The APEC CLIMATE CENTER

Climate Outlook for Pacific Islands for December 2017 – May 2018

BUSAN, 24 November 2017 – The synthesis of the latest model forecasts for December 2017 to May 2018 (DJFMAM) from the APEC Climate Center (APCC), located in Busan, South Korea, indicates a below normal temperature anomaly across the tropical Pacific with a weak negative El Niño-Southern Oscillation (ENSO) phase. Above normal temperatures are expected to prevail over all of Melanesia and the whole of Micronesia and Polynesia, except in the equatorial belt for the whole forecast period. For the same period, above and below normal rainfall is probable for off-equatorial Micronesia and Polynesia, and the equatorial belt of Micronesia, respectively. Near normal rainfall is probable for equatorial Polynesia for DJF 2017/18.

Sea Surface Temperature and ENSO Outlook:

The prevailing ENSO phase is expected to be negative. A tongue of weak negative SST anomalies in the central and eastern equatorial Pacific is predicted. The weak positive SST anomalies are expected to surround this cold tongue and span the tropical Pacific, which corresponds to a negative Niño 3.4 index. This negative polarity continues throughout the first half of the forecast period and weakens slightly by the second half of the forecast period.

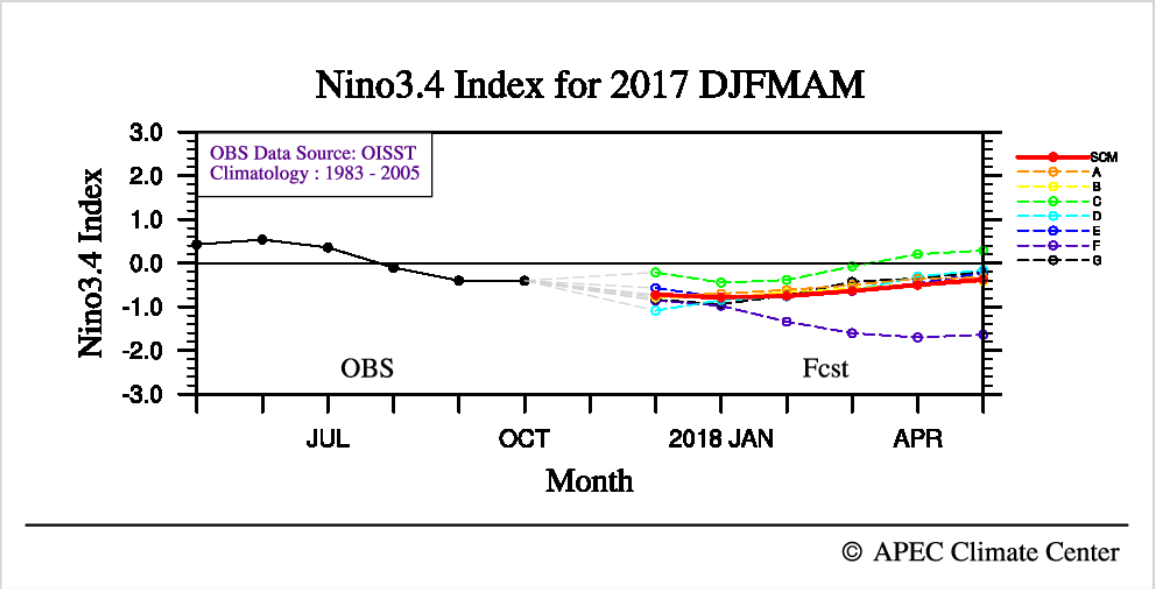
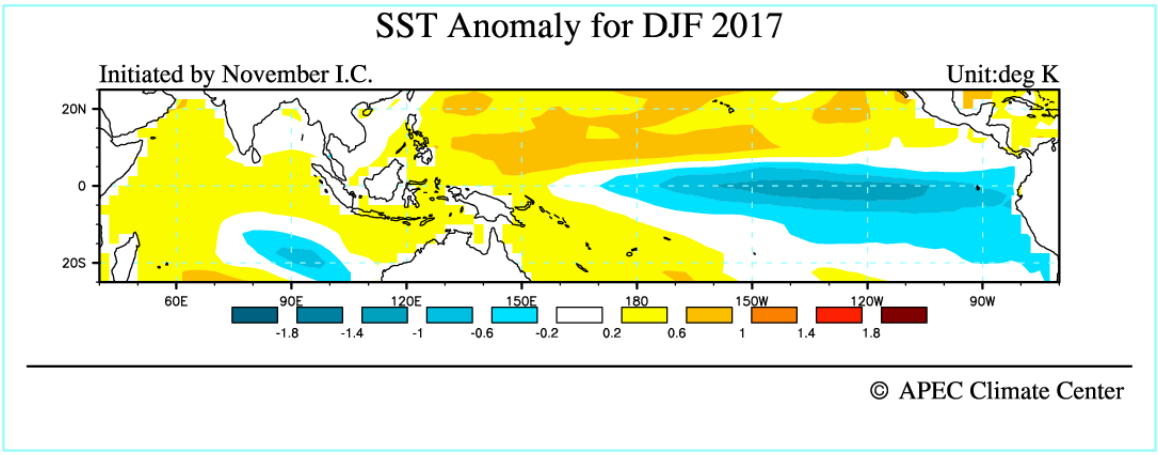


