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ENSO Update and Outlook

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Support from: Météo-France, NOAA, SPC, SPREP, APCC

WORLD METEOROLOGICAL ORGANIZATION
Australian Government Department of Foreign Affairs and Trade Bureau of Meteorology
CSIRO
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NIWA Taihoro Nukurangi
SPC Secretariat of the Pacific Community
SPREP Secretariat of the Pacific Regional Environment Programme

Outline of Presentation

- Looking back since PICOF-9 at the 2021-2022 La Niña event
- Current ENSO conditions
- ENSO Outlooks
- ENSO summary for the PICOF statement

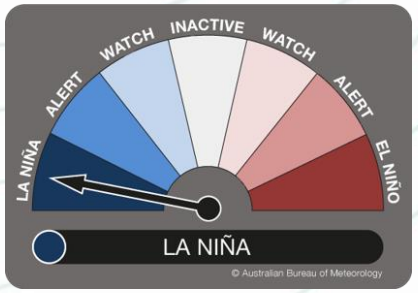
ENSO since PICOF-9

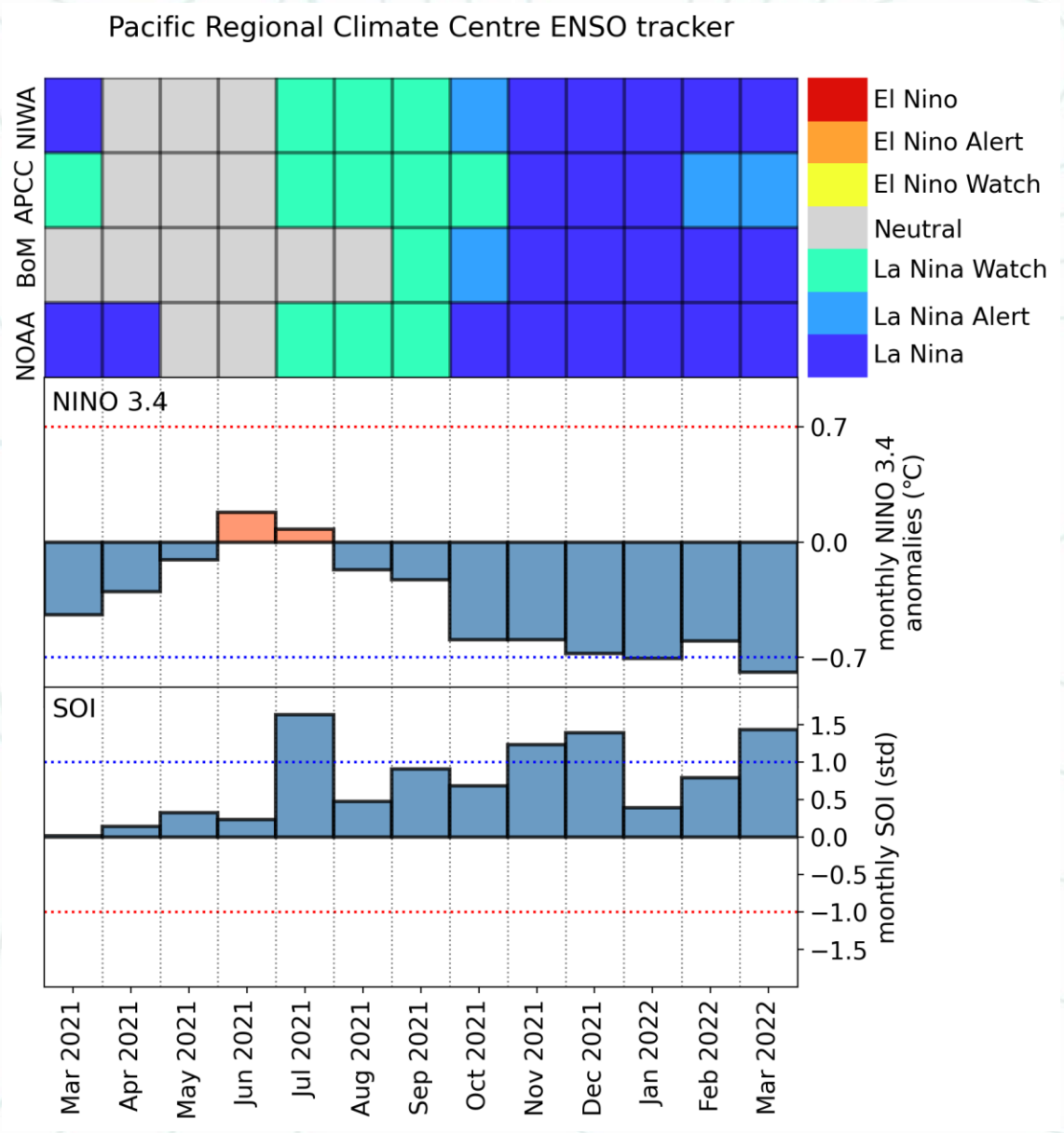
2022

12 April	La Niña remains active, but expected to weaken
29 March	La Niña eases slightly over past fortnight
15 March	La Niña retreat stalls as trade winds strengthen
1 March	La Niña likely to persist until mid-autumn
15 February	La Niña has peaked, but its influence will persist until mid-autumn
1 February	La Niña likely to persist until early autumn
18 January	La Niña continues

