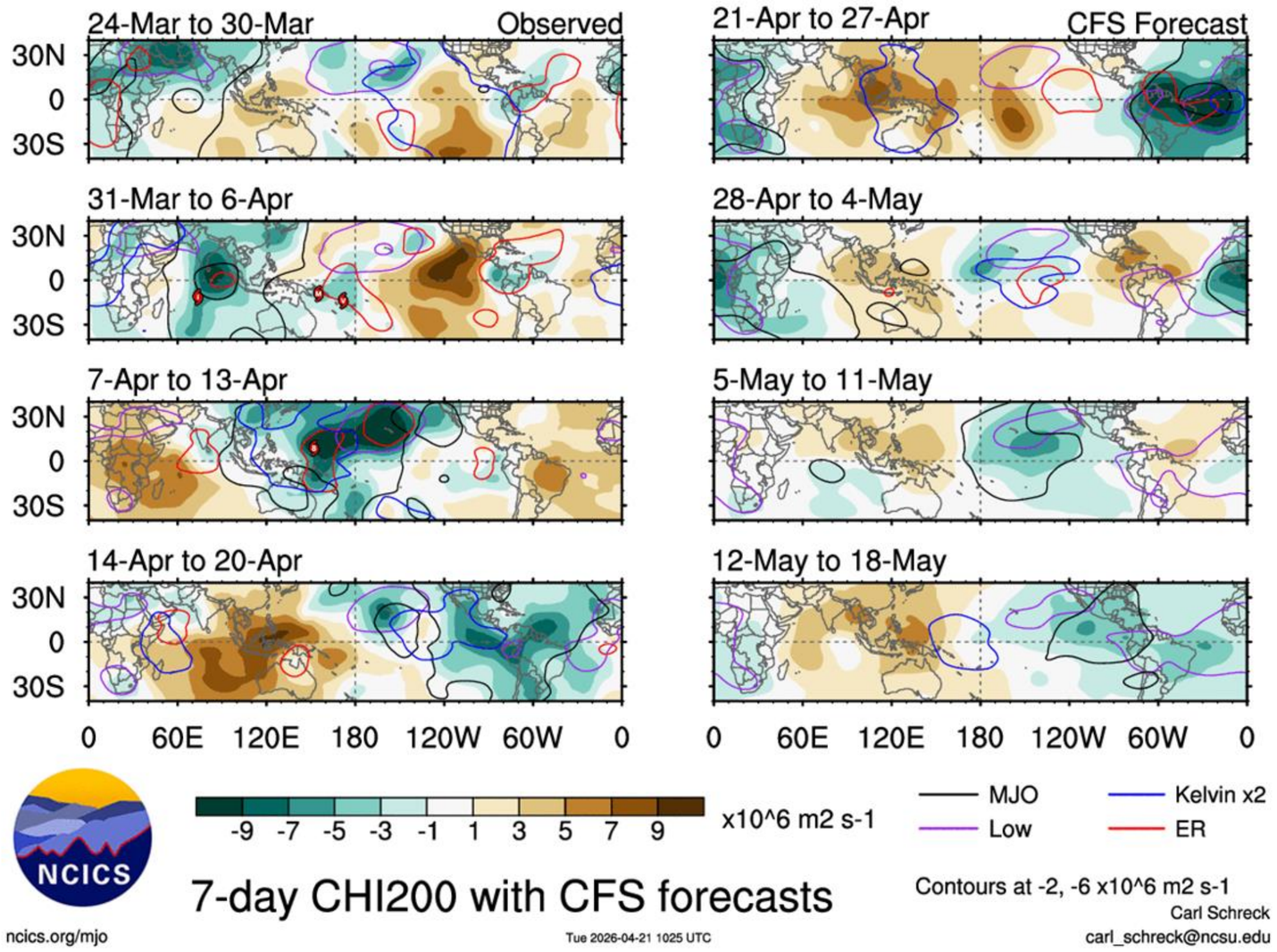
Short term forecasts are beginning

to show a low frequency

atmospheric response to the

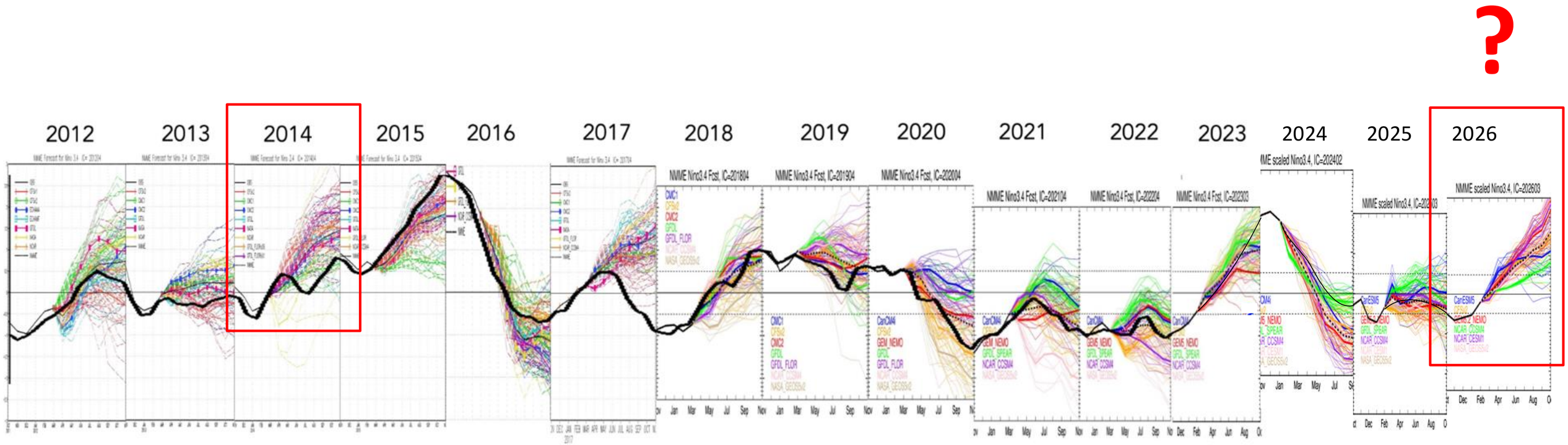
warming seas in the central to east

Pacific (initial El Nino signal)



https://psl.noaa.gov/map/clim/olr.shtml

ENSO Outlook - The Famous Bust of 2014…!

