

Intraseasonal to long range forecasting – May to Oct 2021

Presented by: Ben Noll, NIWA
Support from: BoM, NOAA, APCC,
SPREP, SPC

21 April 2021

Outline of Presentation

- WMO LRFMME rainfall, SSTs, temperatures
- BoM/APCC/NIWA/SCOPIC outlooks
- MJO trends & sub-seasonal predictions
- Key messages

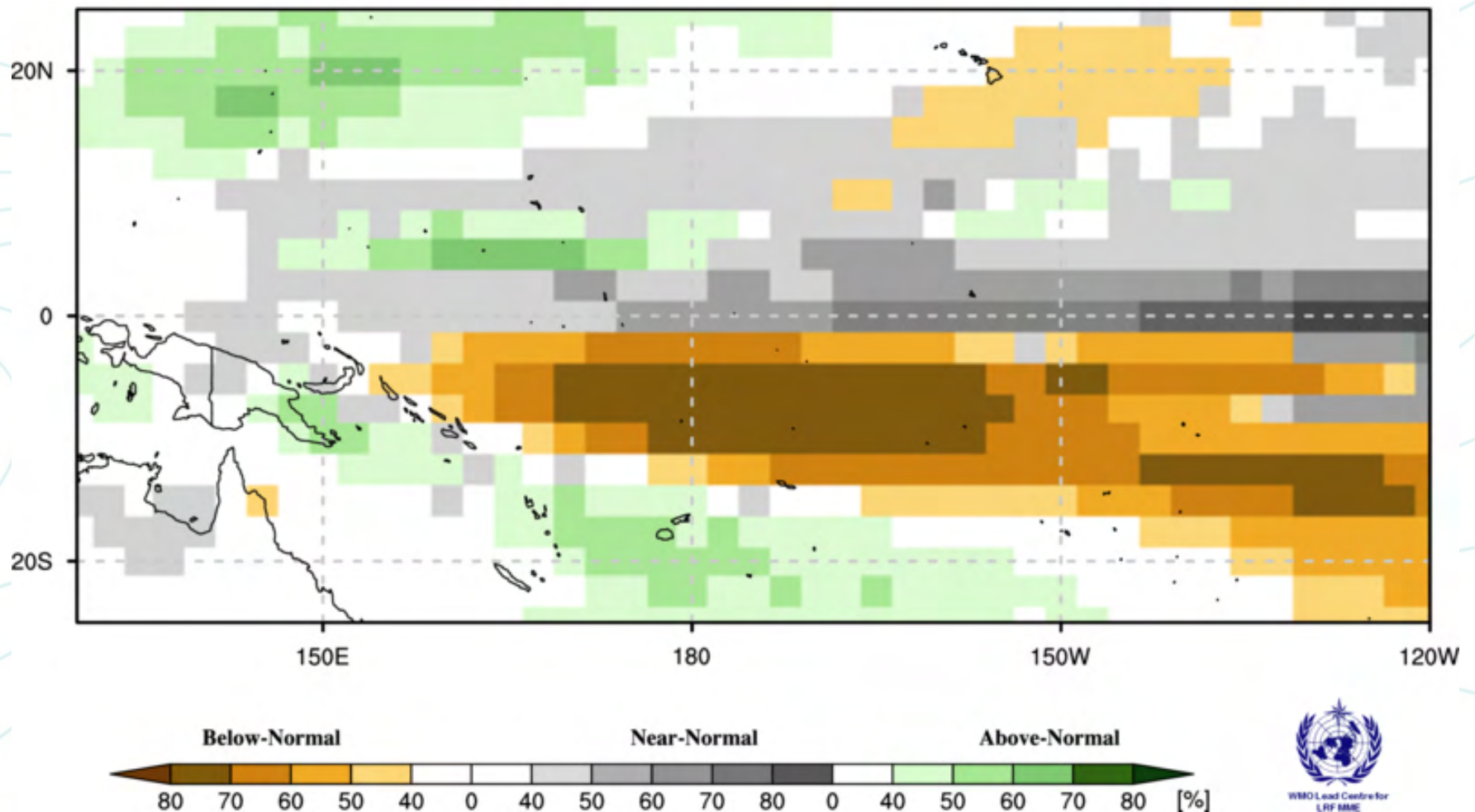
WMO-LRFMME rainfall: May-Jul

Probabilistic Multi-Model Ensemble Forecast

Beijing,ECMWF,Exeter,Melbourne,Montreal,Moscow,Offenbach,Seoul,Tokyo,Toulouse,Washington

Precipitation : MJJ2021

(issued on Apr2021)