Fig. 1. Predicted Niño 3.4 Index from individual models (A, B, C, D, E, F and G) and the simple composite Multi-Model Ensemble (MME) method (SCM).



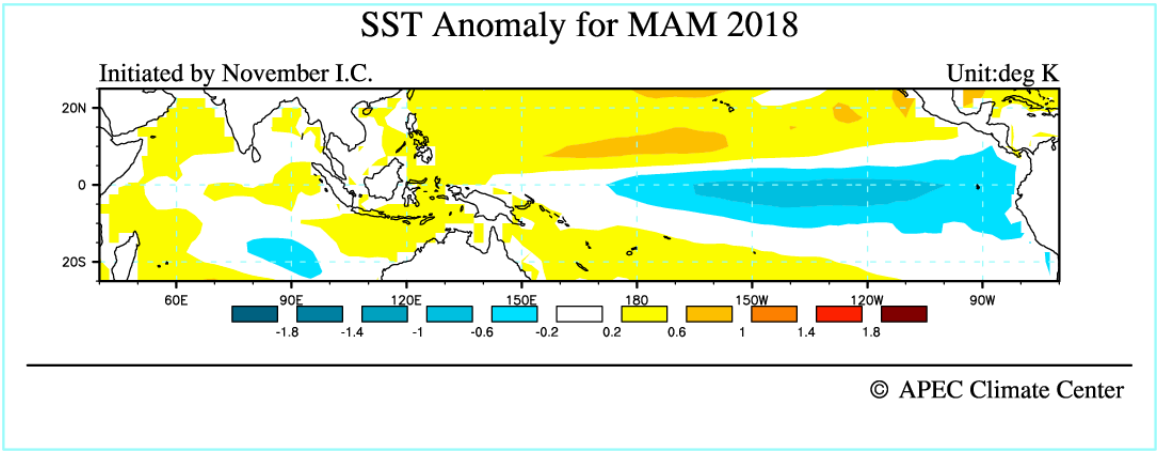


Fig. 2. Spatial distributions of forecasted SST anomalies for December 2017 – May 2018 over the tropical Indo-Pacific. The top panel shows the SST anomaly forecast for December 2017 – February 2018 and the bottom panel shows the SST anomaly forecast for March – May 2018.

Temperature and Precipitation Outlook:

1. **Forecast for December 2017 – February 2018**

Strongly enhanced probability for above normal temperatures is predicted for all of Melanesia and the whole of Micronesia and Polynesia, except in the equatorial belt. Enhanced probability for below and near normal temperatures is predicted for equatorial and off-equatorial Polynesia, respectively. Strongly enhanced probability for above normal rainfall is predicted for off-equatorial Micronesia and northern Polynesia, and eastern Melanesia. Strongly enhanced probability for below normal precipitation is expected for equatorial Micronesia and off-equatorial Polynesia. Strongly enhanced probability for near normal precipitation is predicted for equatorial Polynesia.

2. **Forecast for March – May 2018**

Strongly enhanced probability for above normal temperatures is predicted for all of Melanesia and the whole of Micronesia and Polynesia, except in the equatorial belt. Enhanced probability for above normal temperatures is expected for Melanesia. Enhanced probability for below normal temperatures is predicted for equatorial Polynesia. Enhanced probability for above normal precipitation is predicted for off-equatorial Micronesia and northern Polynesia. Enhanced probability for below normal precipitation is expected for equatorial Micronesia and Polynesia and off-equatorial southern Polynesia.

