APCC Monthly Climate Outlook for Pacific Islands

For June – November 2023

(Issued: May 15, 2023)

- *The APCC ENSO Alert suggests "El Niño WATCH". In April 2023, above normal sea surface temperature anomalies spanned the eastern equatorial Pacific. The Niño3.4 index is expected to increase from 1°C to 1.7^{o}C for June – November 2023. The probability for El Niño conditions is expected to be above 94% for the same period.*
- *Strongly enhanced probability for above normal temperatures is predicted for most region of the Pacific Islands for June – November 2023.*
- *For June – August 2023, strongly enhanced probability for above normal precipitation is predidcted for Micronesia and the equtor, and strongly enhanced probability for below normal precipitation is expected for off-equatorial Polynesia. For September – November 2023, the chances are likely to weaken.*

SST and ENSO Outlook

The APCC ENSO outlook suggests "El Niño WATCH". As all of the Multi-Model Ensemble participating models predict above normal SST anomalies along the equator, Niño3.4 starting from 1°C is expected to reach 1.9^{o}C for October 2023 and slightly decrease to 1.7^{o}C for November 2023. During the same period, the probability for El Niño conditions is expected to be above 94%. Moderate El Niño is expected to be the most likely category for May – July 2023, whereas strong El Niño is expected to be the most likely one for the remaining periods [Figs. 1, 2, and 3].

Temperature and Precipitation Outlook

1. Forecast for June – August 2023

Strongly enhanced probability for above normal temperatures is predicted for the whole Pacific Islands excluding southern Polynesia. Enhanced probability for above normal temperatuers is expected for southern Polynesia. Strongly enhanced probability for above normal precipitation is predicted along the equator and Micronesia. A tendency for above normal precipitation is expected for Melanesia. Strongly enhanced probability for below normal precipitation is predicted for off-equatorial Polynesia [Fig. 4].

2. Forecast for September – November 2023

Strongly enhanced probability for above normal temperatures is predicted for Melanesia and Polynesia excluding southern regions. Enhanced probability for above normal temperatures is expected for Micronesia. A tendency for near normal temperatures is predicted for southern regions of Melanesia and Polynesia. Strongly enhanced probability for above normal precipitation is expected along the equator east of the Date Line. Enhanced probability for above normal precipitation is predicted for the boundary between Micronesia and Melanesia and equatorial Polynesia. A tendency for below normal precipitation is expected for southern regions of Melanesia and Polynesia [Fig. 5].