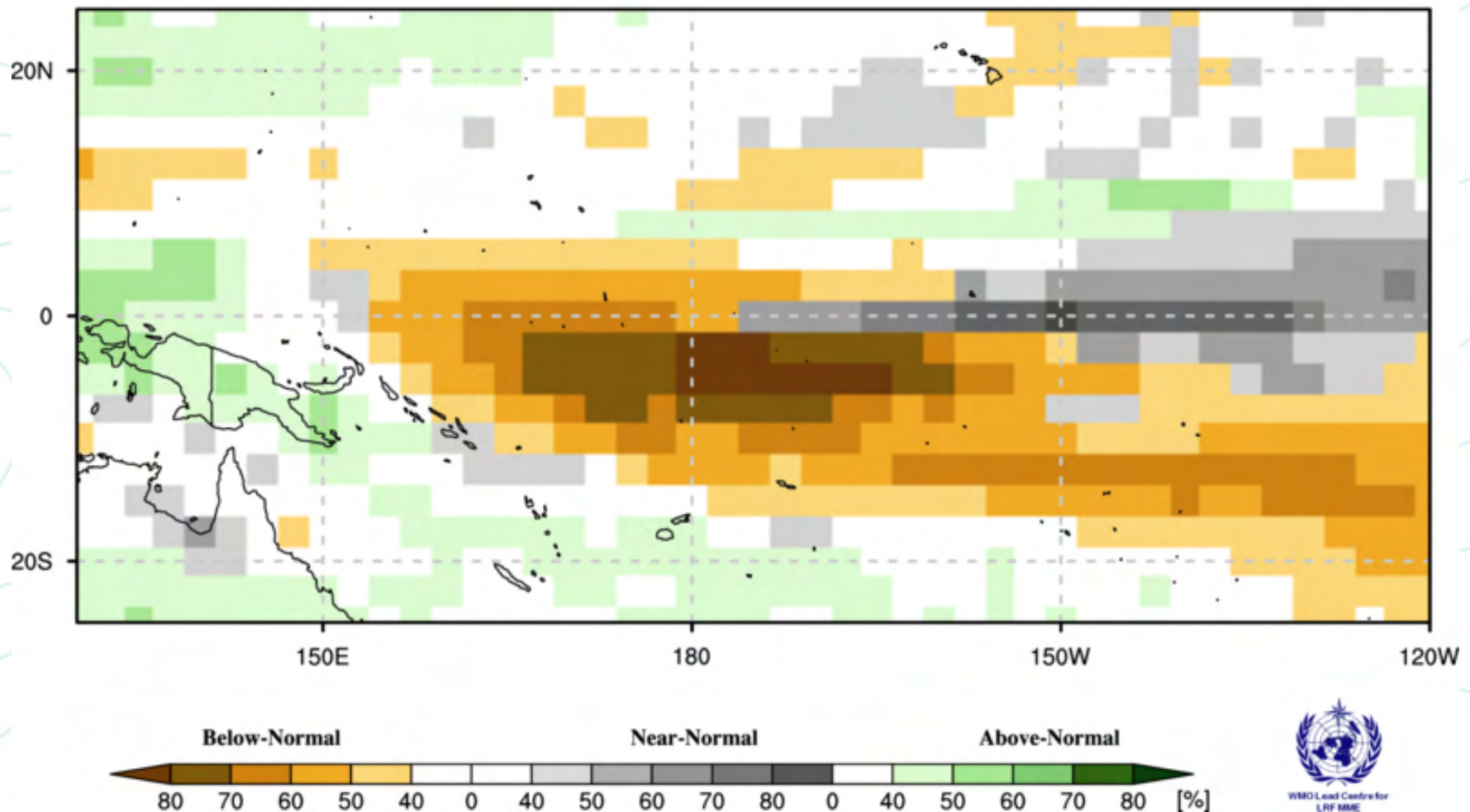


WMO-LRFMME rainfall: Aug-Oct

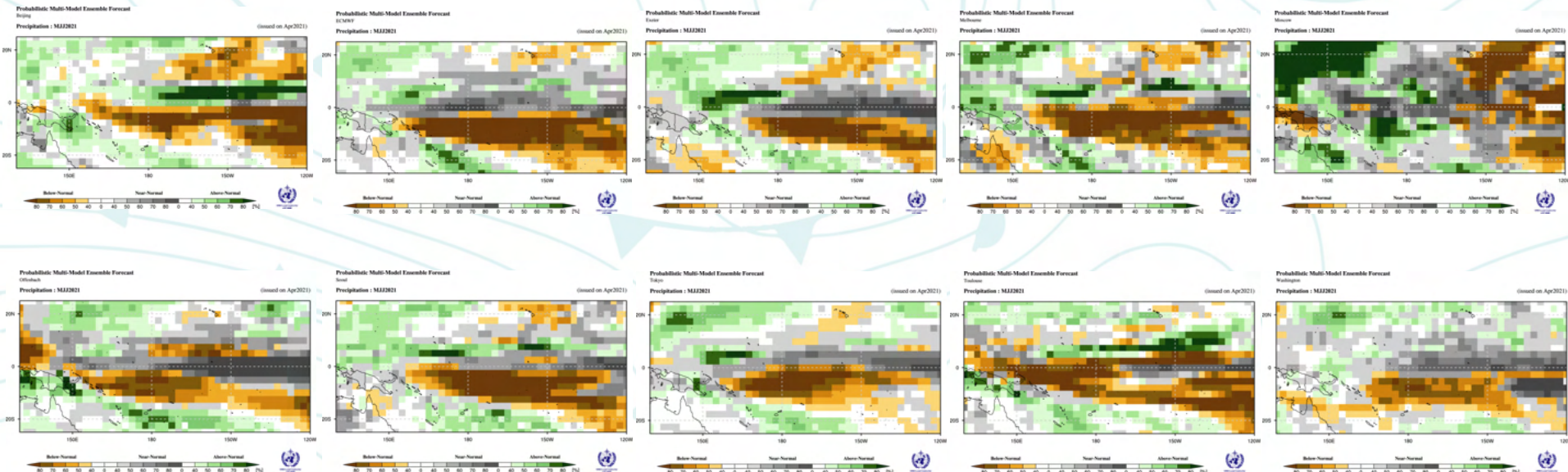
Probabilistic Multi-Model Ensemble Forecast
Beijing, Montreal, Seoul, Washington

Precipitation : ASO2021

(issued on Apr2021)



Individual models' rainfall



- Generally good model agreement
- Higher confidence on low rainfall continuing near the equator
- Moderate confidence in higher off-equatorial rainfall

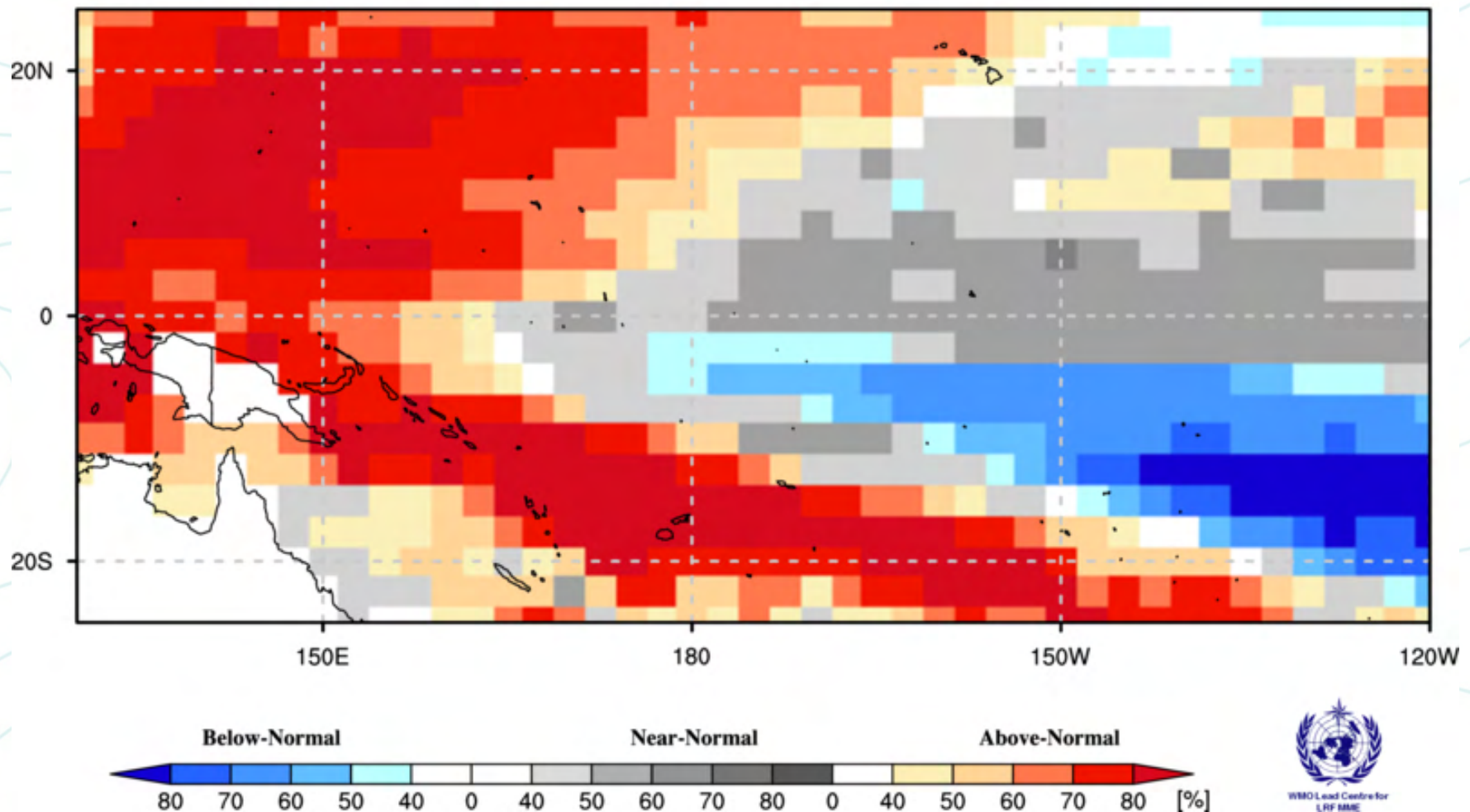
WMO-LRFMME SSTs: May-July

Probabilistic Multi-Model Ensemble Forecast

Beijing,ECMWF,Exeter,Melbourne,Montreal,Moscow,Offenbach,Seoul,Tokyo,Toulouse,Washington

Sea Surface Temperature : MJJ2021

(issued on Apr2021)



