

Ocean temperature, Coral Bleaching and Sea level

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

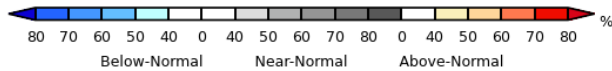
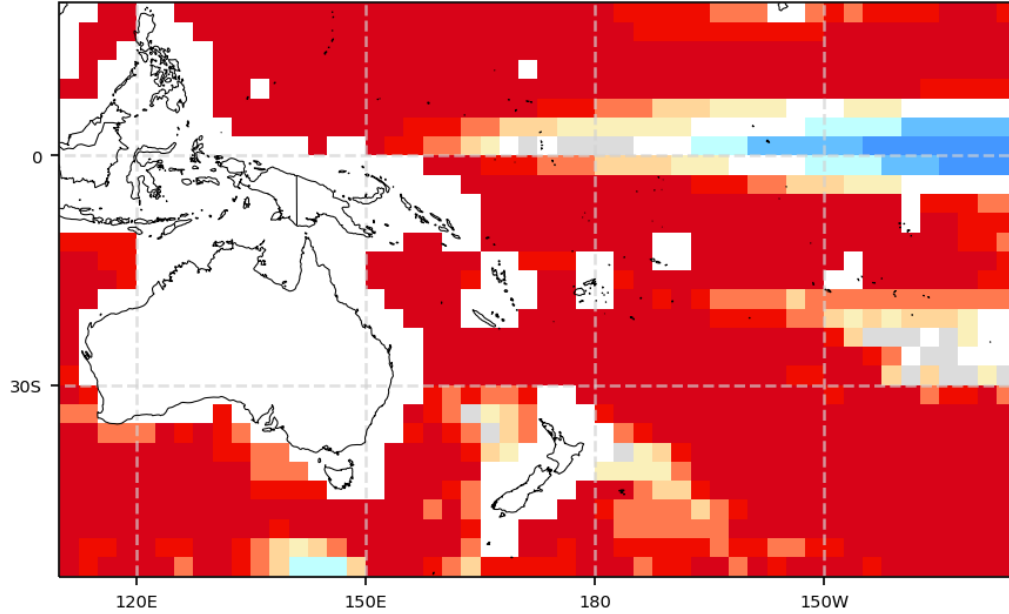
WMO-MME

Probabilistic Multi-Model Ensemble Forecast

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

Sea Surface Temperature : MJJAS2024

(issued on Apr2024)

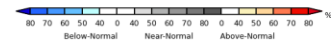
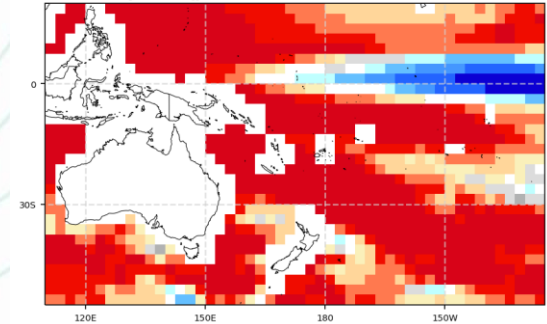


Probabilistic Multi-Model Ensemble Forecast

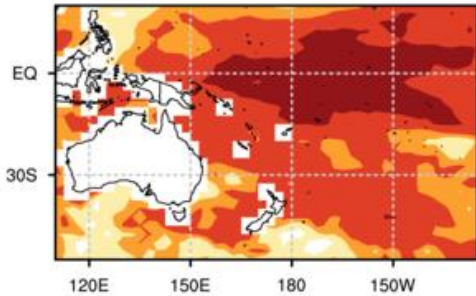
Beijing, Beijing, Montreal, Montreal, Seoul, Seoul, Tokyo, Tokyo, Washington, Washington

Sea Surface Temperature : MJJAS2024

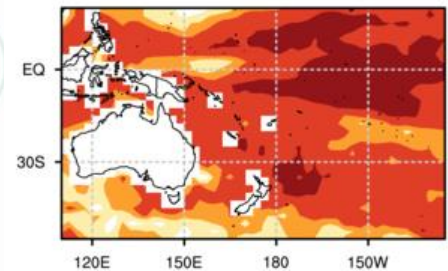
(issued on Mar2024)



