

Ocean temperature, Coral Bleaching and Sea level

[Grant Smith (BoM), Zulfikar Begg (SPC), John Marra (NOAA) and Ben Noll (NIWA)]

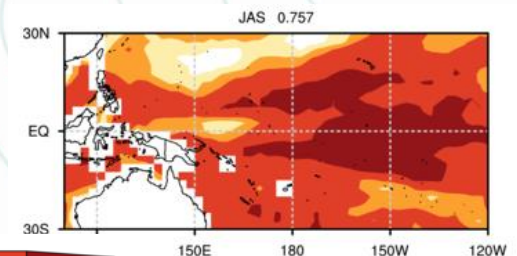
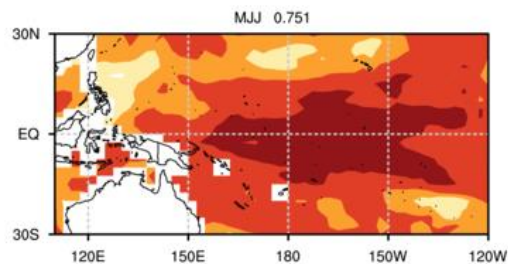
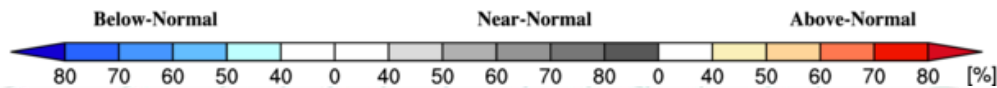
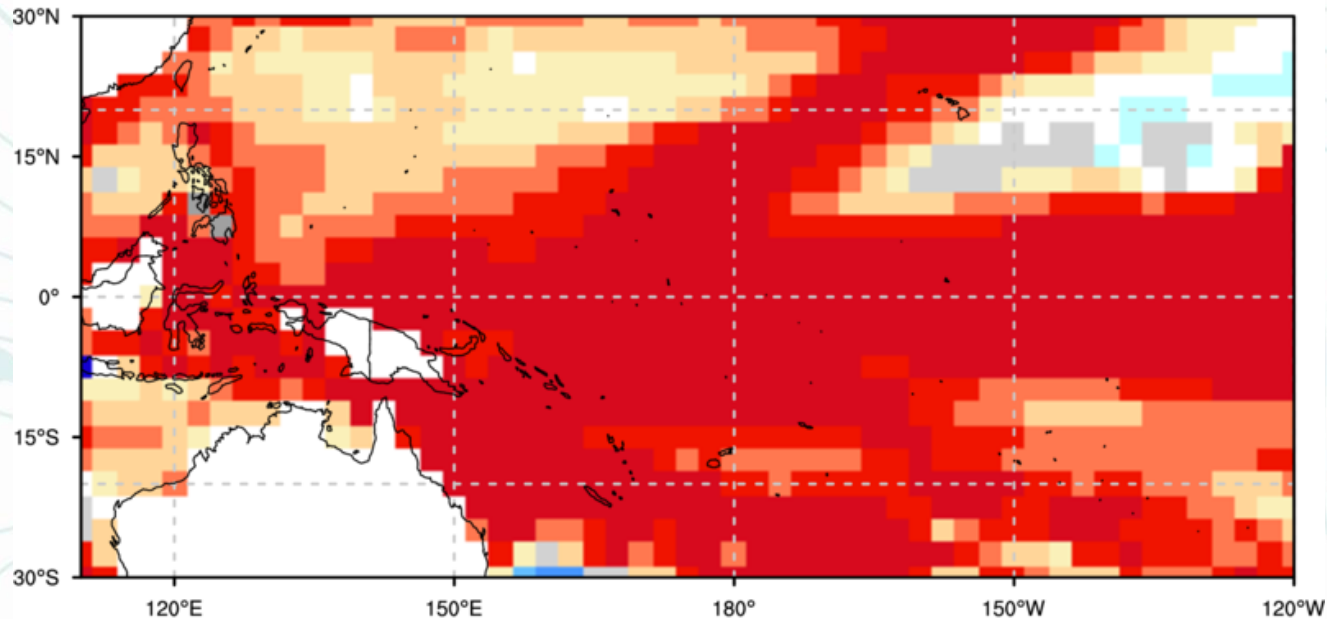
WMO-MME