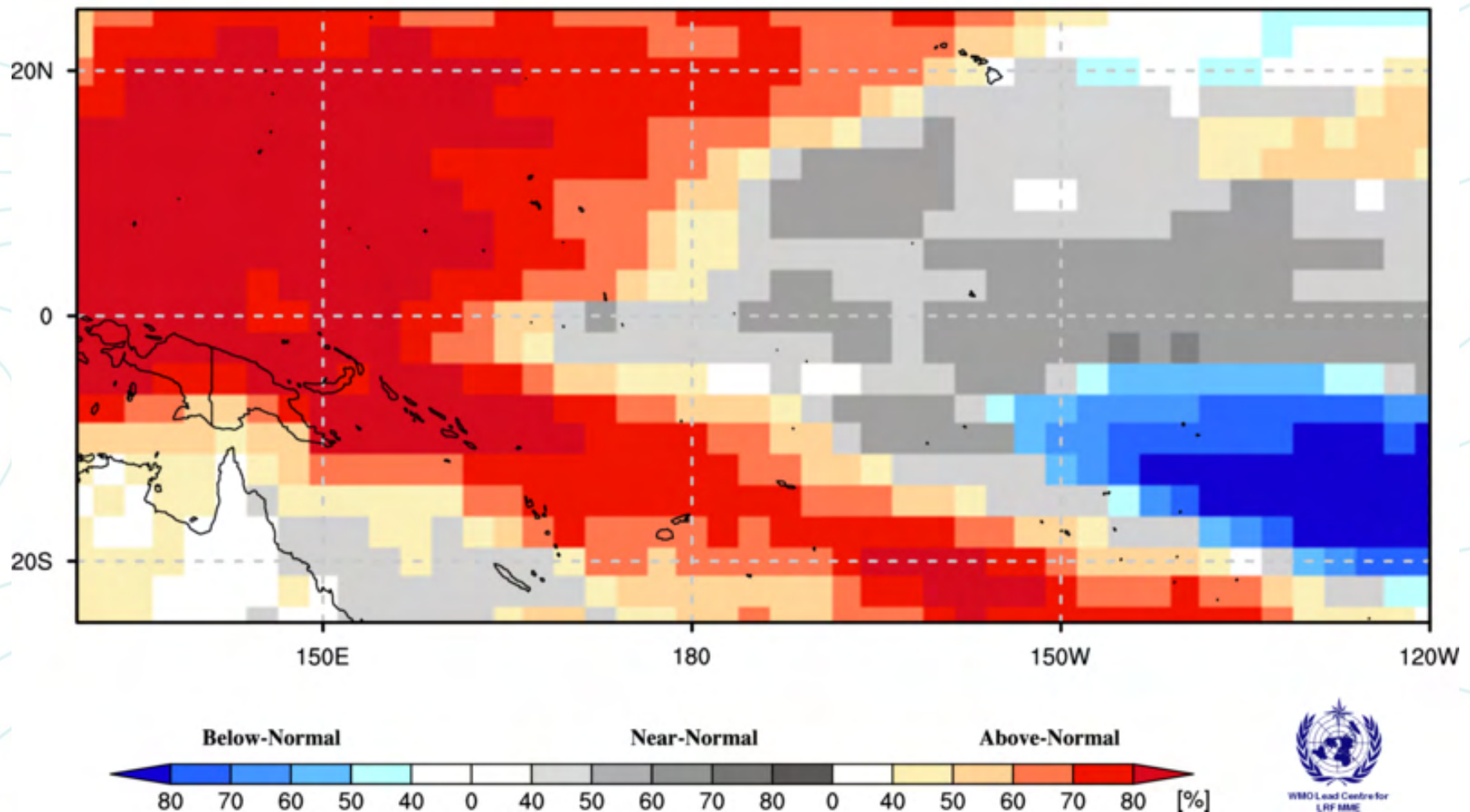
WMO LRFMME temps: May-July

Probabilistic Multi-Model Ensemble Forecast

Beijing,ECMWF,Exeter,Melbourne,Montreal,Moscow,Offenbach,Seoul,Tokyo,Toulouse,Washington

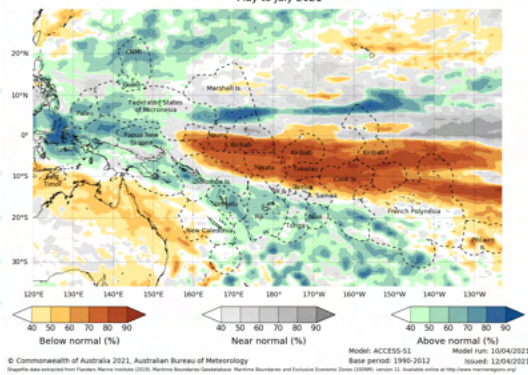
2m Temperature : MJJ2021

(issued on Apr2021)

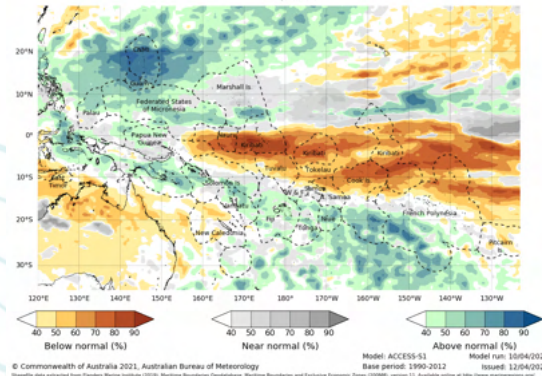


Melbourne GPC ACCESS-S seasonal and monthly rainfall outlooks

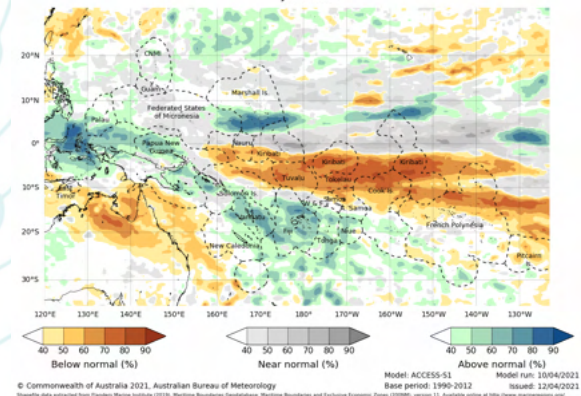
Tercile rainfall probabilities for
May to July 2021



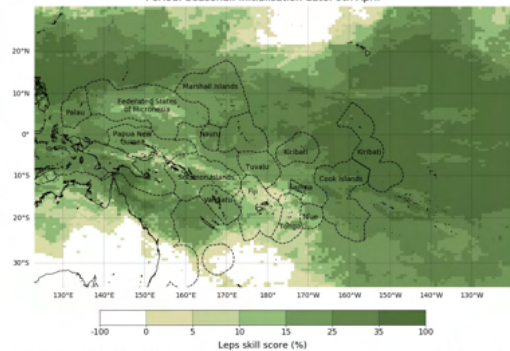
Tercile rainfall probabilities for
May 2021



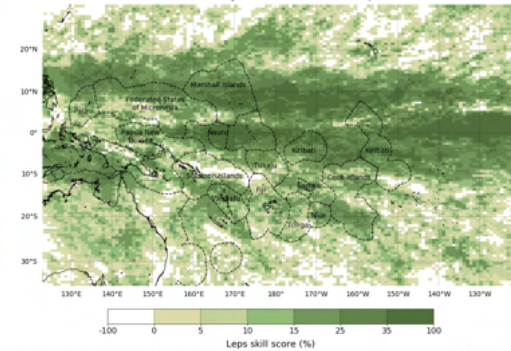
Tercile rainfall probabilities for
June 2021



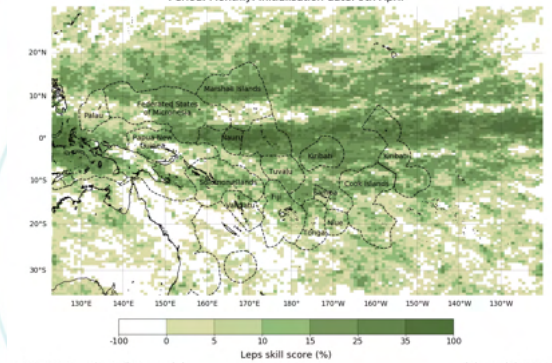
MJJ mean sea level pressure Linear Error in Probability Space (LEPS) score.
Period: Seasonal. Initialisation date: 9th April