MJJ 0.731



JAS 0.759

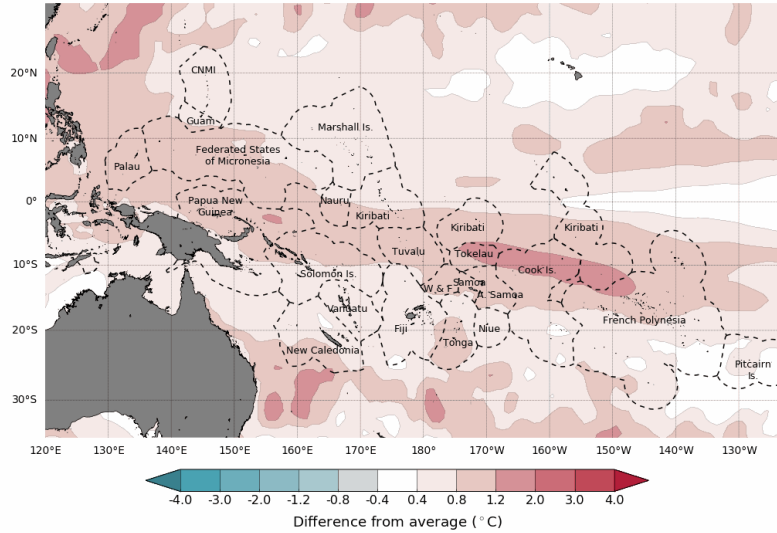


Skill



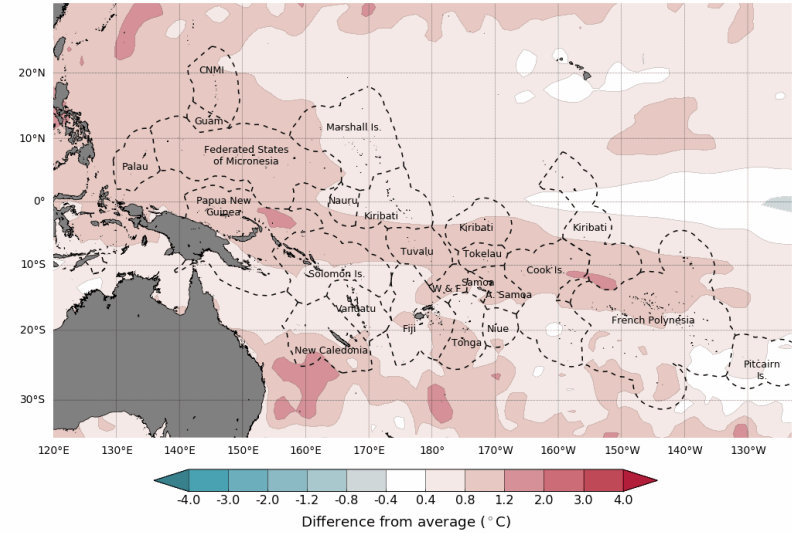
ACCESS-S: SST Anomalies

Difference from average sea surface temperature forecast for May to July 2024



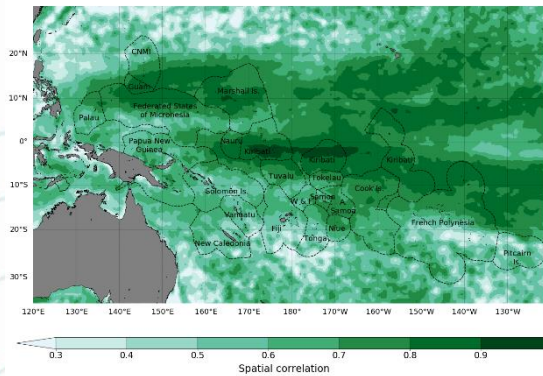
Base period: 1961-2018
 Model: ACCESS-S2
 © Commonwealth of Australia 2024, Australian Bureau of Meteorology
 Model run: 08/04/2024
 Issued: 10/04/2024

Difference from average sea surface temperature forecast for June to August 2024



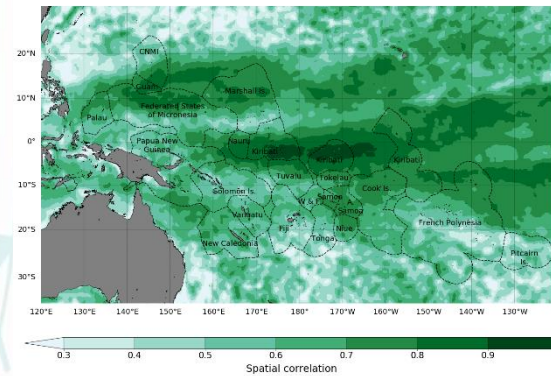
Base period: 1961-2018
 Model: ACCESS-S2
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 Model run: 08/04/2024
 Issued: 10/04/2024