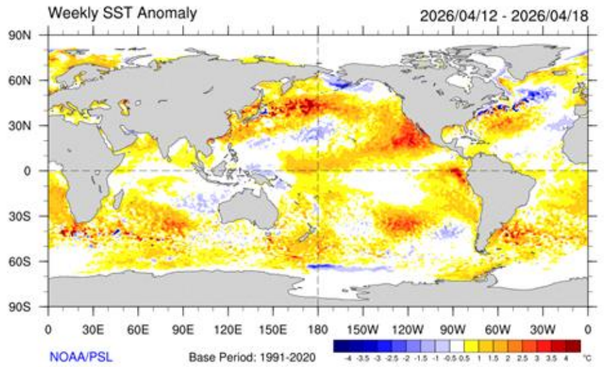


Colored curves: Ensemble member predictions

Black curve: observed Nino3.4 value

Image adapted from Ken Takahashi

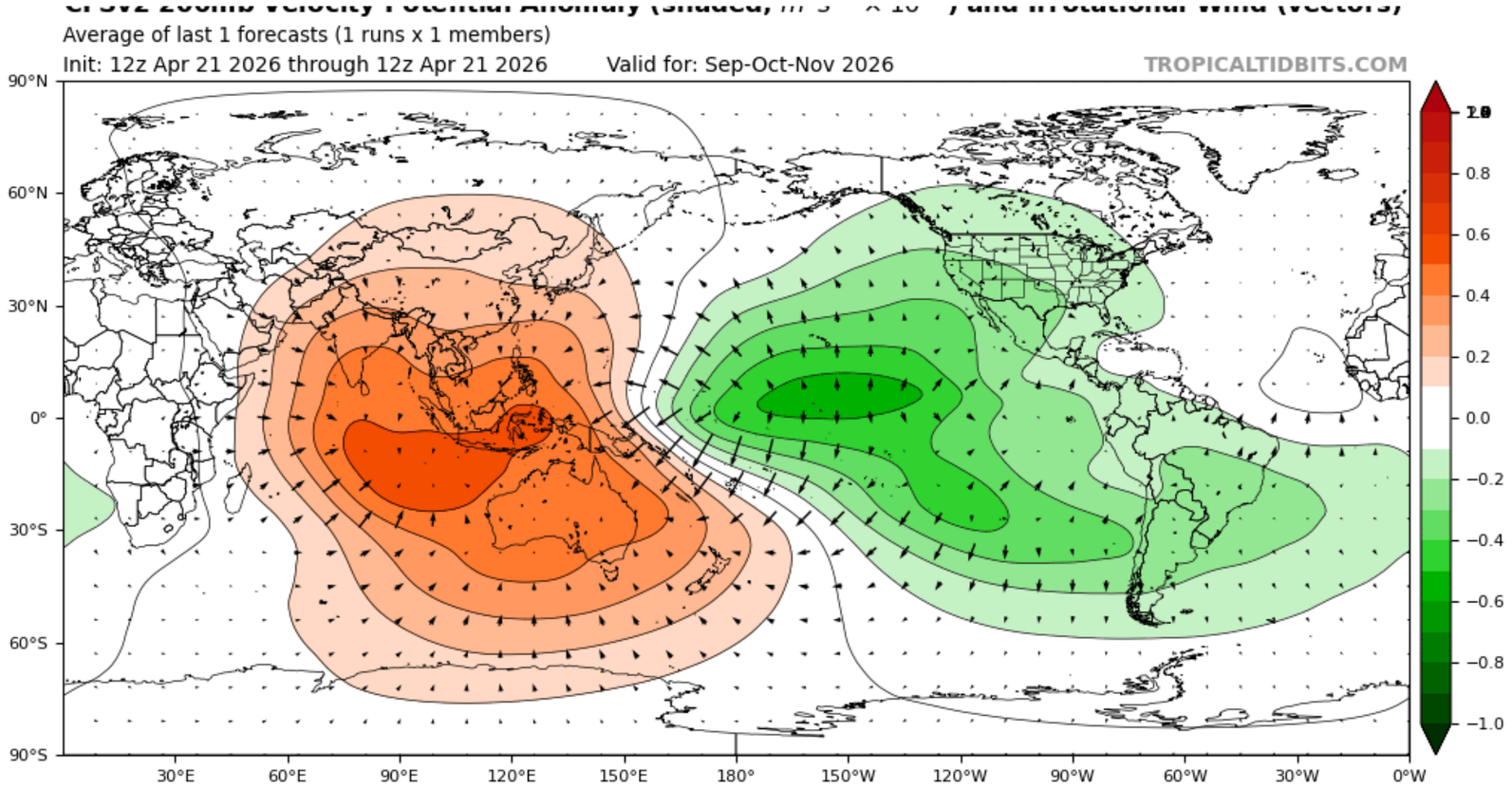
What can help raise our confidence at this stage?



- Negative Indian Ocean Dipole (-IOD) is often a precursor to El Nino
- Research suggests a Positive Pacific Meridional Mode (+PMM) is shown to be a precursor for El Nino
- Big March / April Westerly Wind Events
- Unanimous support amongst seasonal models
- Subseasonal guidance suggests another westerly wind event in May
- Atmospheric response to the oceanic signal is also present in seasonal models