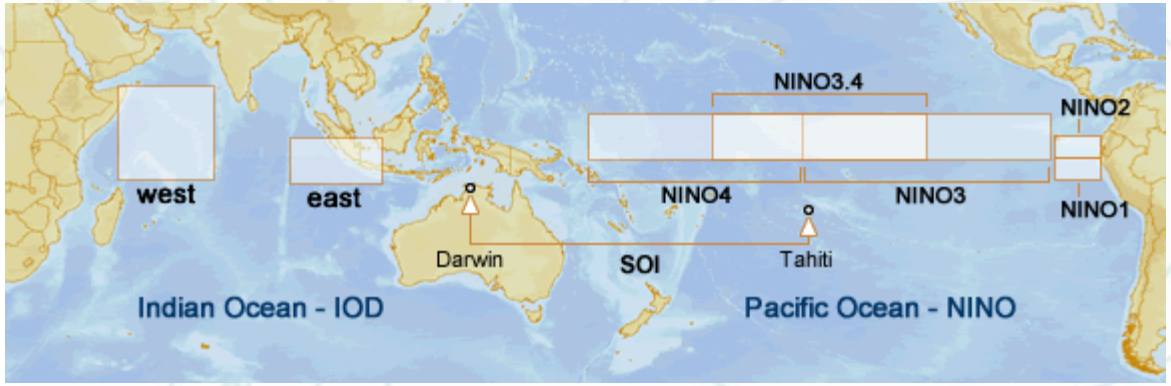
2021

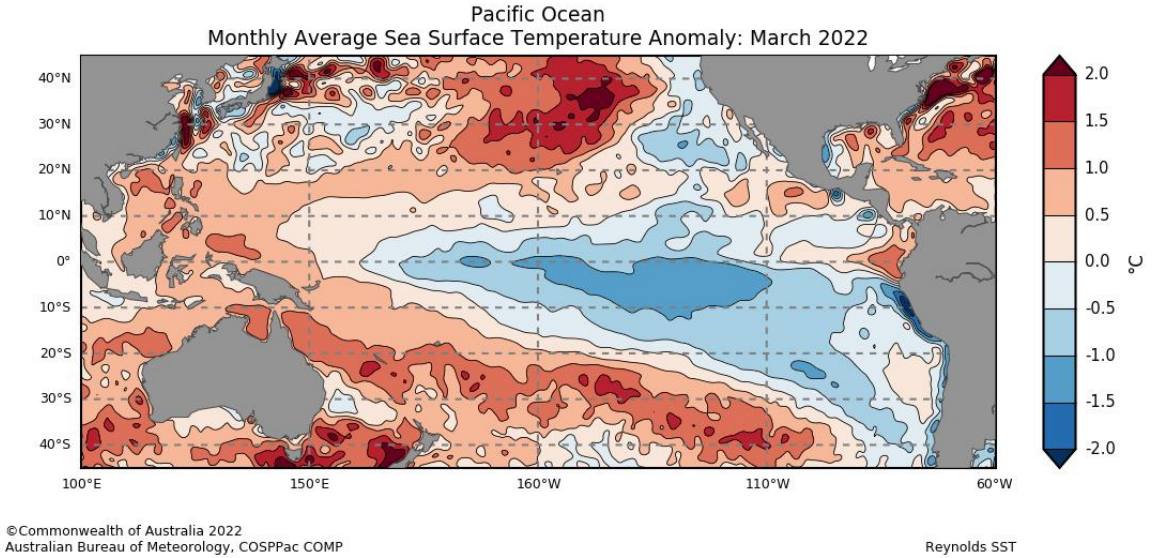
21 December	La Niña continues as Indian Ocean Dipole returns to neutral
7 December	La Niña firmly established in the tropical Pacific
23 November	La Niña established in the tropical Pacific
9 November	Negative IOD weakens, La Niña ALERT continues
26 October	La Niña ALERT continues—likelihood of La Niña around 70%
12 October	La Niña ALERT; tropical Pacific continues to cool
28 September	La Niña WATCH; negative Indian Ocean Dipole near its end
14 September	La Niña WATCH—chance of La Niña increases