Probabilistic Multi-Model Ensemble Forecast

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

Sea Surface Temperature : MJJAS2023

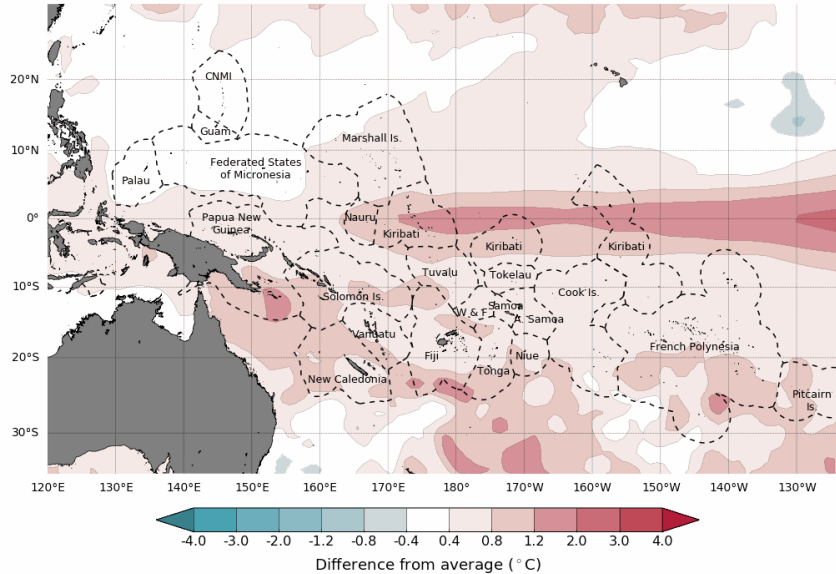
(issued on Apr2023)



Skill

ACCESS-S: SST Anomalies

Difference from average sea surface temperature forecast for
May to July 2023

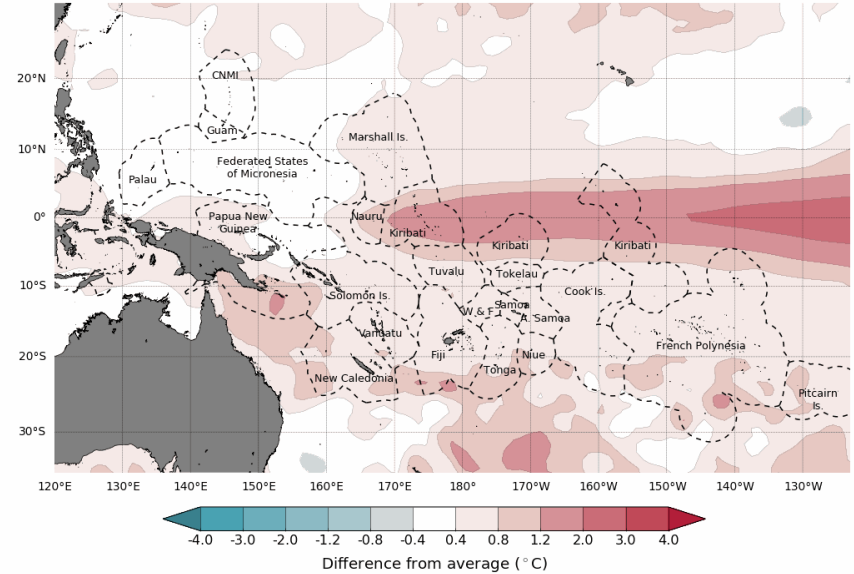


Base period: 1981-2018
Model: ACCESS-S2
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Model run: 15/04/2023
Issued: 17/04/2023

Shapefile data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at <http://www.maritimeresources.org/>

Difference from average sea surface temperature forecast for
June to August 2023

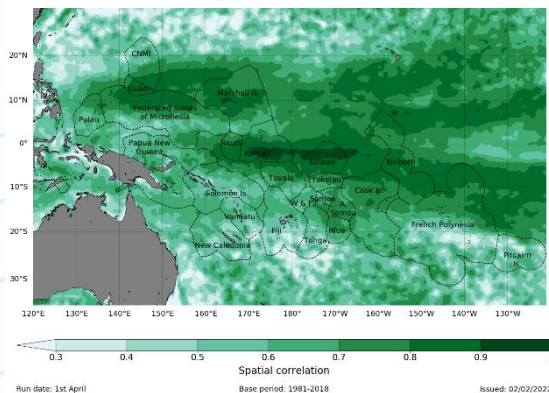


Base period: 1981-2018
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Model run: 15/04/2023
Issued: 17/04/2023