3. Hindcast skill for APCC MME for JJA and SON

Across the Pacific Islands for the JJASON period, the APCC MME is reasonably skillful in predicting temperature and precipitation as indicated by the Heidke Skill Score (HSS). The HSS values for temperature are above 40 for the whole Pacific Islands for JJA, and the skills are still higher for SON. The HSS values for precipitation along the equator are higher than those for the other regions for JJA, and the relatively higher skills remain along the equator for SON [Figs. 6 and 7].
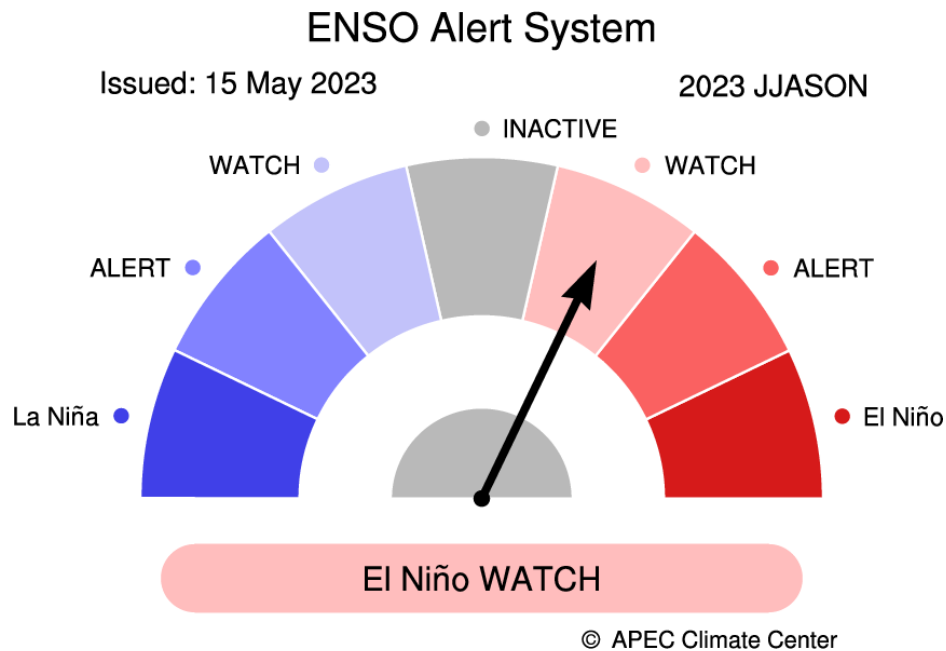
Fig. 1. The APCC ENSO Outlook status for June – November 2023. Anomalies are computed with respect to the common base period (1991-201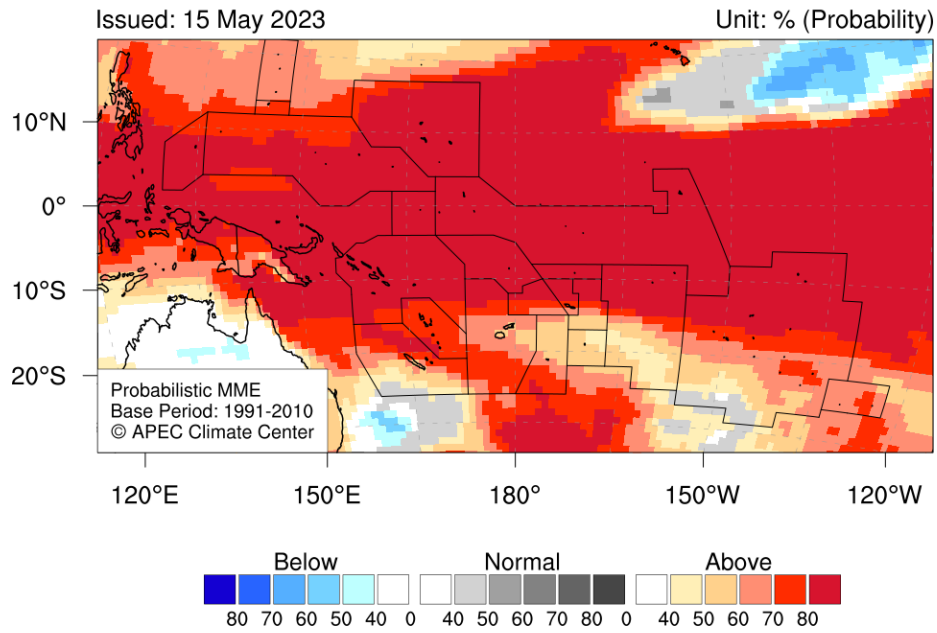0) of participating models in the APCC MME prediction. Observed data used for the recent seven months is the Optimum Interpolation