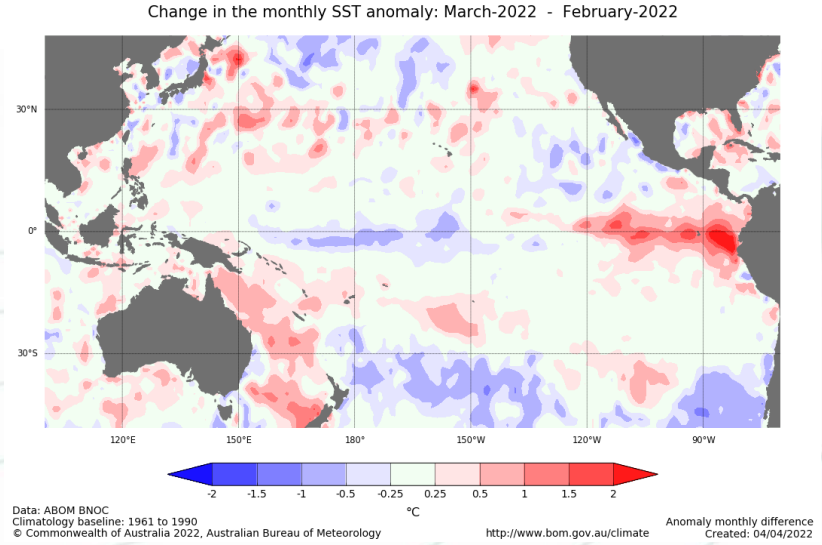


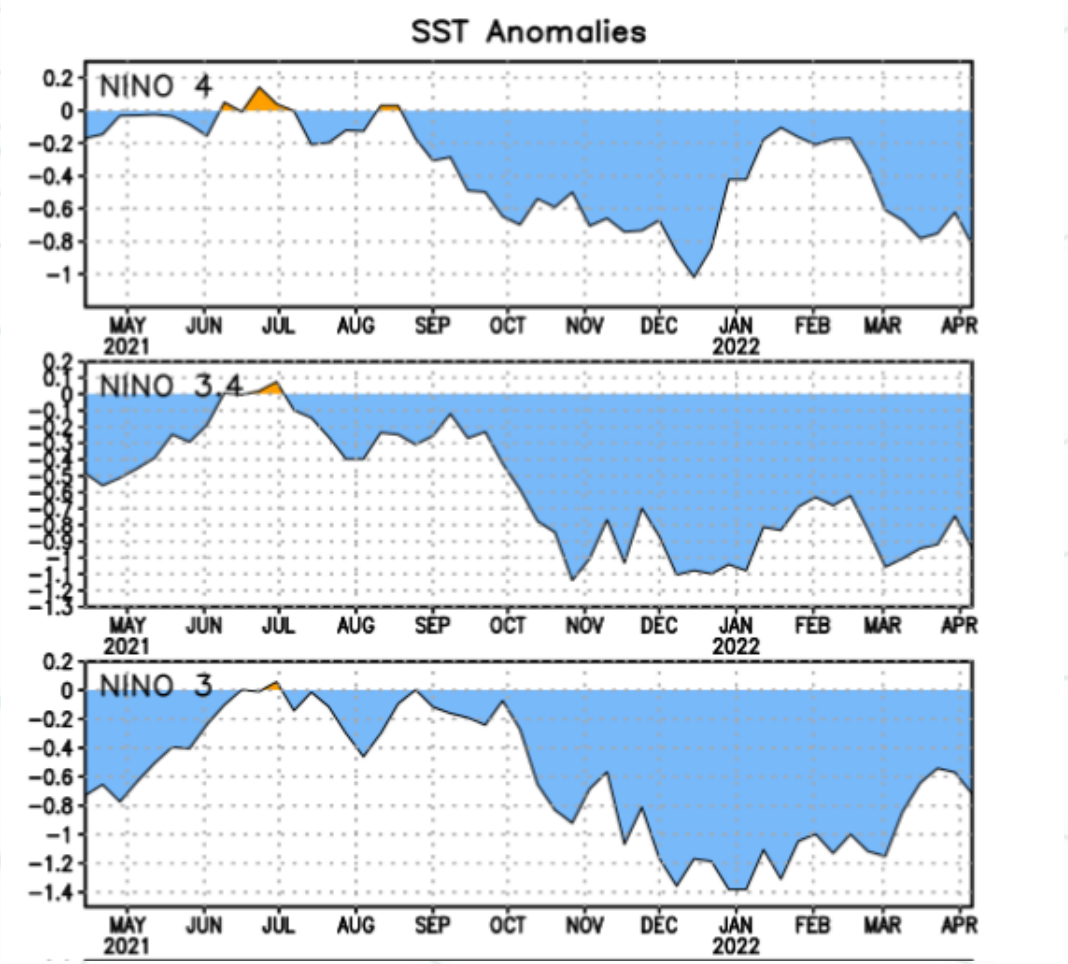


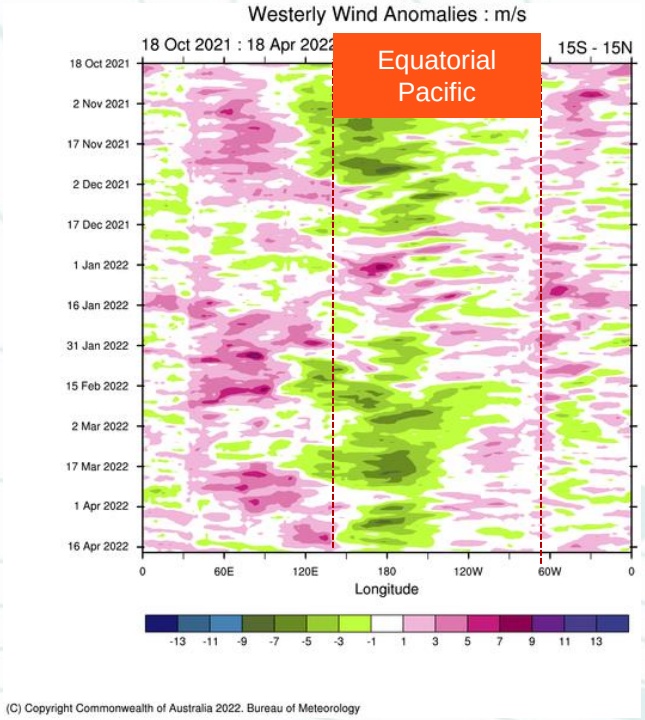
Current Ocean Status

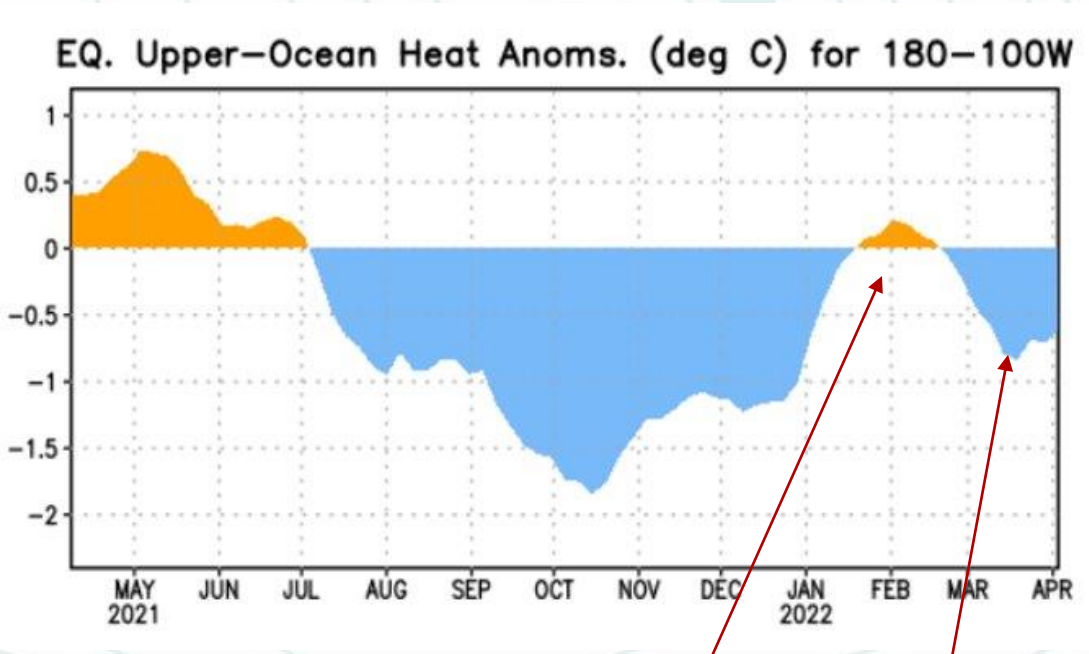