May rainfall Linear Error in Probability Space (LEPS) score.
Period: Monthly. Initialisation date: 9th April

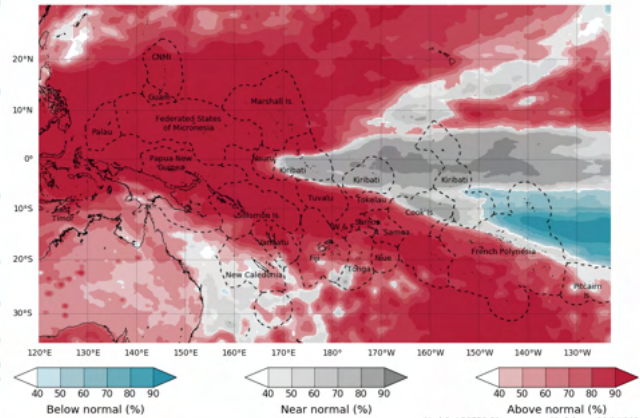


June rainfall Linear Error in Probability Space (LEPS) score.
Period: Monthly. Initialisation date: 9th April



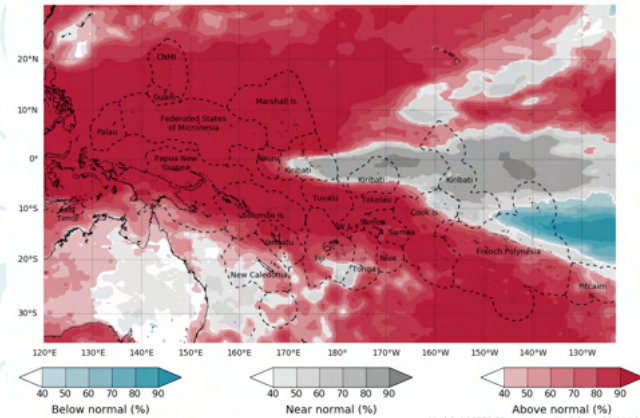
Melbourne GPC ACCESS-S seasonal temperature outlooks

Tercile maximum temperature probabilities for
May to July 2021



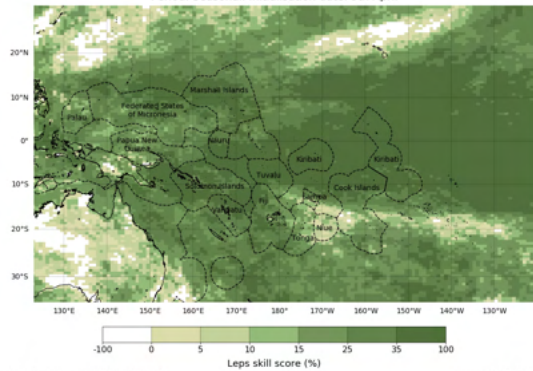
© Commonwealth of Australia 2021, Australian Bureau of Meteorology
Shapefile data extracted from Flanders Marine Institute (2018), Maritime Boundaries Geodatabase, Maritime Boundaries and Exclusive Economic Zones (2009), version 11. Available online at <http://www.maritimegeography.org/>

Tercile minimum temperature probabilities for
May to July 2021



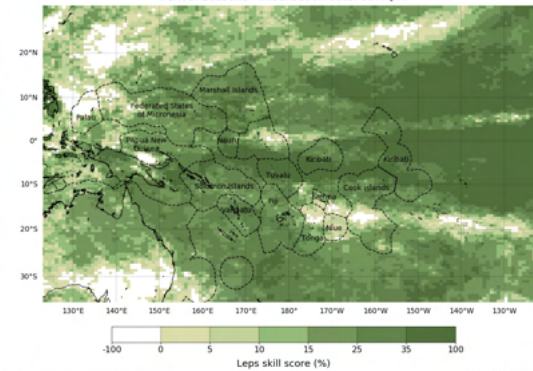
© Commonwealth of Australia 2021, Australian Bureau of Meteorology
Shapefile data extracted from Flanders Marine Institute (2018), Maritime Boundaries Geodatabase, Maritime Boundaries and Exclusive Economic Zones (2009), version 11. Available online at <http://www.maritimegeography.org/>

MJJ maximum temperature Linear Error in Probability Space (LEPS) score.
Period: Seasonal. Initialisation date: 9th April



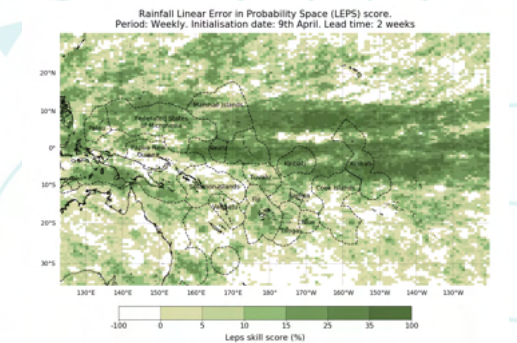
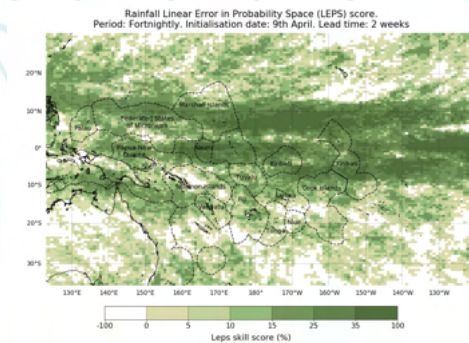
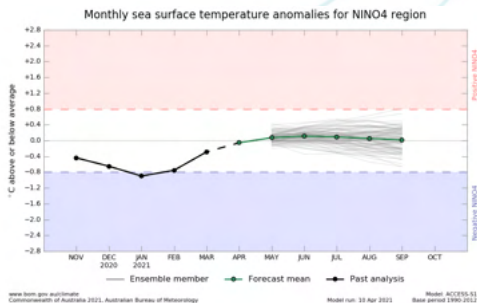
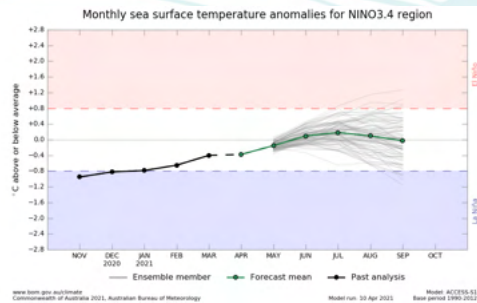
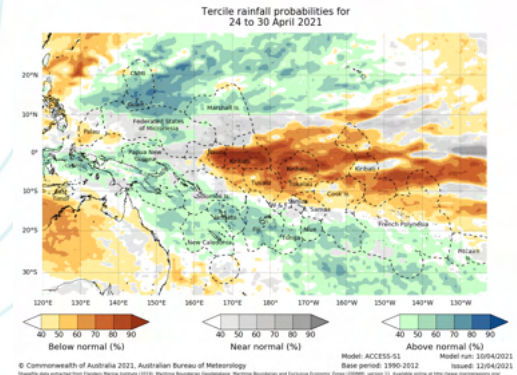
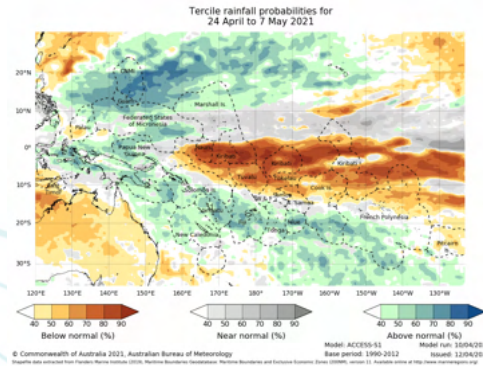
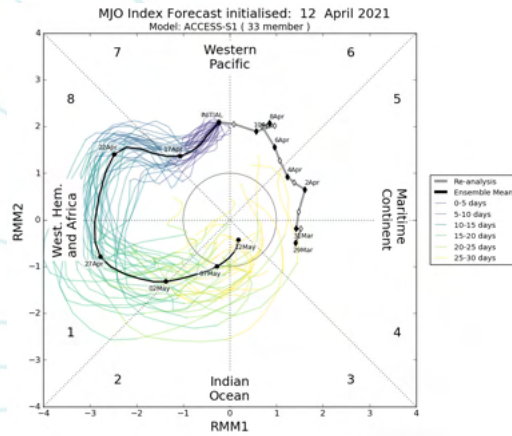
Source: ACCESS-S1 and ERA5 Climate Reanalysis
© Commonwealth of Australia 2020, Australian Bureau of Meteorology
Disclaimer: Contains modified Copernicus Climate Change Service Information (CCSI). Neither the European Commission nor EUMETSAT is responsible for any use that may be made of the Copernicus information or data it contains.
Shapefile data extracted from Flanders Marine Institute (2018), Maritime Boundaries Geodatabase, Maritime Boundaries and Exclusive Economic Zones (2009), version 11. Available online at <http://www.maritimegeography.org/>