Sea Surface Temperature (OISST). Effective from April 2022, ENSO alert information will be updated twice (around the 15th and 30th) each month to reflect the latest observation.
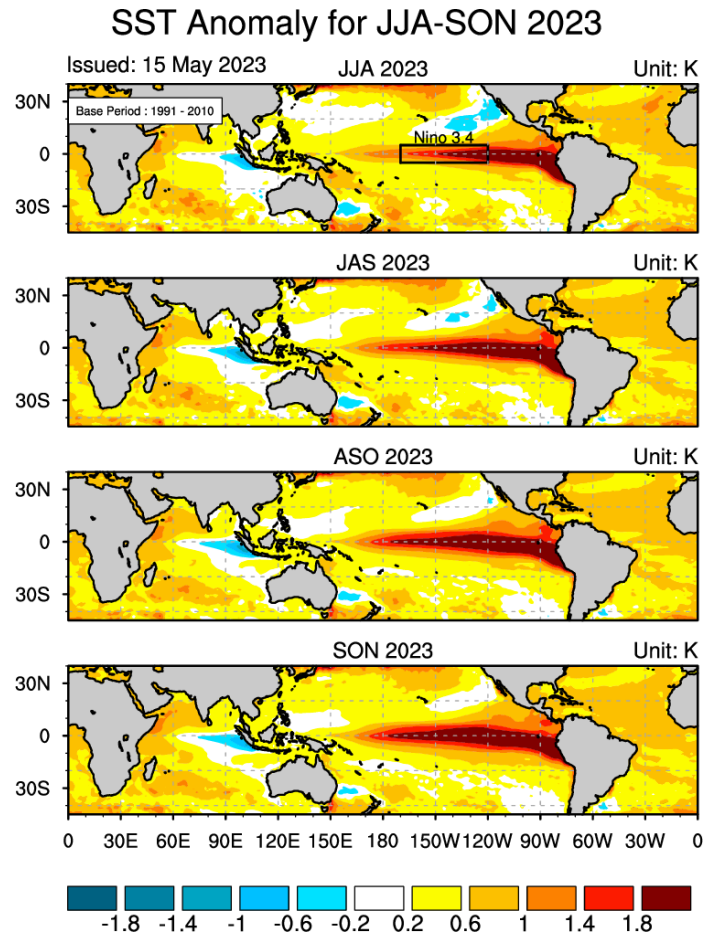
Fig. 2. Multi-model ensemble (MME) forecasts of SST anomalies for June – November 2023. Anomalies are computed with respect to the common base period (1991-2010) of participating models in the APCC MME prediction.
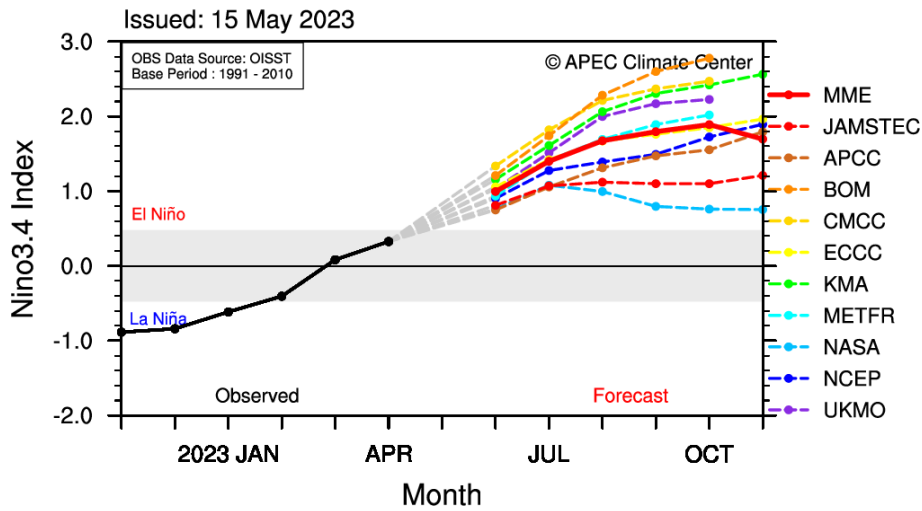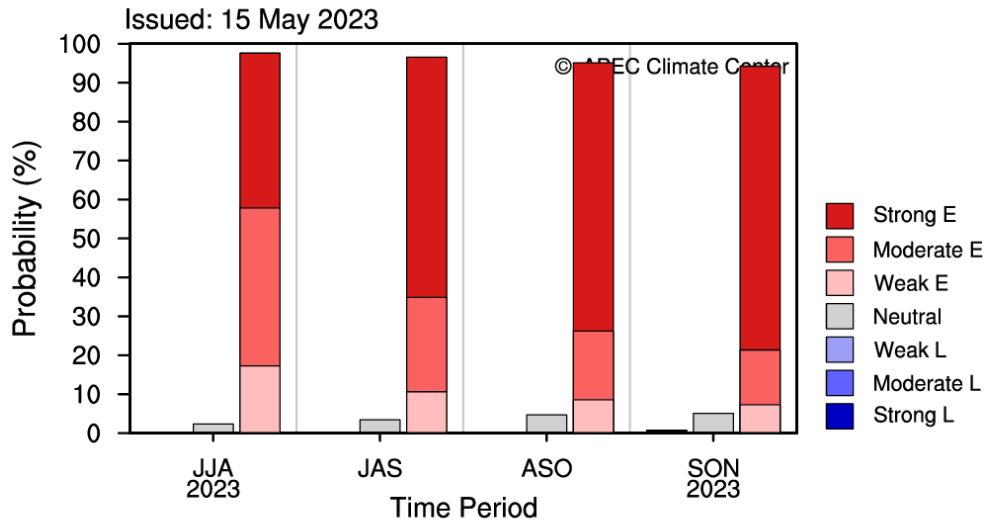
Fig. 3. Predicted Niño3.4 index from individual models and the MME for June – November 2023 (top). Probabilistic MME forecasts of the status and intensity based on Niño3.4 index for four overlapping 3-month mean periods (bottom). Anomalies are computed with respect to the common base period (1991-2010) of participating models in the APCC MME prediction.