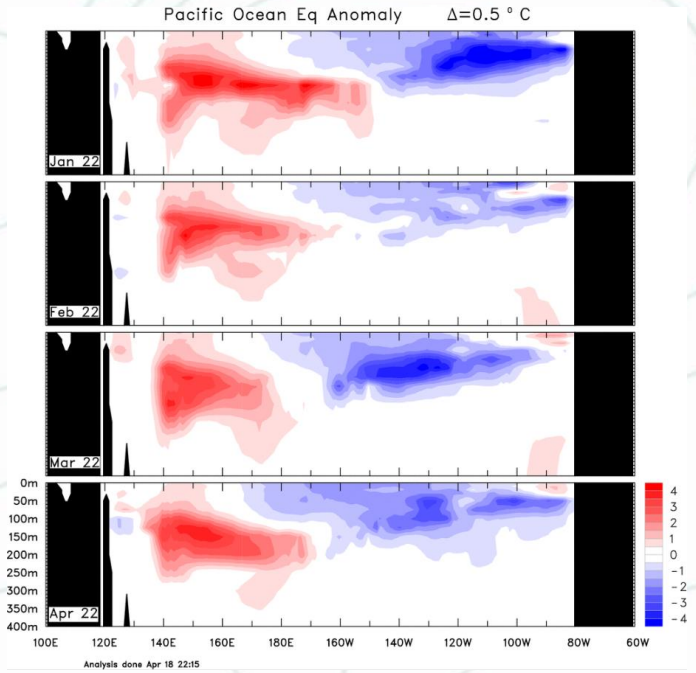






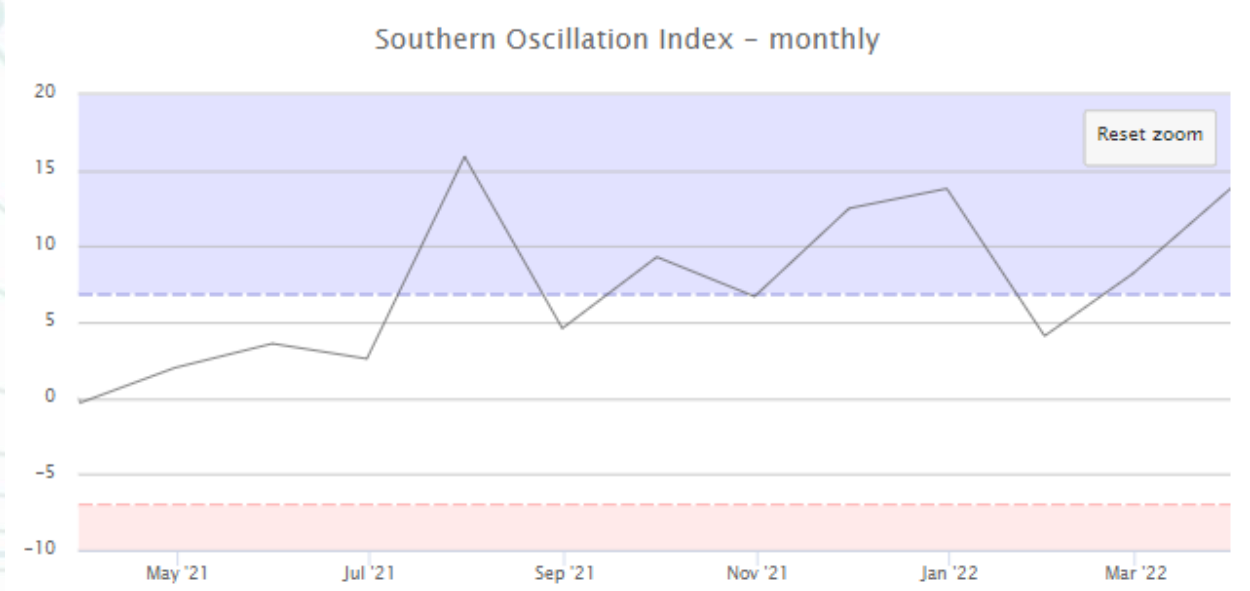


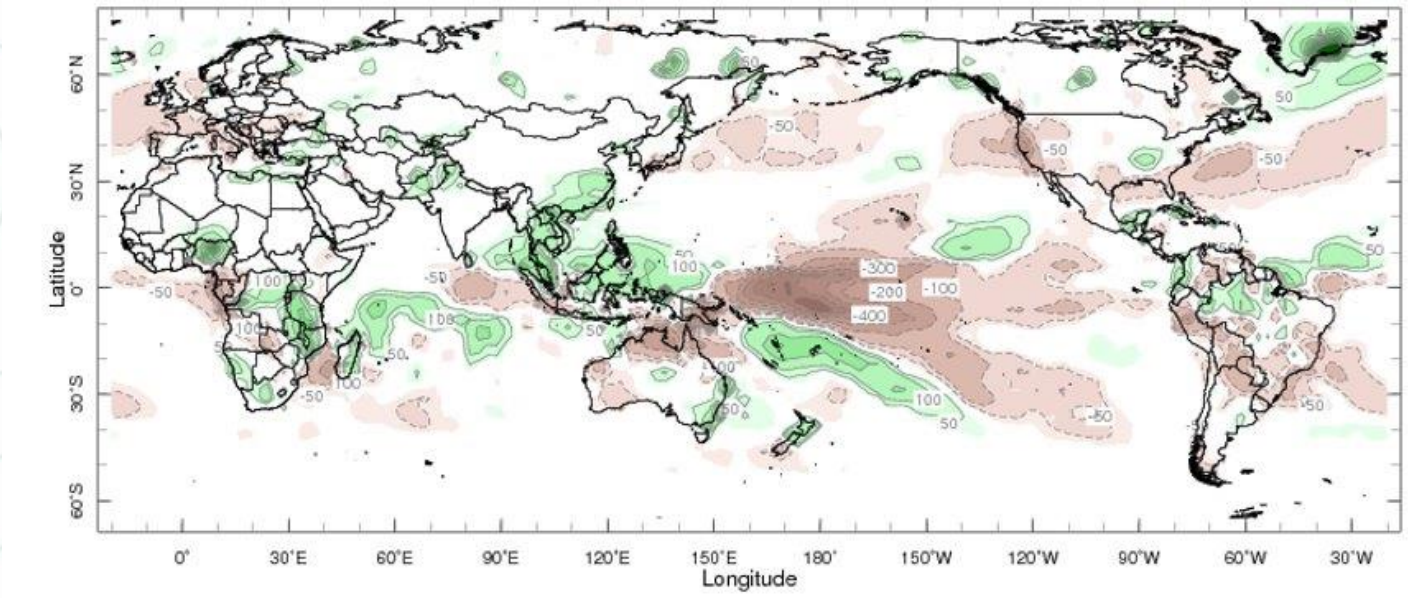




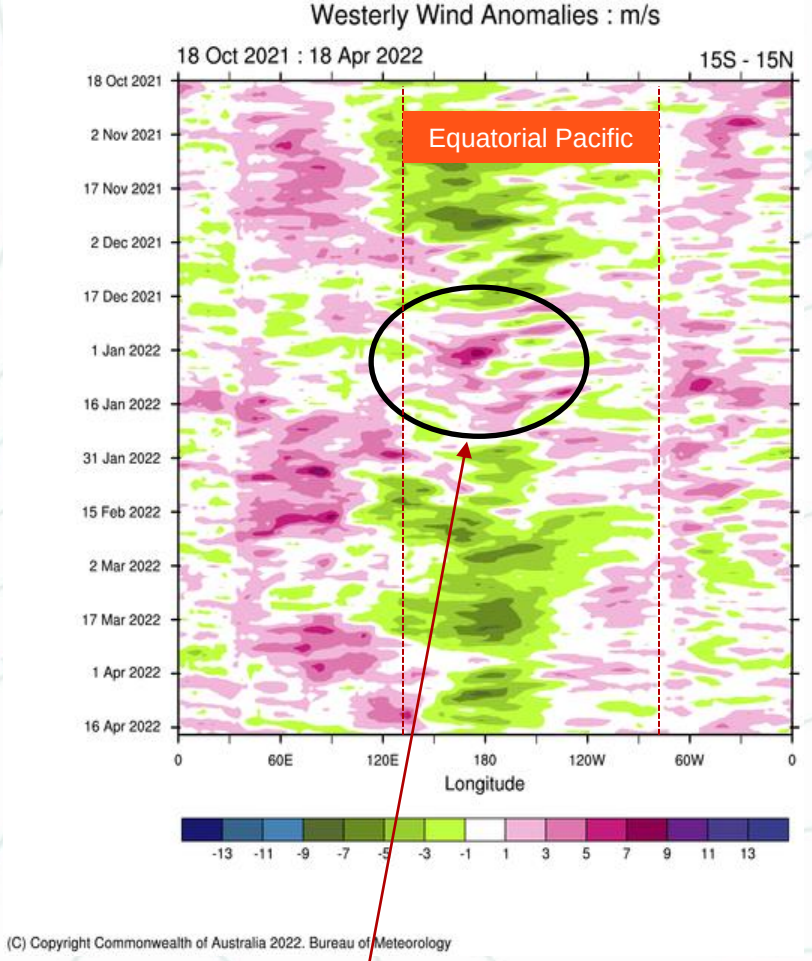
- First downwelling Kelvin wave for ~9 months, associated with a weakening of the trade winds that sloshed warm near-surface water eastwards during January/February
- Followed by an upwelling of cooler water during March/April as the trade winds strengthened near the Dateline