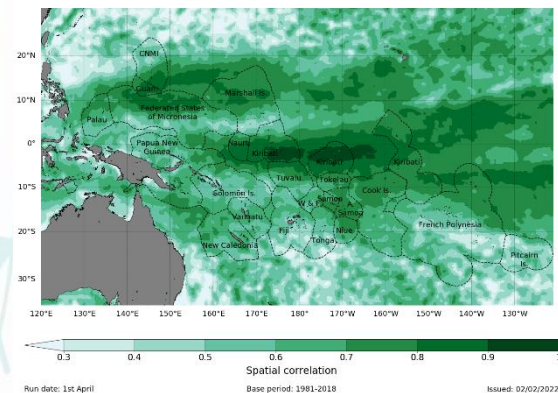
Shapefile data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at <http://www.maritimeresources.org/>

Spatial correlation of seasonal sea surface temperature anomaly
for May - July. Lead time: 1 month



Data source: ACCESS-S2 and NCEP OISST V2
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Shapefile data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at <http://www.maritimeresources.org/>

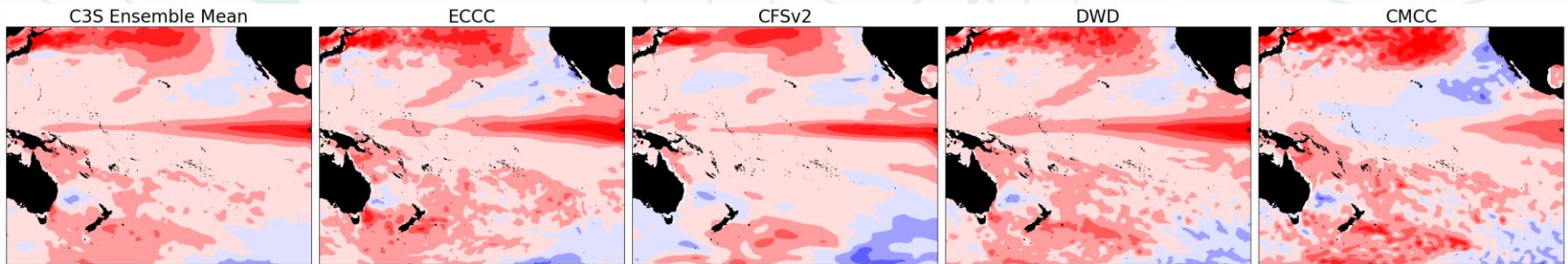
Spatial correlation of seasonal sea surface temperature anomaly
for June - August. Lead time: 2 months



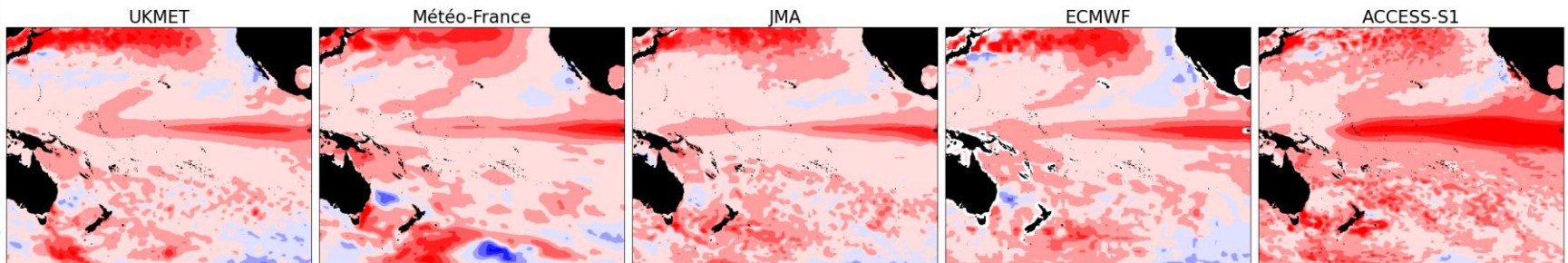
Data source: ACCESS-S2 and NCEP OISST V2
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Shapefile data extracted from Flanders Marine Institute (2019), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (200NM), version 11. Available online at <http://www.maritimeresources.org/>