MJJ minimum temperature Linear Error in Probability Space (LEPS) score.
Period: Seasonal. Initialisation date: 9th April



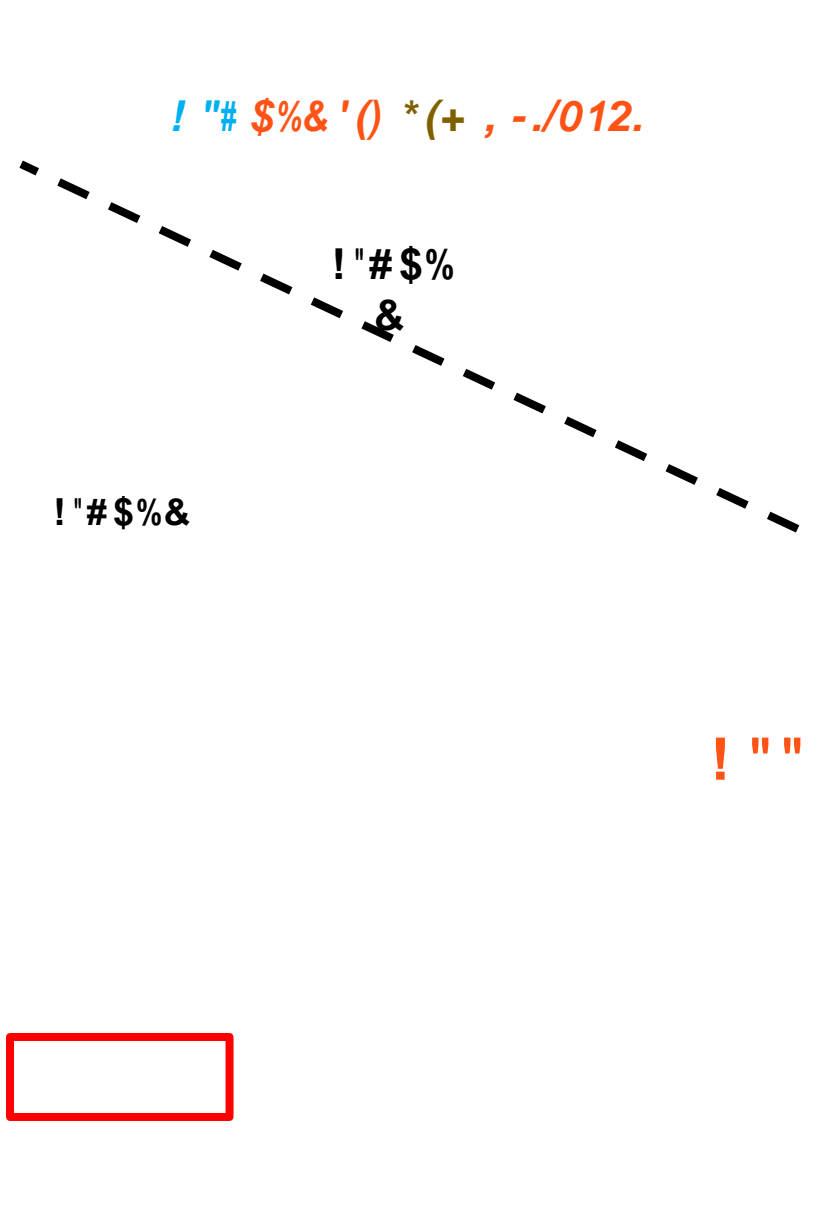
Source: ACCESS-S1 and ERA5 Climate Reanalysis
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Shapefile data extracted from Flanders Marine Institute (2018), Maritime Boundaries Geodatabase, Maritime Boundaries and Exclusive Economic Zones (2009), version 11. Available online at <http://www.maritimegeography.org/>

Melbourne GPC ACCESS-S MJO and sub-monthly outlooks



http://access-s.clide.cloud/files/climate_drivers/
<http://access-s.clide.cloud/files/regional/pacific/fortnightly/>
<http://access-s.clide.cloud/files/regional/pacific/weekly/>