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



Run date: 1st April
 Base period: 1961-2018
 Issued: 02/02/2022

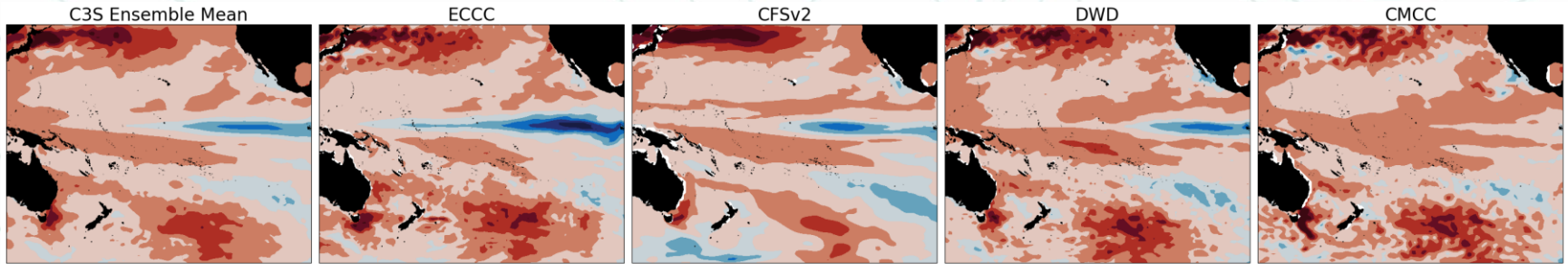
Spatial correlation of seasonal sea surface temperature anomaly for June - August. Lead time: 2 months



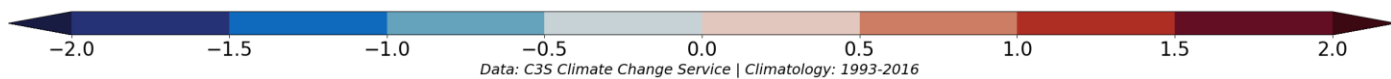
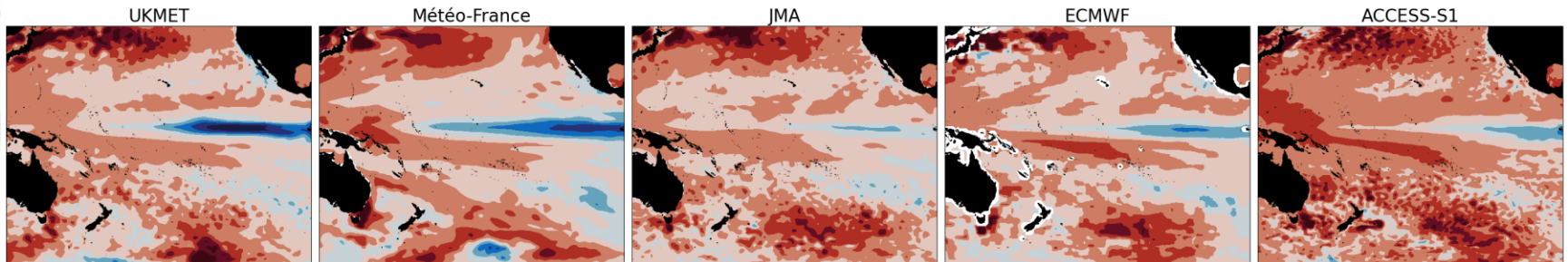
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Skill