Current Atmosphere Status





Jan-Mar 2022



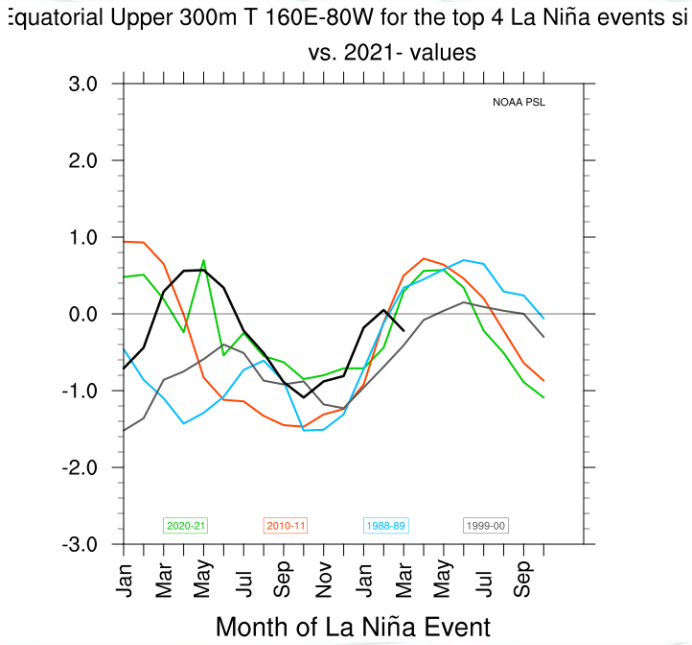
Last MJO to propagate into the Pacific

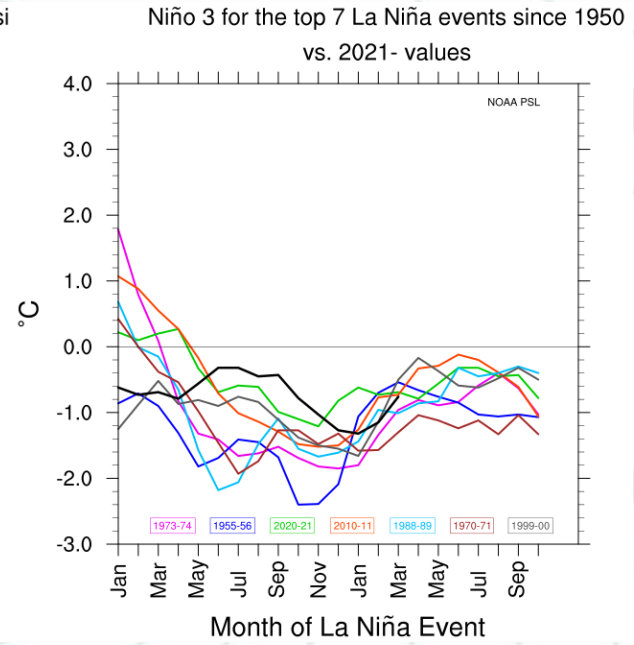
Green shading – stronger westerly winds

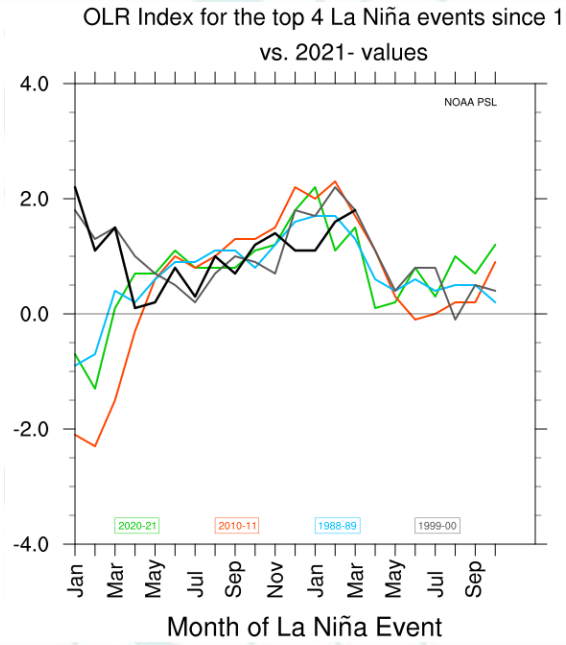
Pink shading – weakened westerly winds

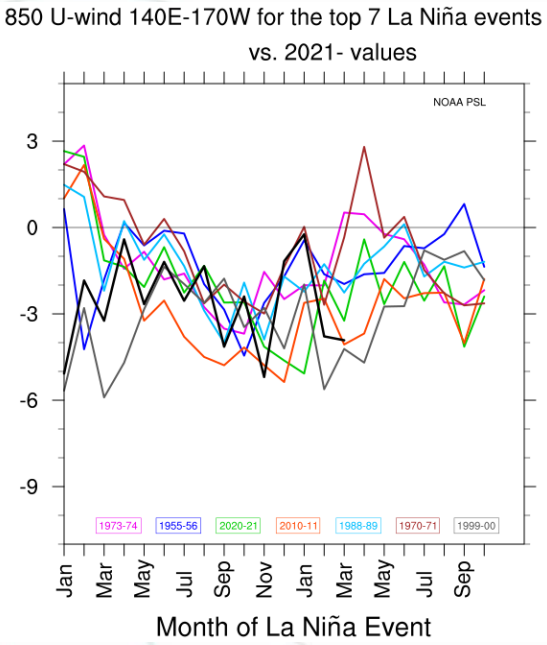
How does 2021-22 event compare to previous La Niña's

- Comparable to previous moderate-strong La Niña's, particularly in atmospheric indicators.
- Some indicators have a later than usual peak





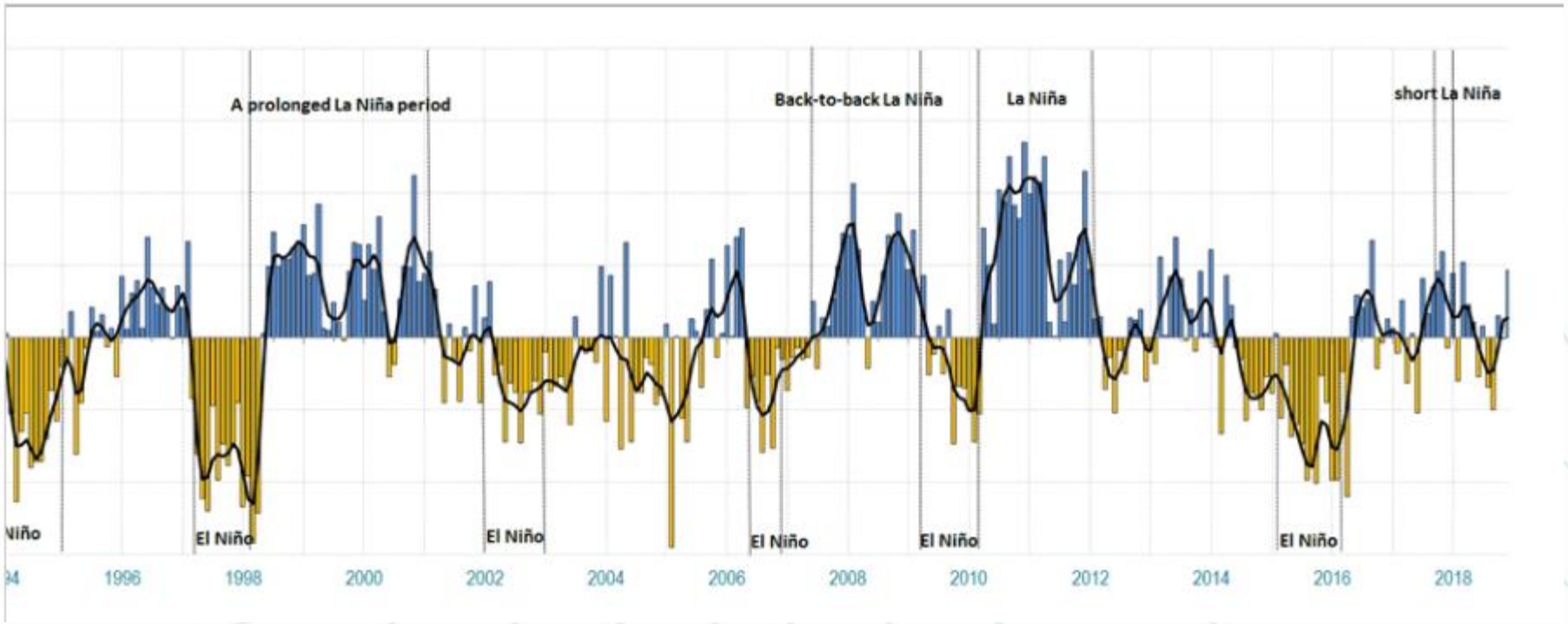




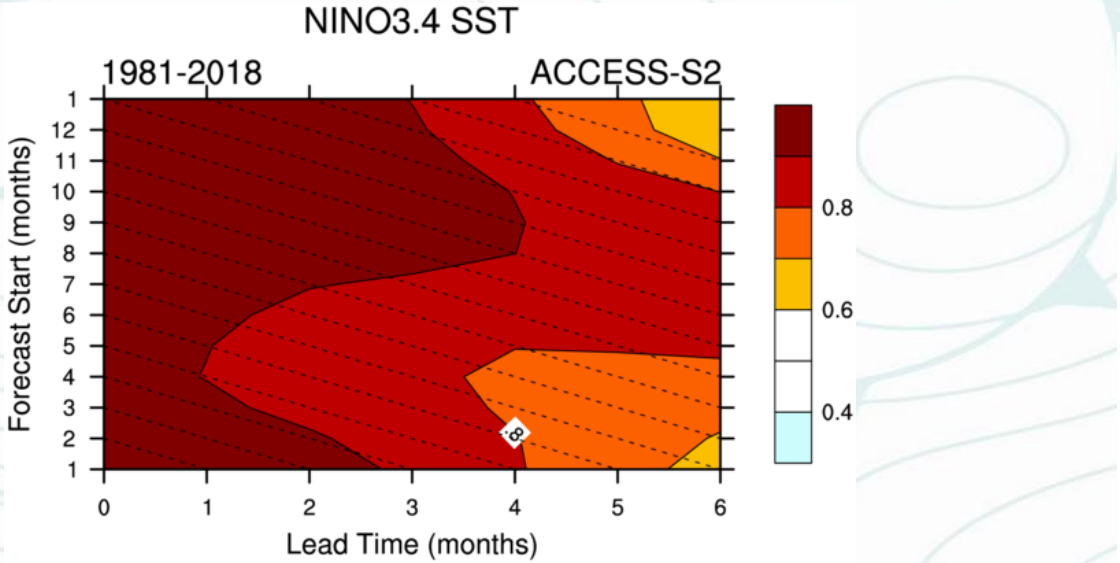
https://psl.noaa.gov/enso/dashboard.lanina.html