APCC precipitation



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APCC temperatures

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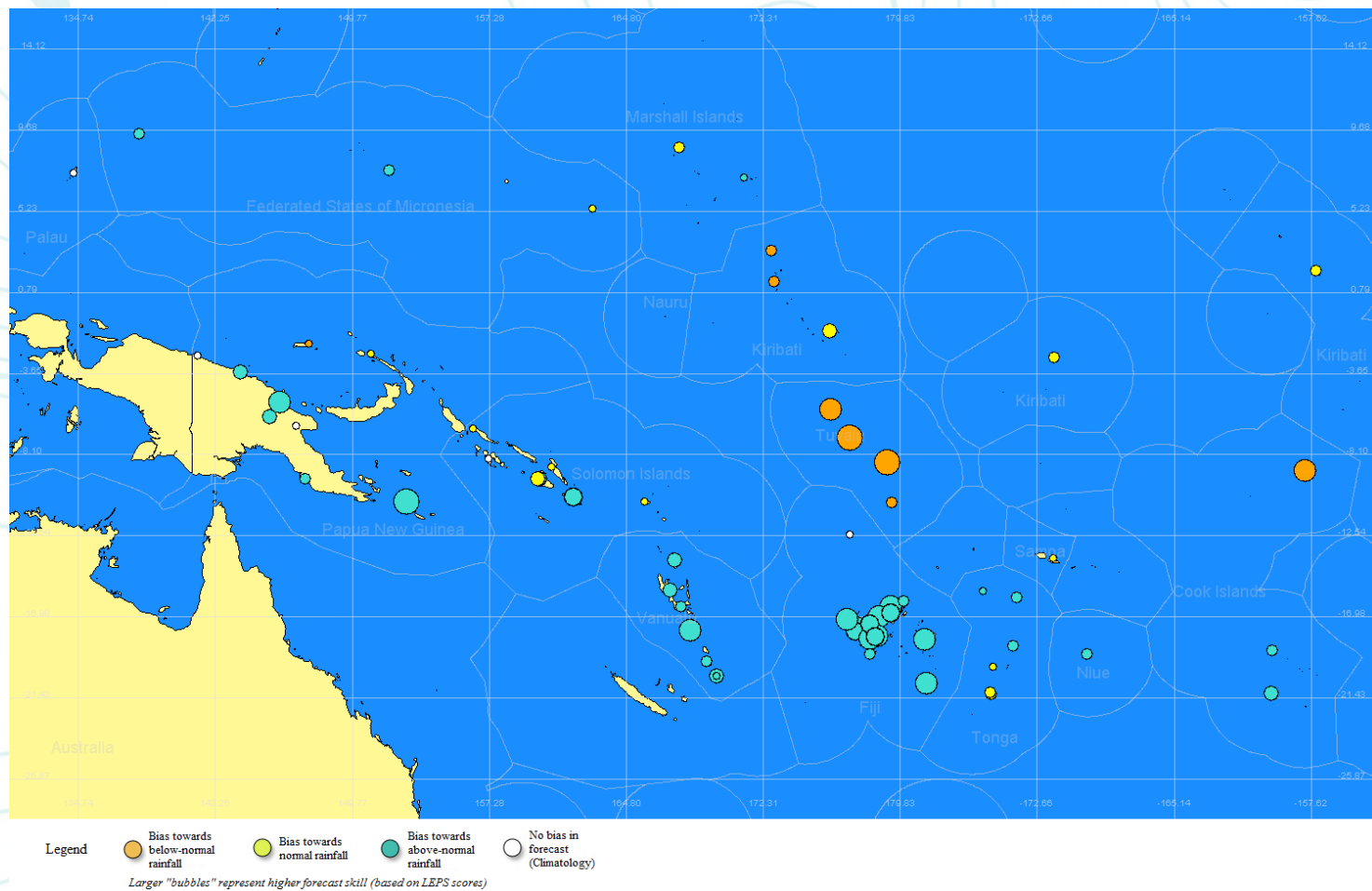
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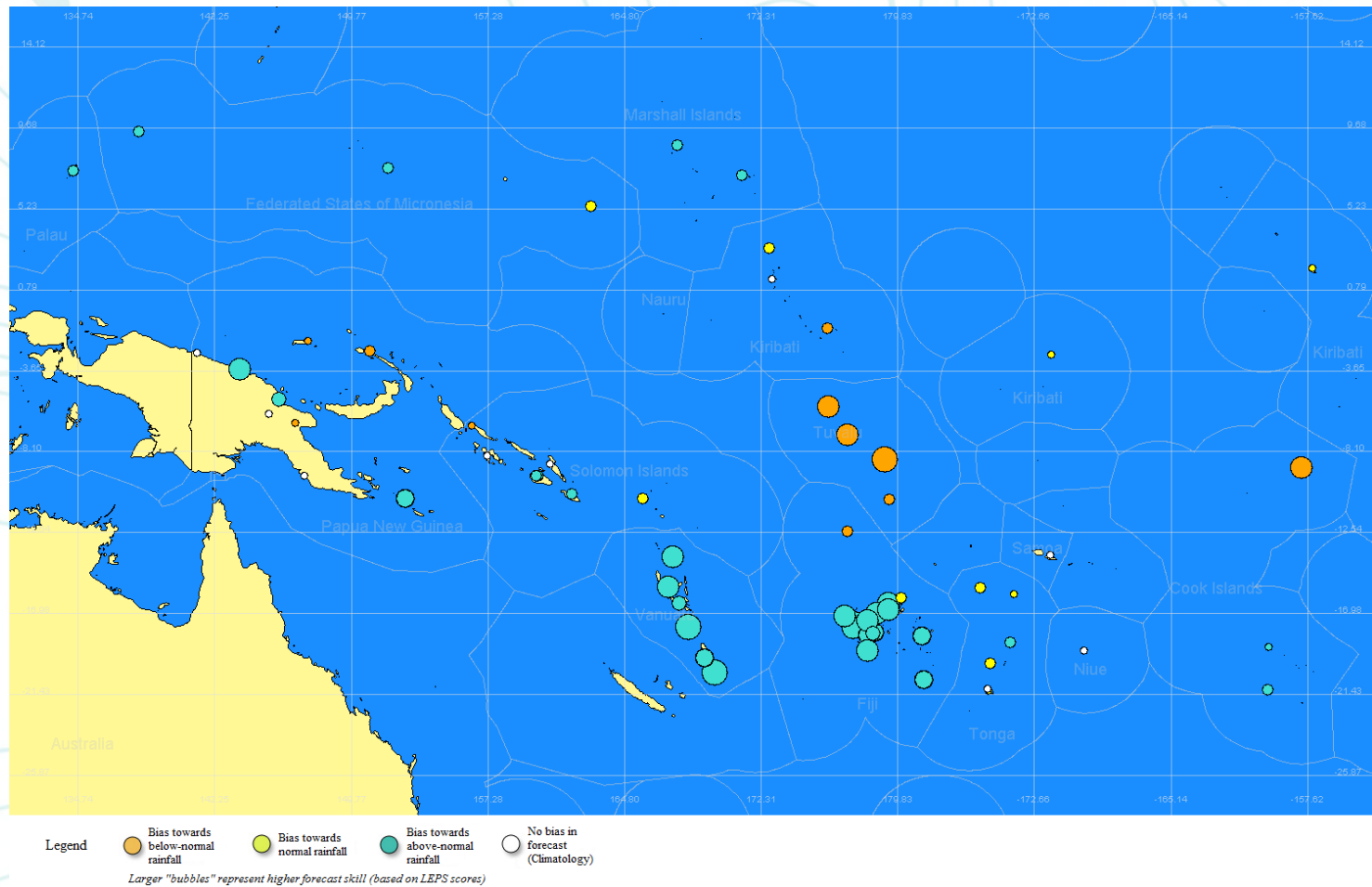
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SCOPIC: May-July 2021

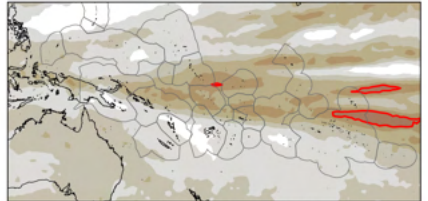


SCOPIC: May-Oct 2021

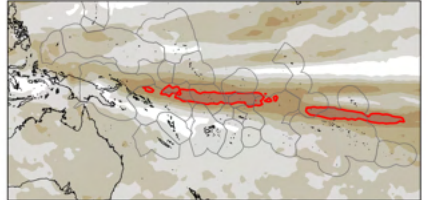


NIWA ICU rainfall outlook

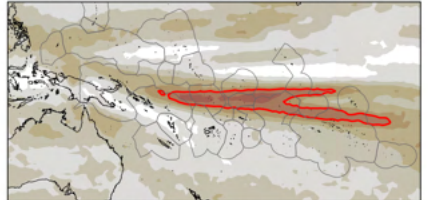
prob. precip < 25th perc., May 2021
MME [ECMWF, Meteo-France, UKMO, DWD, CMCC, NCEP]



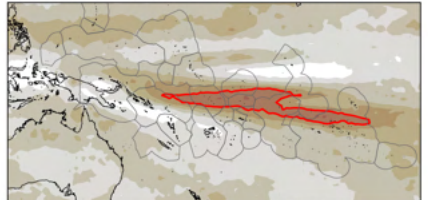
prob. precip < 25th perc., Jun 2021
MME [ECMWF, Meteo-France, UKMO, DWD, CMCC, NCEP]



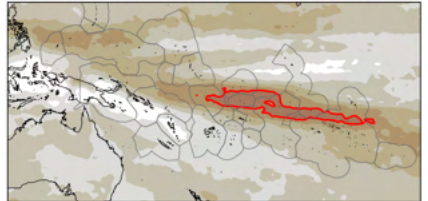
prob. precip < 25th perc., Jul 2021
MME [ECMWF, Meteo-France, UKMO, DWD, CMCC, NCEP]



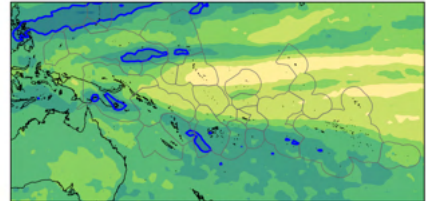
prob. precip < 25th perc., Aug 2021
MME [ECMWF, Meteo-France, UKMO, DWD, CMCC, NCEP]



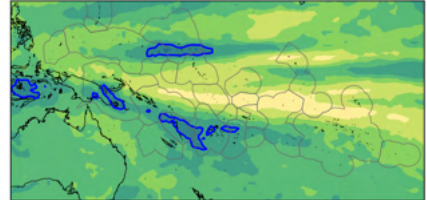
prob. precip < 25th perc., Sep 2021
MME [ECMWF, Meteo-France, UKMO, DWD, CMCC, NCEP]