NIWA Model Comparison

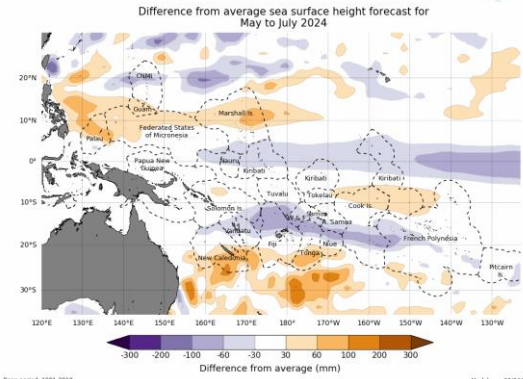


2024-05 to 2024-07 SST Anomalies



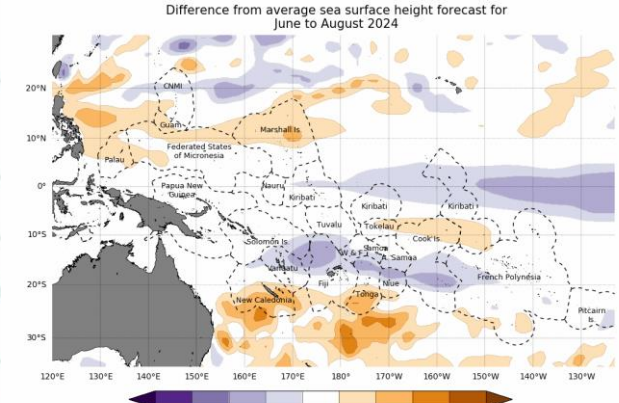
Sea Level Anomaly

ACCESS-S2



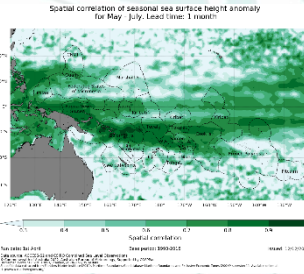
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Model: ACCESS-S2
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Shapefile data extracted from Flinders Marine Institute (2016), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2009), version 11. Available online at <http://www.maritime.gov.au>

Model run: 08/04/2024
Issued: 10/04/2024



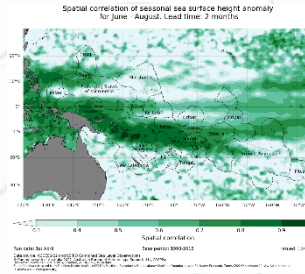
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Model run: 08/04/2024
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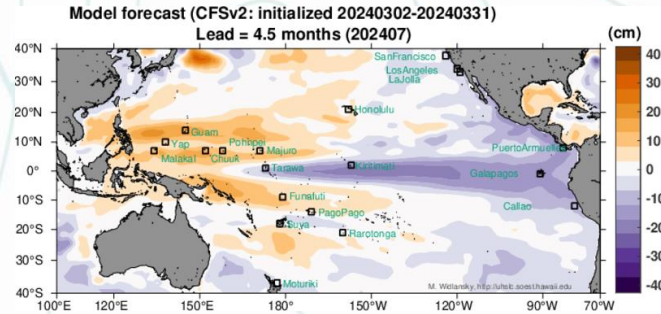
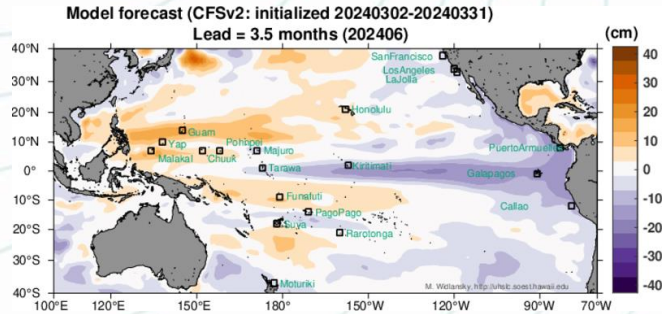


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Shapefile data extracted from Flinders Marine Institute (2016), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2009), version 11. Available online at <http://www.maritime.gov.au>

Model run: 08/04/2024
Issued: 10/04/2024

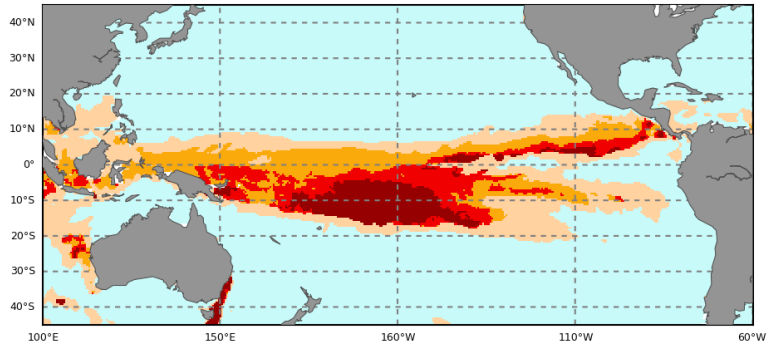
Skill

NOAA



Coral Bleaching (NOAA)