Skill

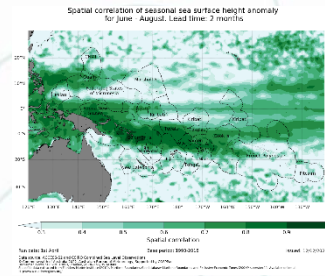
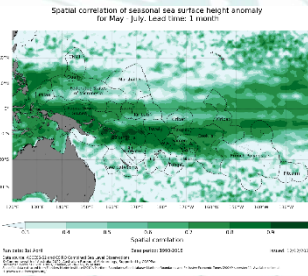
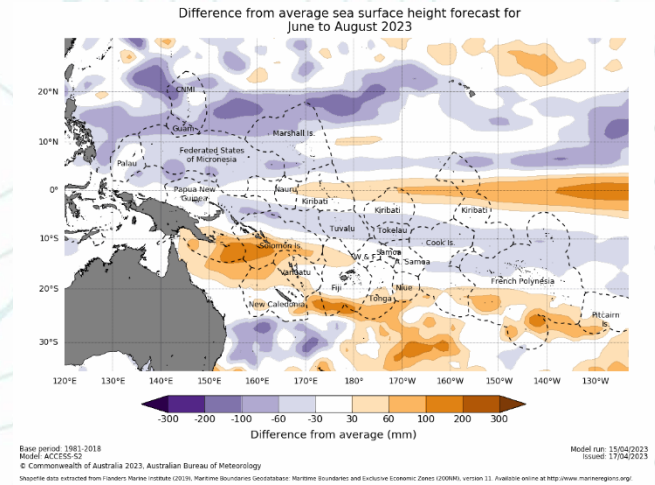
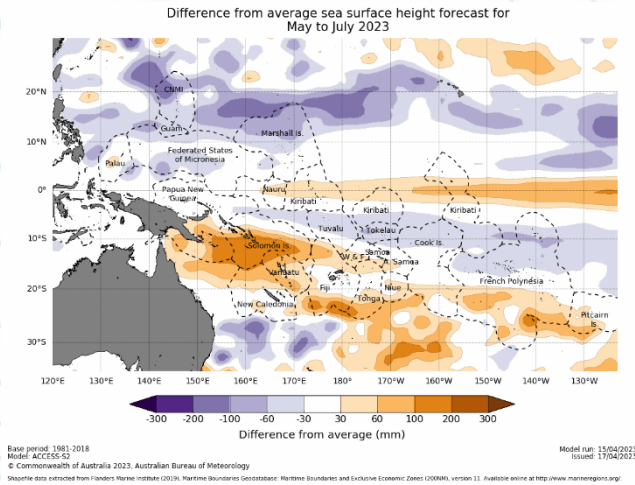
NIWA Model Comparison



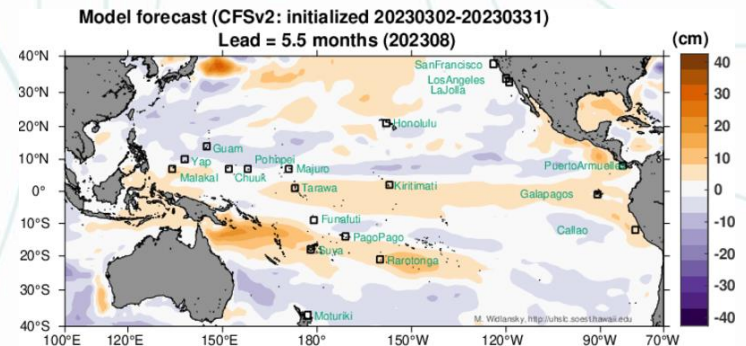
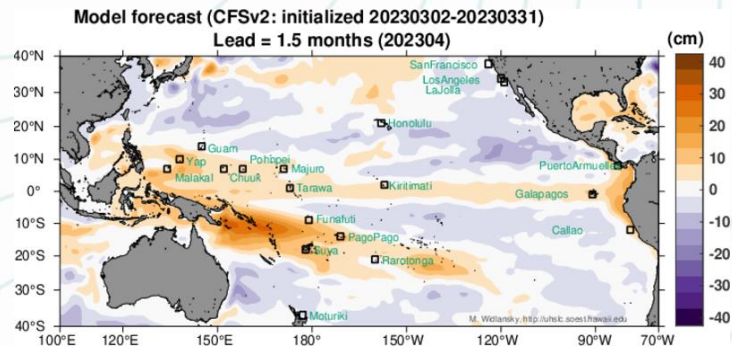
2023-07 to 2023-09 SST Anomalies