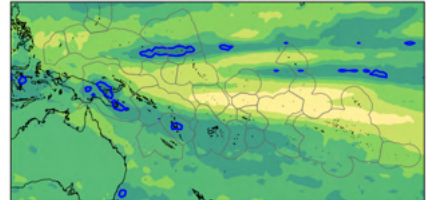
prob. precip > 75th perc., May 2021
MME [ECMWF, Meteo-France, UKMO, DWD, CMCC, NCEP]



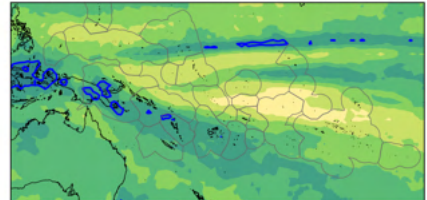
prob. precip > 75th perc., Jun 2021
MME [ECMWF, Meteo-France, UKMO, DWD, CMCC, NCEP]



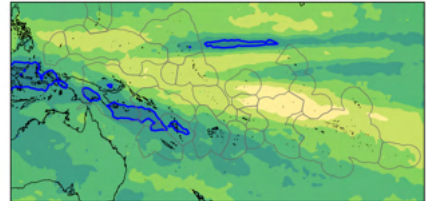
prob. precip > 75th perc., Jul 2021
MME [ECMWF, Meteo-France, UKMO, DWD, CMCC, NCEP]



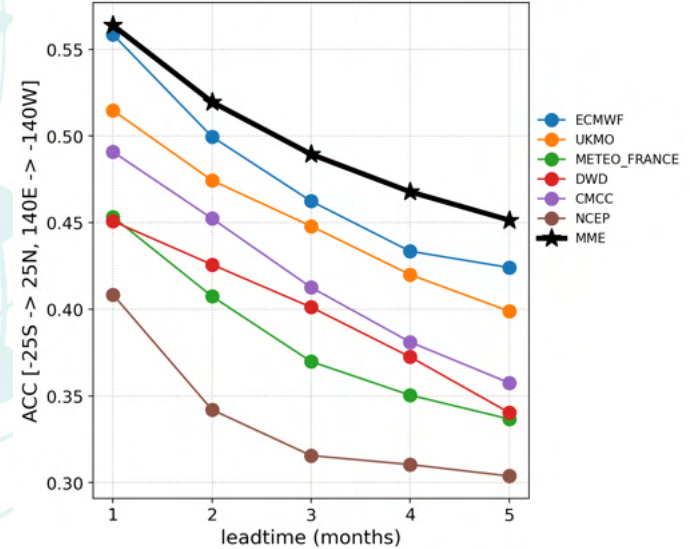
prob. precip > 75th perc., Aug 2021
MME [ECMWF, Meteo-France, UKMO, DWD, CMCC, NCEP]



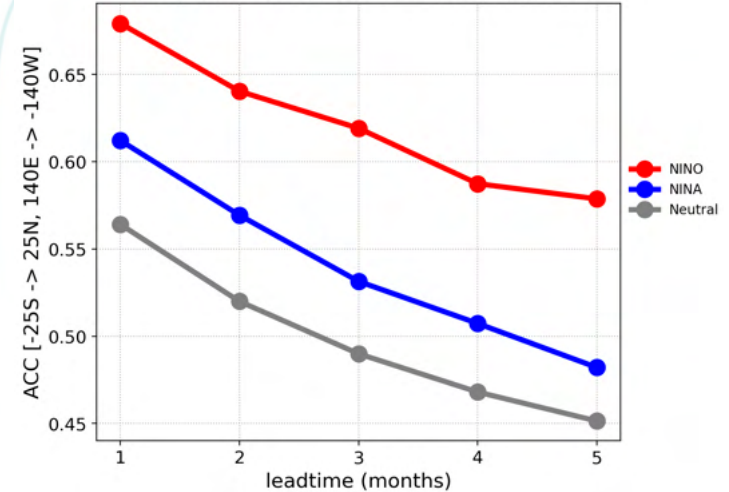
prob. precip > 75th perc., Sep 2021
MME [ECMWF, Meteo-France, UKMO, DWD, CMCC, NCEP]