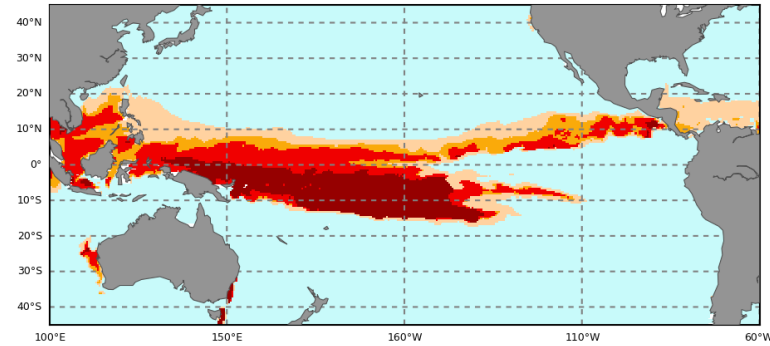
Pacific Ocean
4 Weeks Coral Bleaching Outlook: 05 May 2024



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NOAA Coral Reef Watch

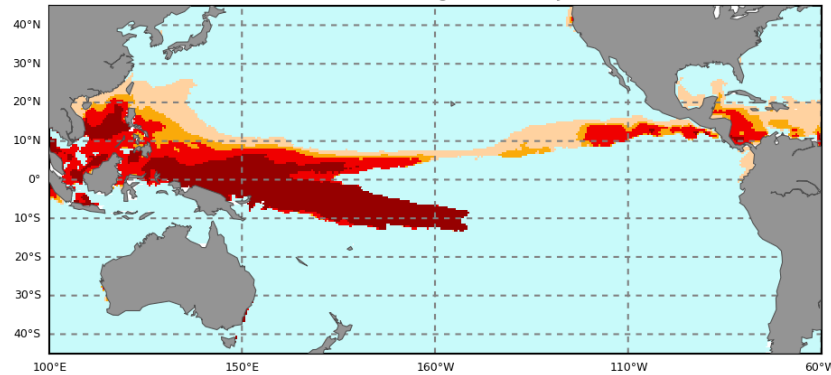
Pacific Ocean
8 Weeks Coral Bleaching Outlook: 02 June 2024