3. **Historical skill for APCC MME for DJF and MAM**

Across the Pacific for the DJFMAM period, the APCC MME is reasonably skillful in predicting both temperatures and precipitation, as indicated by the Heidke Skill Score (HSS). The highest HSS values are featured by temperatures and precipitation over equatorial Micronesia and Polynesia for DJF. The HSS values for both temperatures over equatorial Micronesia and Polynesia remain higher than those over the other regions through MAM, whereas the HSS values for precipitation over equatorial Micronesia and Polynesia become lower than those for the previous season.

The APEC Climate Center is a major APEC science facility, which was established in November 2005 during the leaders meeting of the Asia-Pacific Economic Forum in Busan, Korea. It produces seasonal and monthly forecasts of climate conditions for all seasons around the globe. APCC collects seasonal forecasts from 16 institutes in the APEC region: the Australian Bureau of Meteorology, Meteorological Service of Canada, Beijing Climate Center China, Institute of Atmospheric Physics China, Japan Meteorological Agency Japan, Korea Meteorological Administration Korea, Pusan National University Korea, Met Office United Kingdom, Euro-Mediterranean Center on Climate Change Italy, Hydrometeorological Research Center of Russia, Voeikov Main Geophysical Observatory of Russia, Central Weather Bureau Chinese Taipei, National Aeronautics and Space Administration USA, National Centers for Environmental Prediction USA, International Research Institute for Climate and Society USA, and the Center for Ocean-Land-Atmosphere Studies USA.

The APCC climate forecasts are based on model simulations from 16 prominent climate forecasting centers and institutes in the APEC region. These forecasts are collected and combined using state-of-the-art schemes to produce a statistically 'consensual' forecast. The APCC forecasts are based not just on the magnitude of the seasonal changes that are predicted, but also take into account their simulated probability. Further details as well as the verification for the forecasts on a long term basis are available at http://www.apcc21.org. Historical verification of the forecast performance is based on a retrospective forecast period of all the models for the period 1983-2005.