ACC [-25S - 25N, 140E -140W]
verif. = CMAP

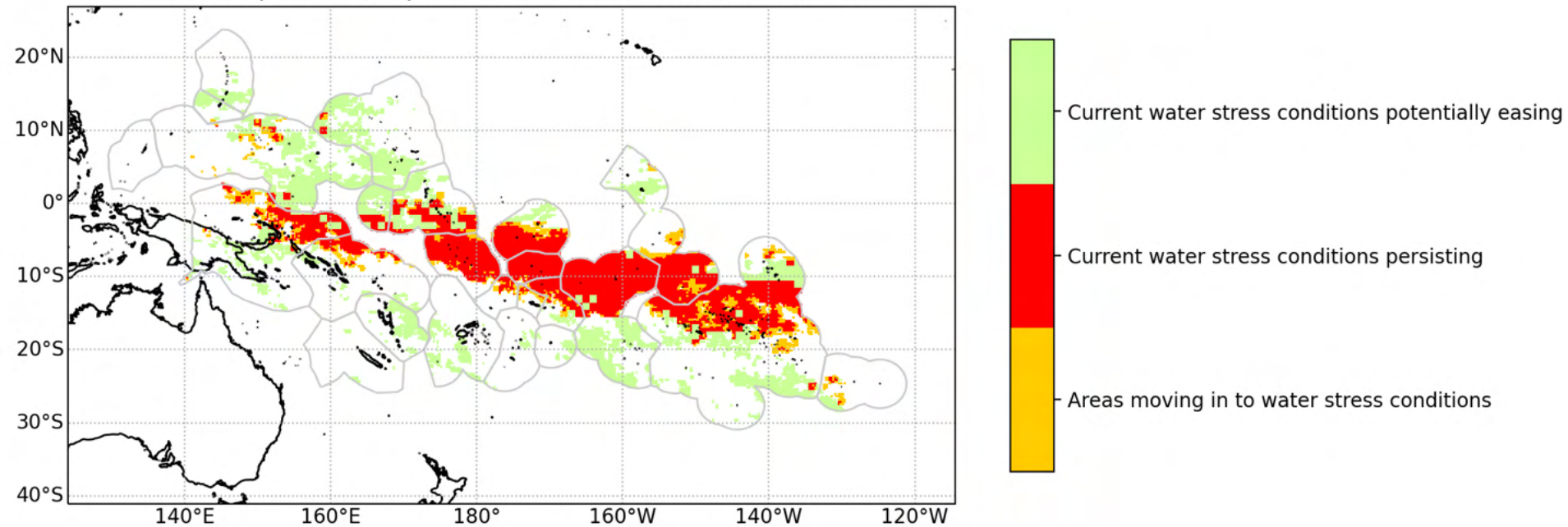


ACC [-25S -> 25N, 140E -> -140W], C3S MME



NIWA ICU hotspots

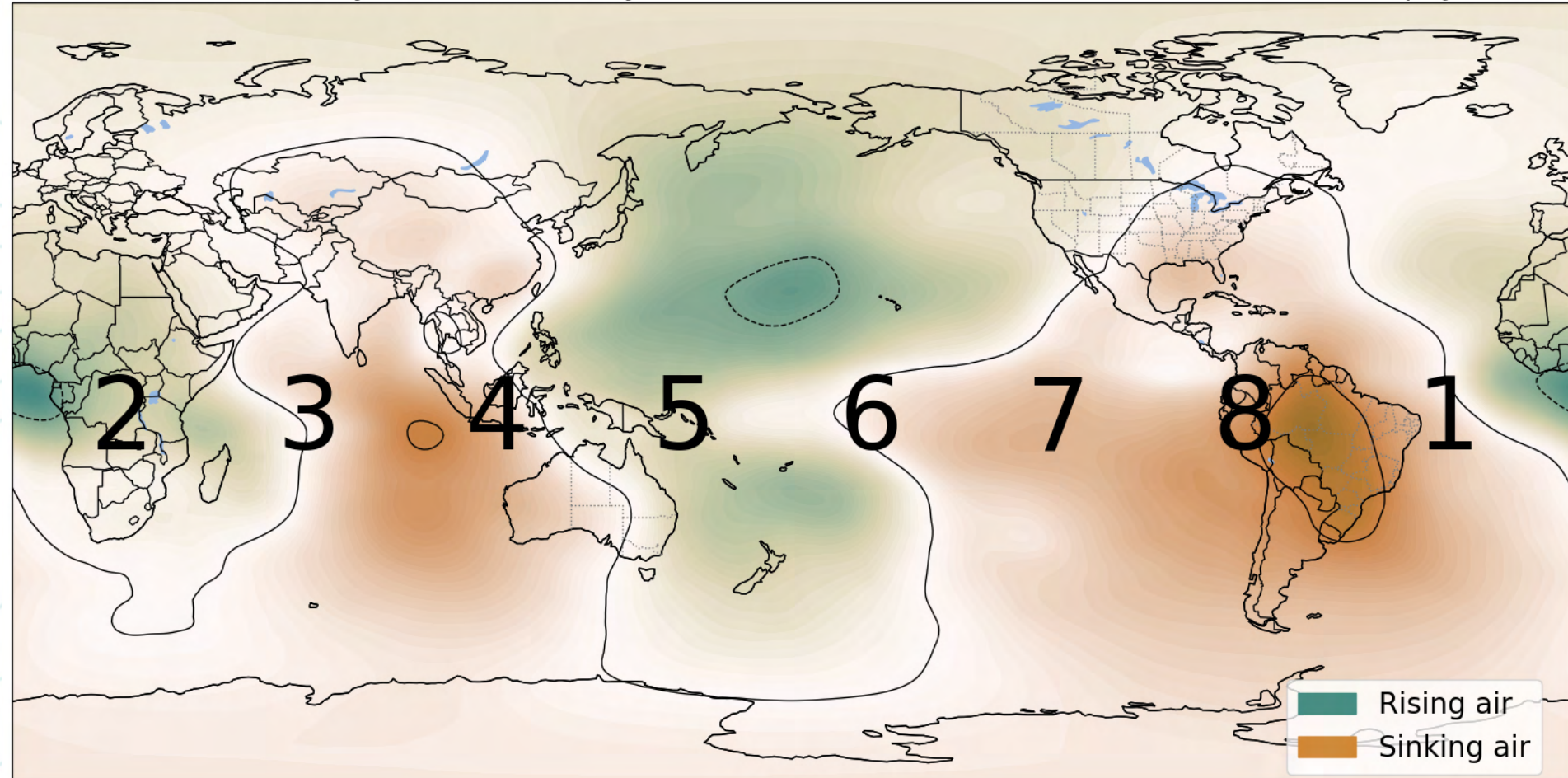
ICU 'hotspots' as of Apr 2021, one season (3 months) ahead



MJO trends April-June

ECMWF 200 hPa Velocity Potential Anomaly

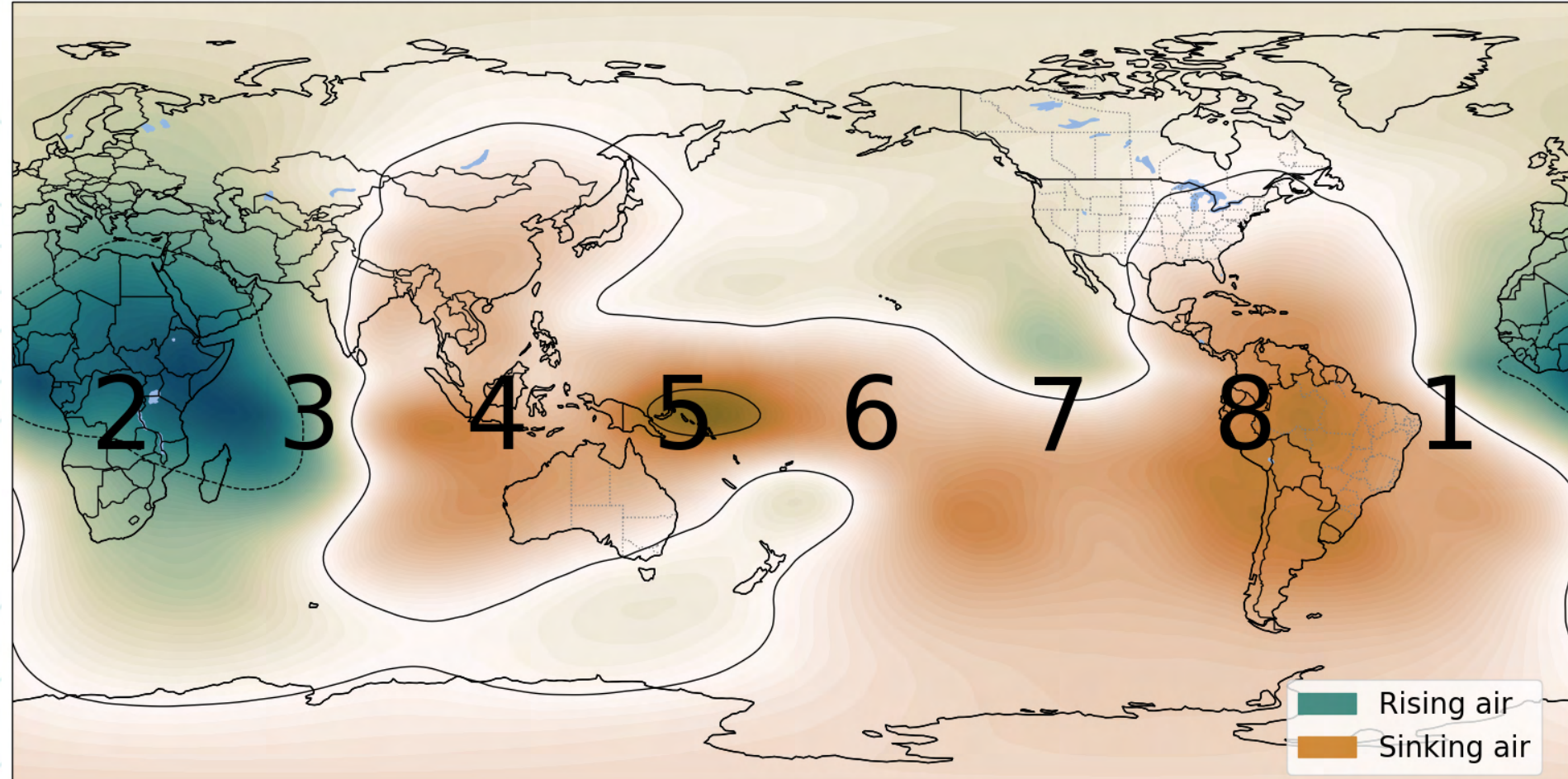
Apr-Jun 2021



MJO trends July-September

ECMWF 200 hPa Velocity Potential Anomaly

Jul-Sep 2021



Key messages

- Persistence of drier than normal conditions for island groups close to the equator
- Normal to above normal rains for off equatorial countries, generally
- Warmer than average for many in the west and sub-tropics, cooler equatorward and east
- Good model agreement, but noting that transition from La Niña -> ENSO neutral can have a negative effect on model skill
- MJO event possible late May, early June but could become infrequent mid-year, favouring east Pacific, Atlantic, and Africa

The background of the slide is a light cream color with a pattern of thin, teal-colored wavy lines. These lines form various shapes, including concentric circles and elongated loops. Small teal arrows are scattered throughout the pattern, pointing in different directions, some following the curves of the lines and others pointing more directly.

Thank you!

Questions?