Sea Level Anomaly

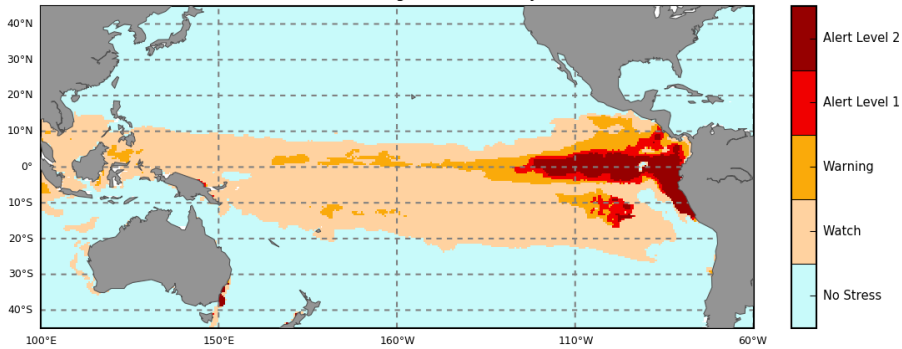


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Coral Bleaching (NOAA)

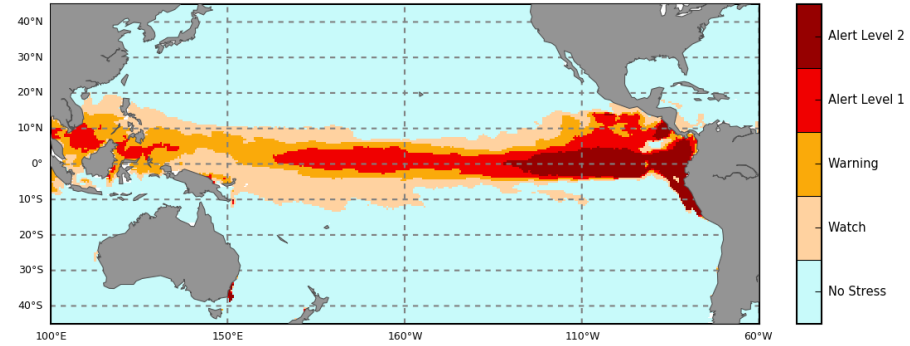
Pacific Ocean
4 Weeks Coral Bleaching Outlook: 07 May 2023



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NOAA Coral Reef Watch

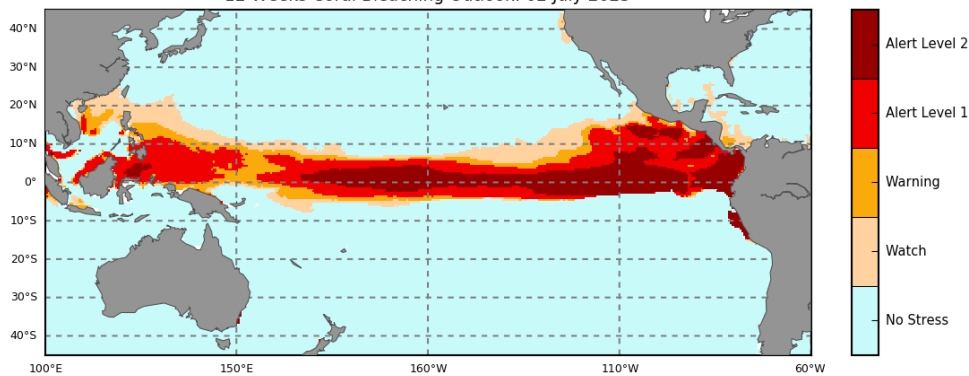
Pacific Ocean
8 Weeks Coral Bleaching Outlook: 04 June 2023