Temperature at 2m for June-August 2023

Issued: 15 May 2023   Unit: % (Probability)

Probabilistic MME
Base Period: 1991-2010
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Below   Normal   Above
80 70 60 50 40 0 40 50 60 70 80 0 40 50 60 70 80

Precipitation for June-August 2023

Issued: 15 May 2023   Unit: % (Probability)

Probabilistic MME
Base Period: 1991-2010
© APEC Climate Center

Below   Normal   Above
80 70 60 50 40 0 40 50 60 70 80 0 40 50 60 70 80
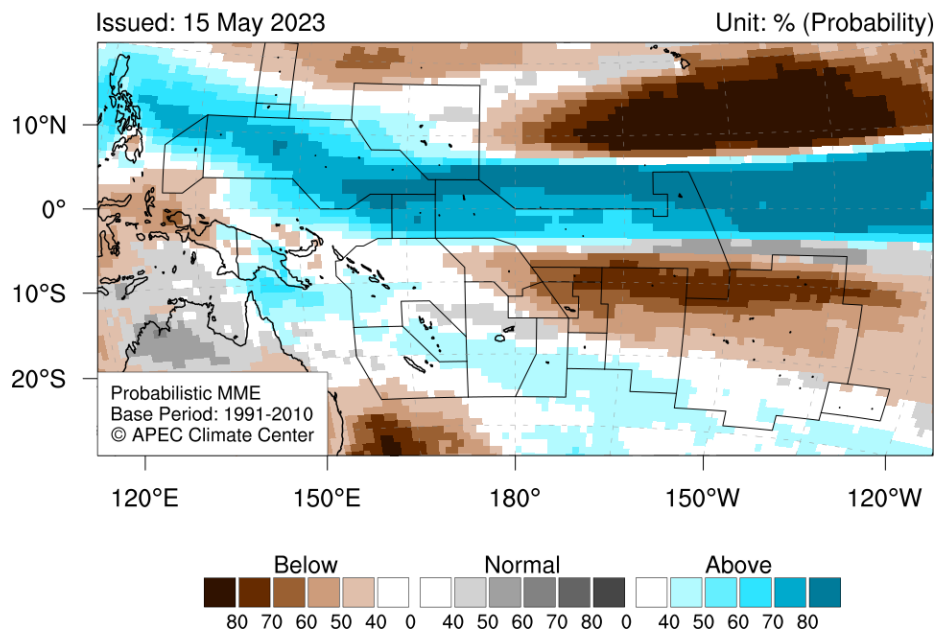
Fig. 4. Probabilistic MME forecasts of 2m temperature (top) and precipitation (bottom) June – August 2023. Normal conditions are computed with respect to the common base period (1991-2010) of participating models in the APCC MME prediction.