ENSO Outlook – Velocity Potential

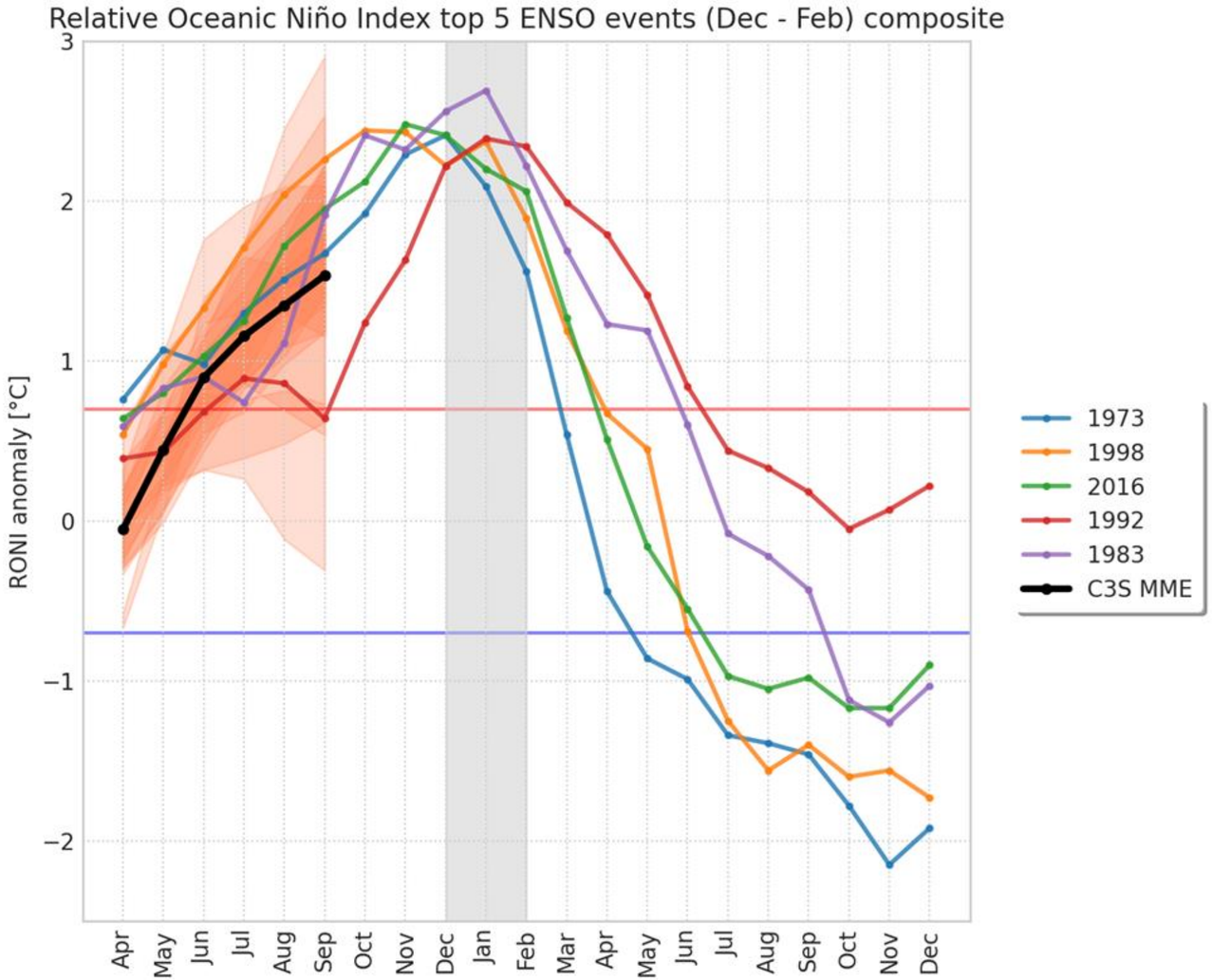
- A strong wave 1 pattern is forecast for SON period with anomalous rising motion (green) centered over the central/eastern Pacific and large scale sinking over the Maritime Continent



https://www.tropicaltidbits.com/analysis/models/?model=cfs-mon&region=global&pkg=chi200Mean_month&runtime=2026042112&fh=1