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NOAA Coral Reef Watch

Pacific Ocean
12 Weeks Coral Bleaching Outlook: 30 June 2024

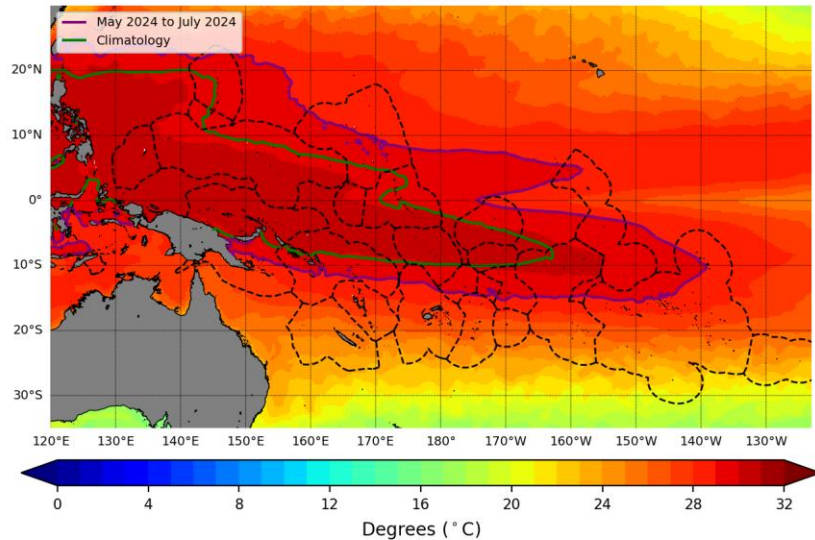


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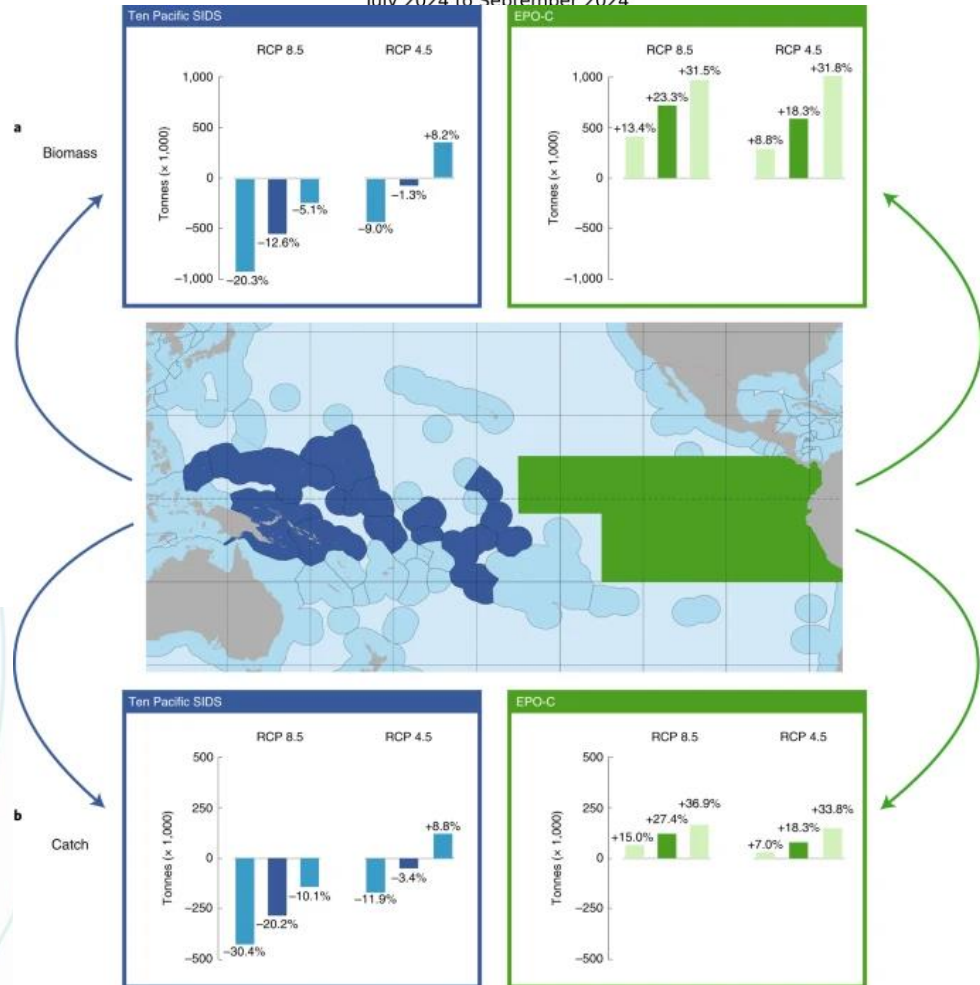
NOAA Coral Reef Watch

ACCESS-S: Fisheries Convergence zone

Sea surface temperature forecast for May 2024 to July 2024



Sea surface temperature forecast for July 2024 to September 2024



Pathways to sustaining tuna-dependent Pacific Island economies during climate change

Johann D. Bell, Inna Senina, Timothy Adams, Olivier Aumont, Beatriz Calmettes, Sangaalofa Clark, Morgane Dessert, Marion Gehlen, Thomas Gorgues, John Hampton, Quentin Hanich, Harriet Harden-Davies, Steven R. Hare, Glen Holmes, Patrick Lehodey, Matthieu Lengaigne, William Mansfield, Christophe Menkes, Simon Nicol, Yoshitaka Ota, Coral Pasisi, Graham Pilling, Chis Reid, Espen Ronneberg, ... Peter Williams + Show authors

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Summary

- SSTs likely to be above average over broadscale regions in the west and southwest Pacific.
- La Niña-like cold tongue emerging across equatorial Pacific, although there is a spread across the models in the strength of negative anomalies.
- Lower than normal sea levels are forecast across central to eastern equatorial Pacific, and a band from Solomon Islands to French Polynesia.
- Higher than normal sea levels emerging in Western Warm Pool regions such as Palau, FSM, RMI, PNG, and Solomon Is.
- Many Pacific Island countries experience lower tides in June/July, however there are tides in the top ten in September/October.
- Coral bleaching alerts are forecast to be high in central Pacific in upcoming 4 weeks, and then move towards the Western Warm Pool region in 8 to 12 weeks but remain high near the dateline.
- The fisheries convergence zone is forecast to be displaced much further eastward along tropical Pacific in the upcoming seasons even though SSTs are cooler in central and eastern equatorial Pacific.