Temperature at 2m for September-November 2023
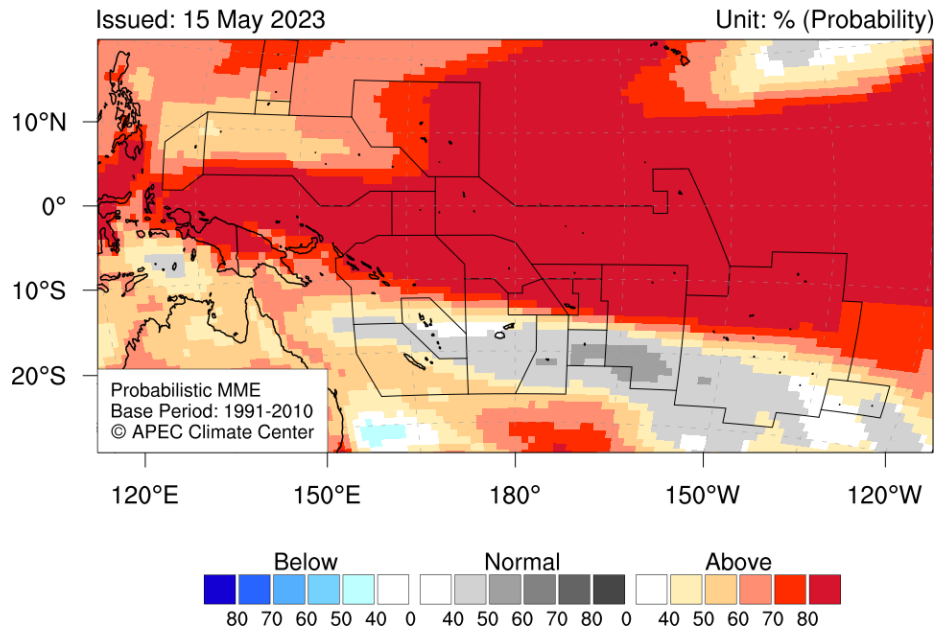
Precipitation for September-November 2023
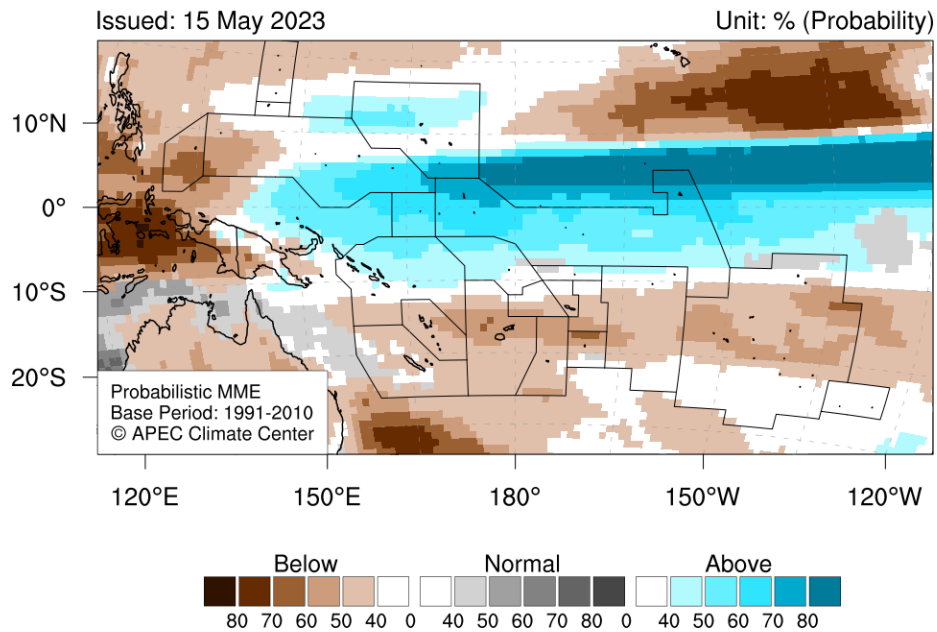
Fig. 5. Probabilistic MME forecasts of 2m temperature (top) and precipitation (bottom) for September – November 2023. Normal conditions are computed with respect to the common base period (1991-2010) of participating models in the APCC MME prediction.