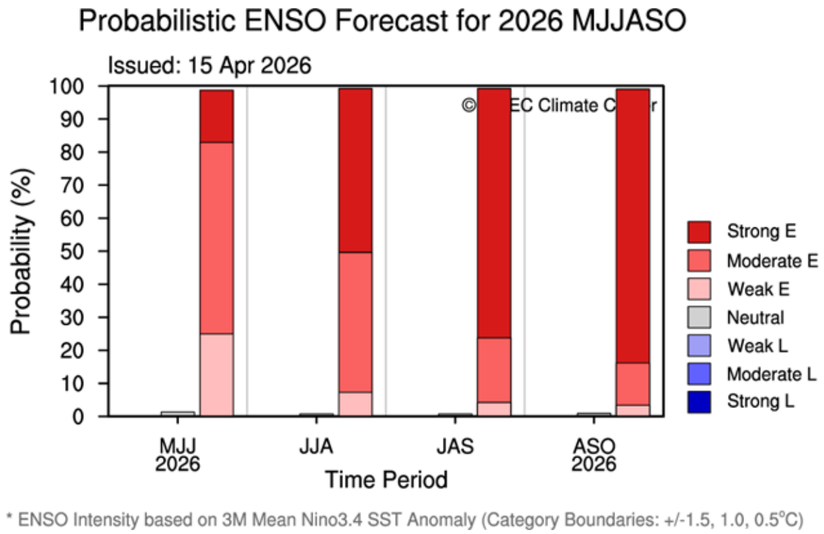
ENSO Outlook - C3S RONI Projections

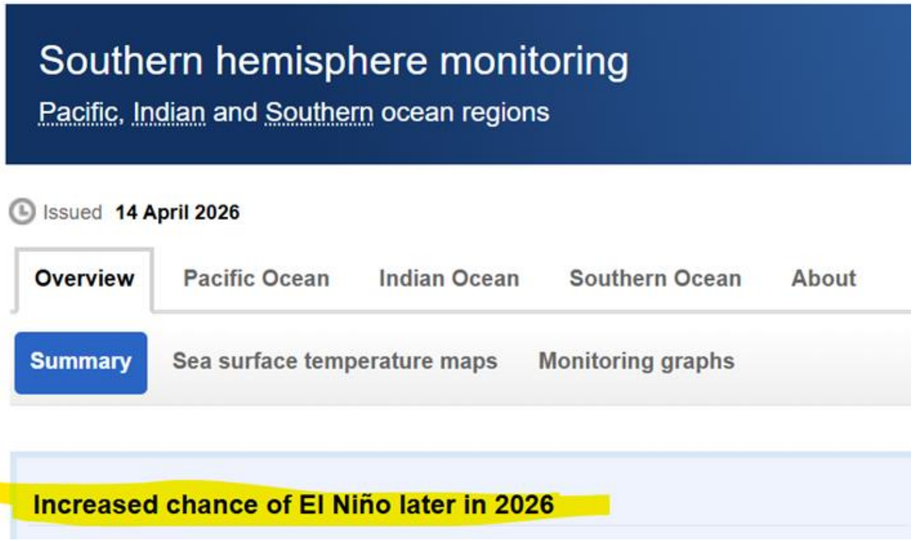
- Although timing varies, projections from the C3S multi-model ensemble show 2026 following a similar path as previous heavy-hitting El Ninos of 1972/1973, 1997/1998, 2015/2016, 1991/1992, 1982/1983

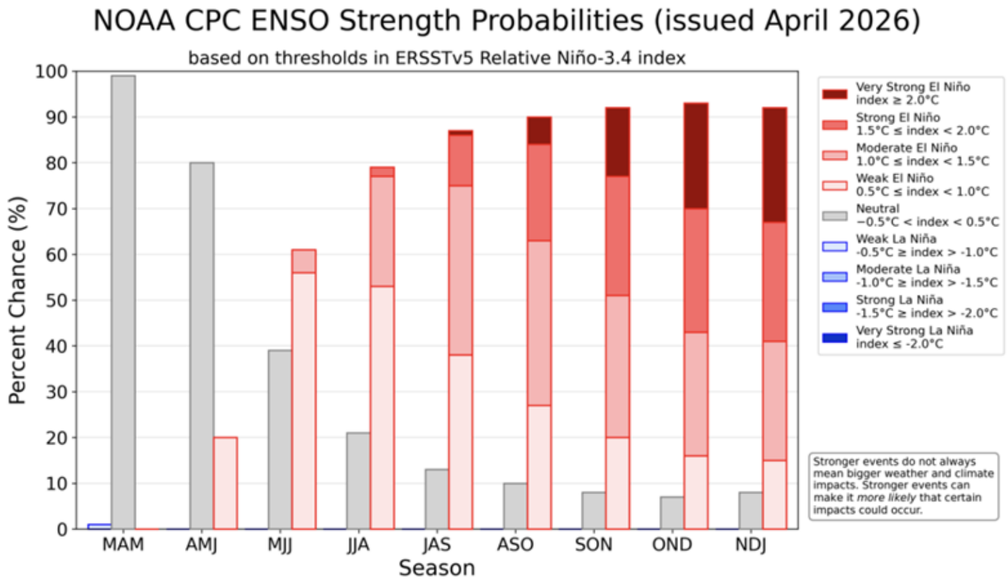


Via Nicolas Fauchereau at ESNZ

ENSO Outlook - APCC / ESNZ / BOM / NOAA







ENSO Outlook - Agency Overview

	Chance of El Nino	Additional Info
ESNZ	~90% chance JJA onward	A strong El Nino is possible
APCC	>95% chance MJJ onward	>80% chance of strong El Nino by ASO
BOM	All guidance shows El Nino by July	
NOAA	~90% chance ASO onward	~50% chance of a strong El Nino by NDJ. 25% chance of a very strong El Nino during this period.

Summary

Add key points which will be included in the PICOF outcomes statement

The last several months have shown classic precursors for the development of a strong El Nino later this year with collapse of the trade winds in the equatorial West Pacific, strong westerly wind bursts, and warming of surface/subsurface waters in the central and east Pacific.

Despite near record global SST warmth, there is support that this potential El Nino will have a more classic pattern as compared to the 2023 event.

Transition to El Nino is strongly favored during the next few months, but there is still uncertainty as to the magnitude. **A very strong El Nino event is a distinct possibility.**

WMO PACIFIC REGIONAL CLIMATE CENTRE NETWORK

THANK YOU

brandon.bukunt@noaa.gov

WMO PACIFIC REGIONAL CLIMATE CENTRE NETWORK ClimSA SPREP COSPPac Climate and Oceans Support Program in the Pacific Pacific Community Communauté du Pacifique Australian Government Bureau of Meteorology CSIRO Earth Sciences New Zealand APCC METEO FRANCE