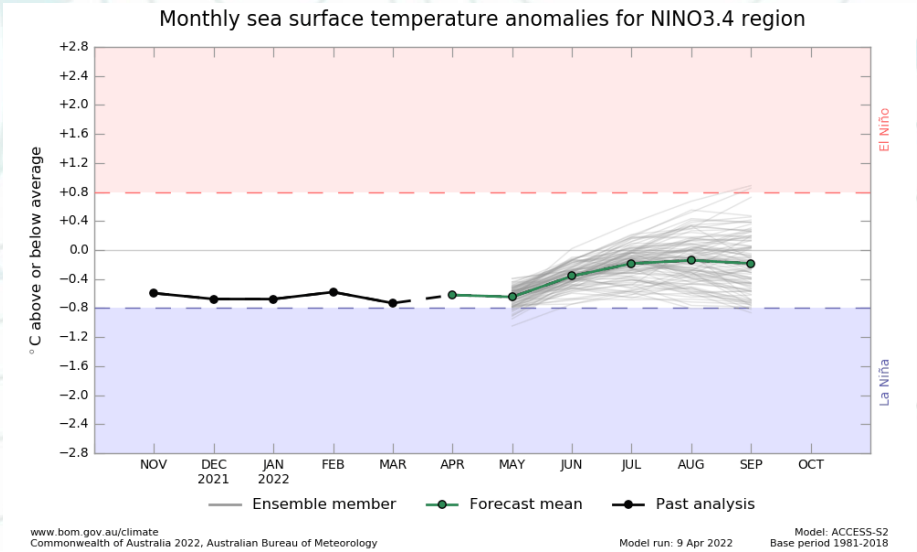
Historically what comes next?

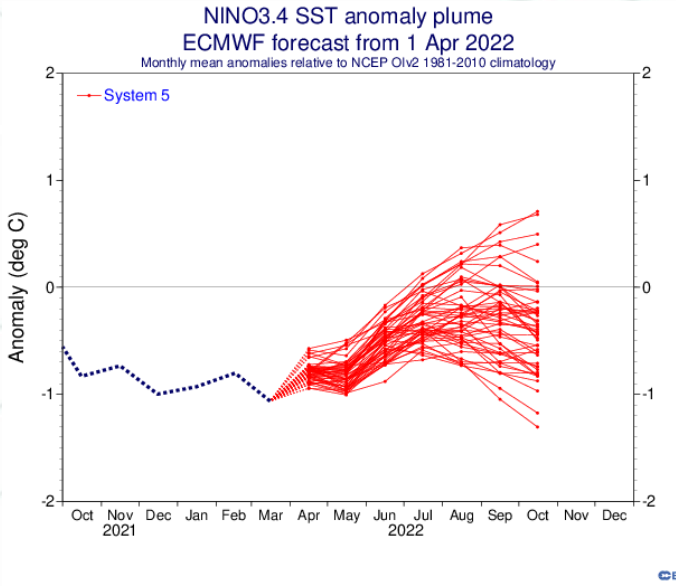
- Few La Nina events transition directly into El Niño
- An extended La Niña period is unusual but not unprecedented (1998-2001, 1973-1976, 1954-1957).