Heidke Skill Score : T2M, JJA (1991-2010)
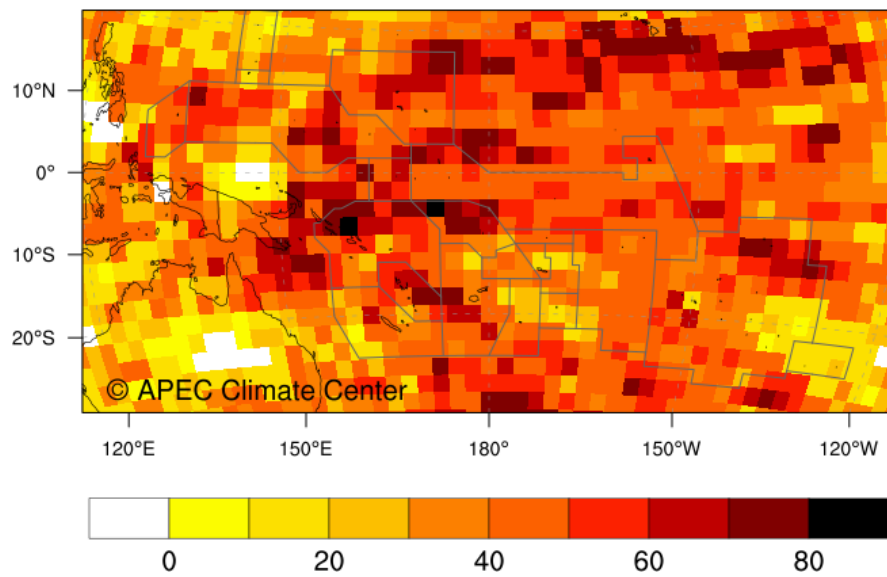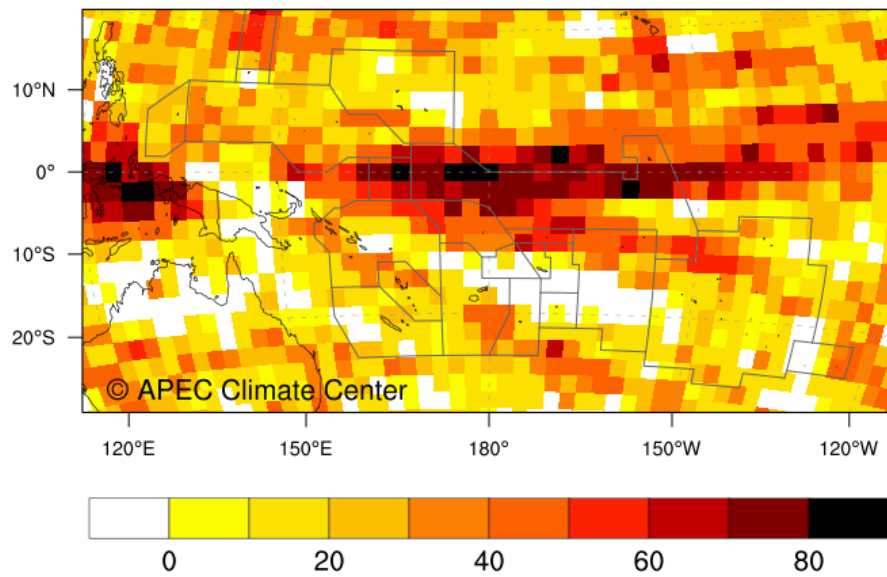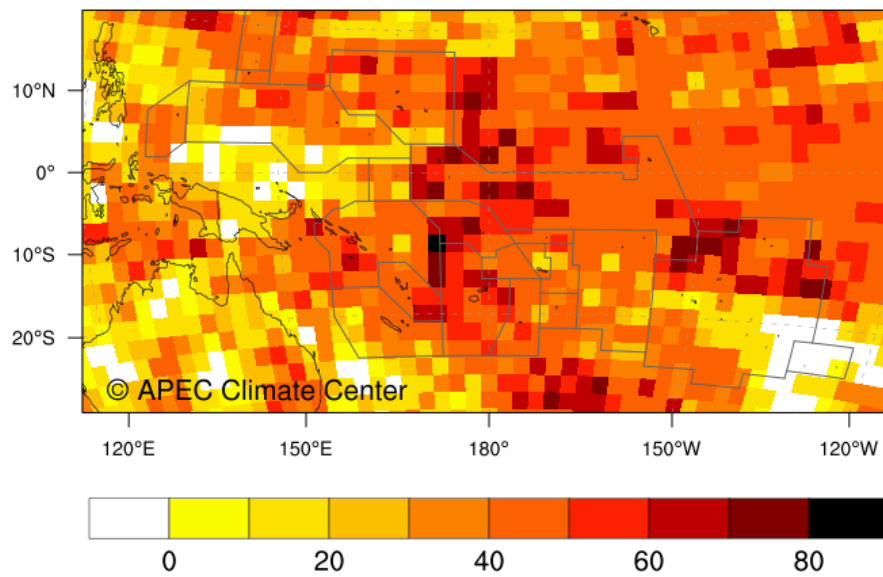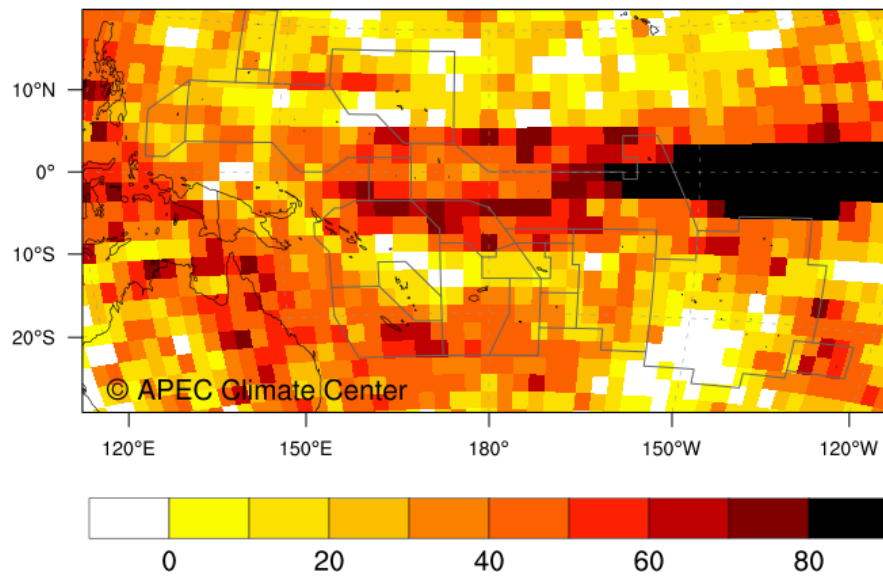

Heidke Skill Score : PREC, JJA (1991-2010)

Fig. 6. Heidke Skill Score for probabilistic MME forecasts of 2m temperature (top) and precipitation (bottom) for June – August (1991-2010).

Heidke Skill Score : T2M, SON (1991-2010)

Heidke Skill Score : PREC, SON (1991-2010)

Fig. 7. Heidke Skill Score for probabilistic MME forecasts of 2m temperature (top) and precipitation (bottom) for September – November (1991-2010).

* More information on current climate conditions is available at:

http://www.apcc21.org/ser/high.do?lang=en

* More information on prediction and verification results is available at:

http://www.apcc21.org/ser/outlook.do?lang=en

This outlook is prepared by the Climate Prediction Department in the Climate Services and Research Division, APCC.

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