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NOAA Coral Reef Watch

Pacific Ocean
12 Weeks Coral Bleaching Outlook: 02 July 2023

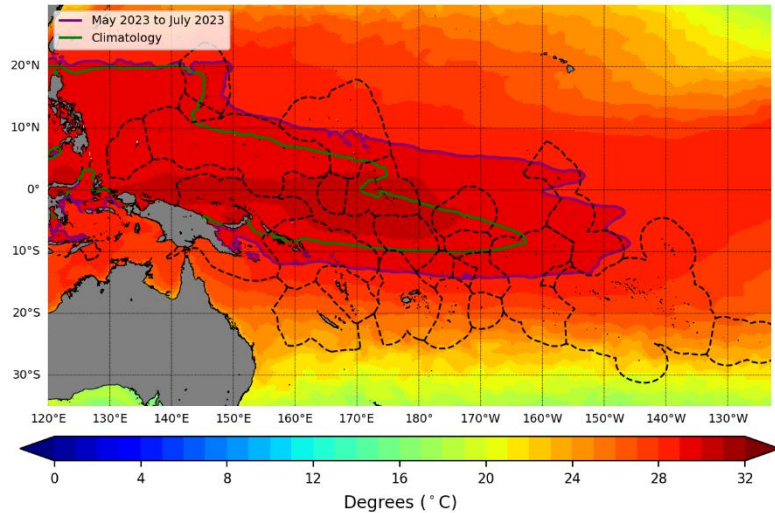


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NOAA Coral Reef Watch

ACCESS-S: Fisheries Convergence zone

Sea surface temperature forecast for
May 2023 to July 2023

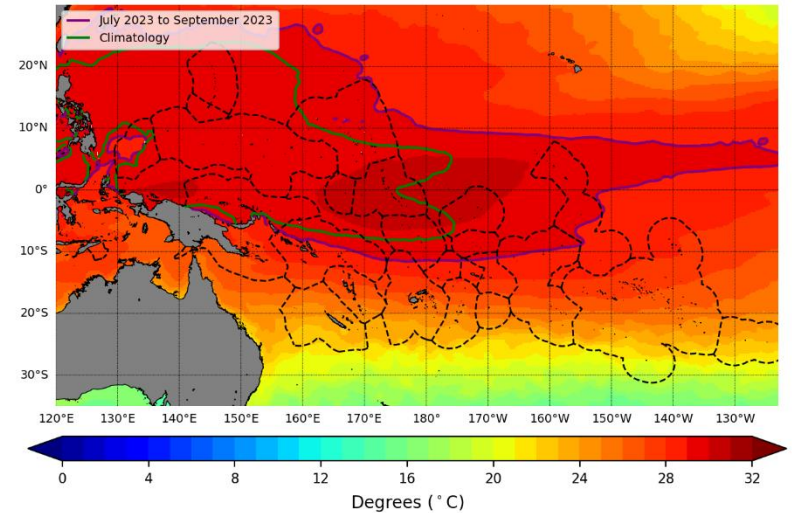


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Model: ACCESS-S2
Base Period: 1981-2018

Model Run: 15/04/2023
Issued: 18/04/2023

Sea surface temperature forecast for
July 2023 to September 2023



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Model: ACCESS-S2
Base Period: 1981-2018

Model Run: 15/04/2023
Issued: 18/04/2023

Summary

- SSTs likely to be above average across most of western, central, and southwestern Pacific
- El Niño-like warm tongue emerging across equatorial Pacific, up to 4 °C above average in ACCESS-S2, up to 2 °C in most other models.
- Higher than normal sea levels likely across central to eastern equatorial Pacific, and at PNG, Solomon Is., Vanuatu, and southern Fiji/Tonga/Niue.
- Many Pacific Island countries experience lower tides in June/July, but have tides in the top ten between August and October.
- Coral bleaching alerts are forecast to be present along the entire equatorial Pacific between 10 °S and 10 °N latitudes from July.
- The fisheries convergence zone is forecast to be displaced much further eastward along tropical Pacific in the upcoming seasons.