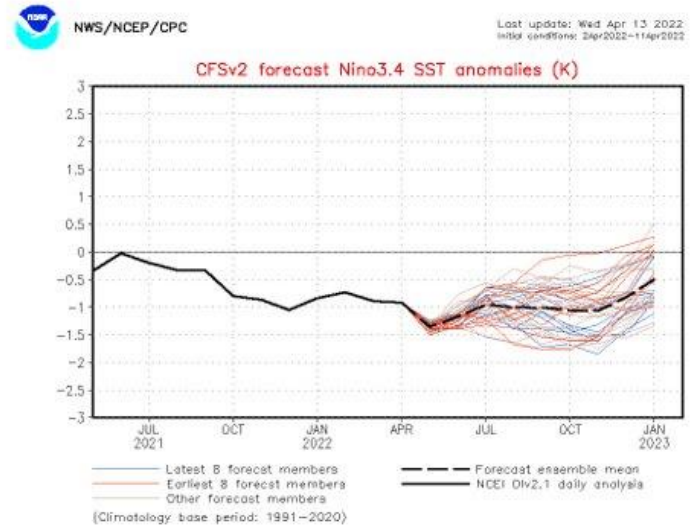


Single Model Nino3.4 outlooks







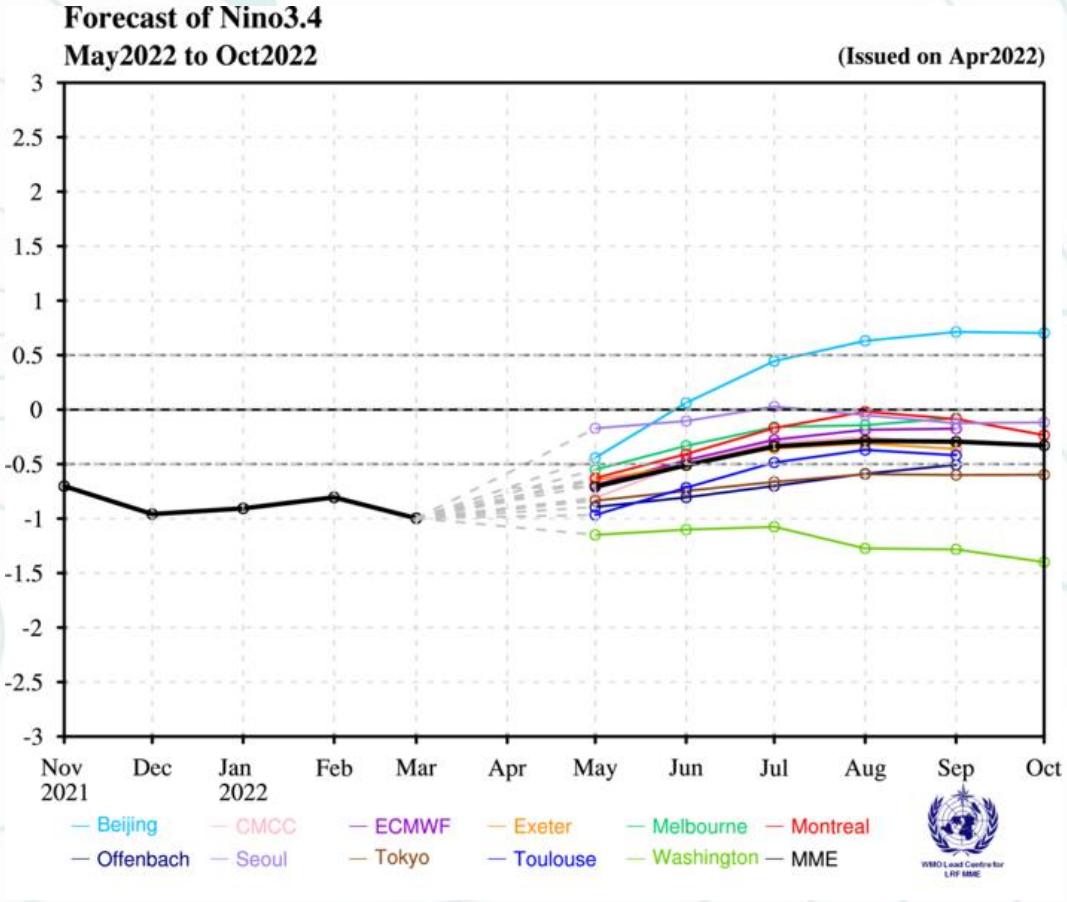


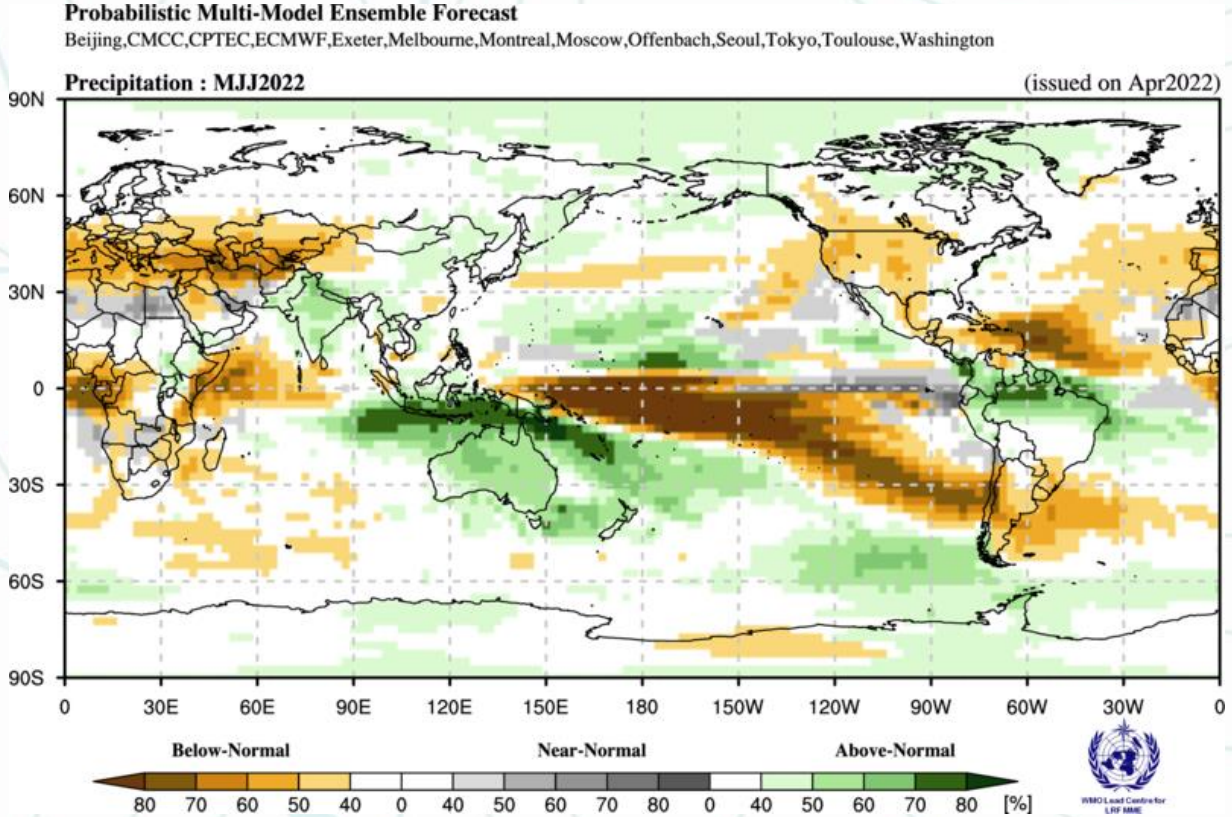
NIWA

Data: IRI

Season	La Niña	Neutral	El Niño
AMJ	80%	20%	0%
MJJ	61%	39%	0%
JJA	49%	49%	2%
JAS	47%	48%	5%
ASO	49%	44%	7%
SON	54%	38%	8%
OND	54%	36%	10%
NDJ	48%	38%	14%
DJF	43%	42%	15%

WMO LRF MME





- GSCU for May – July 2022 will be available 25th April - https://www.wmolc.org/gscuBoard/list

ENSO update summary

- Since PICOF-9 (mid-October), La Niña conditions have prevailed across the Pacific.
- A double-dip La Niña was widely forecast for 2021-22 and did eventuate.
- ENSO-neutral is the most likely outcome for the coming months, both historically and through current model forecasts. With the next most likely outcome a continuation of La Niña, with El Niño being unlikely to develop in 2022.
- Forecast skill increases during May-June.