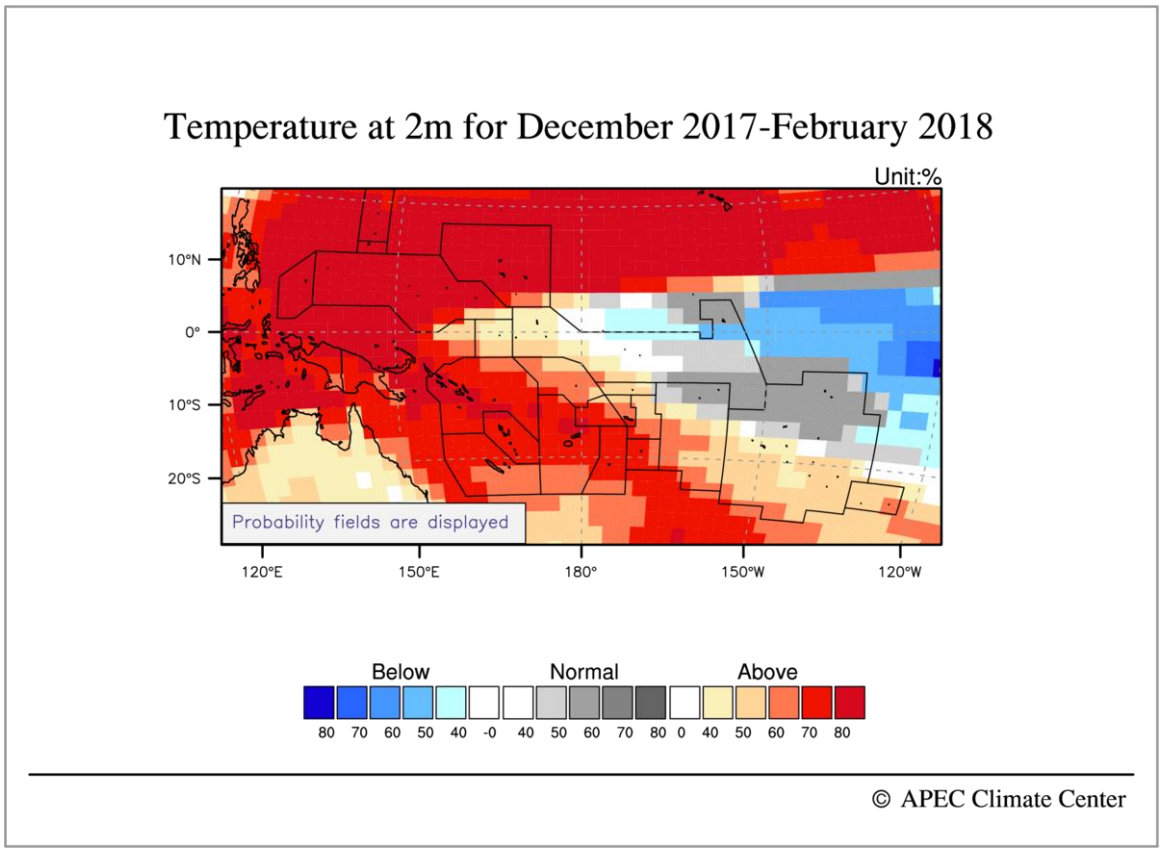


Fig. 3. Probabilistic MME seasonal 2m temperature forecast for December 2017 – February 2018.

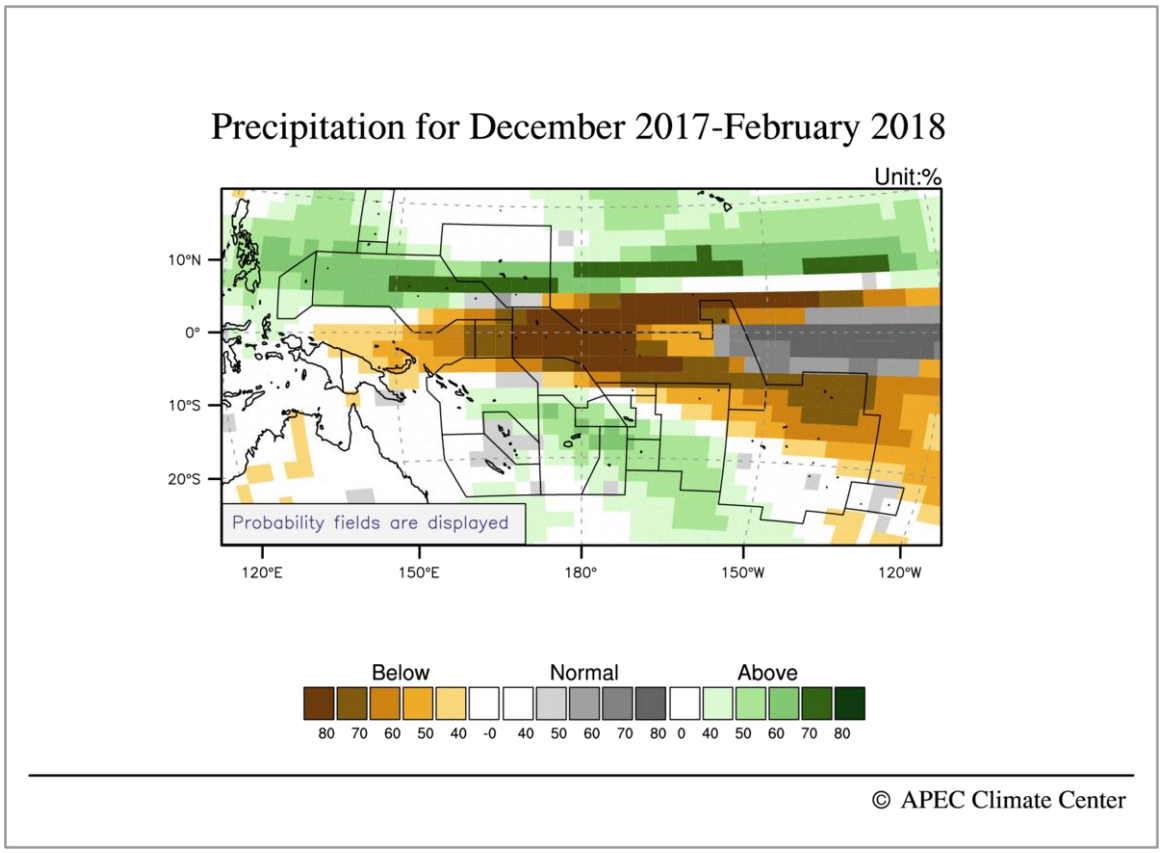


Fig. 4. Probabilistic MME seasonal precipitation forecast for December 2017 – February 2018.

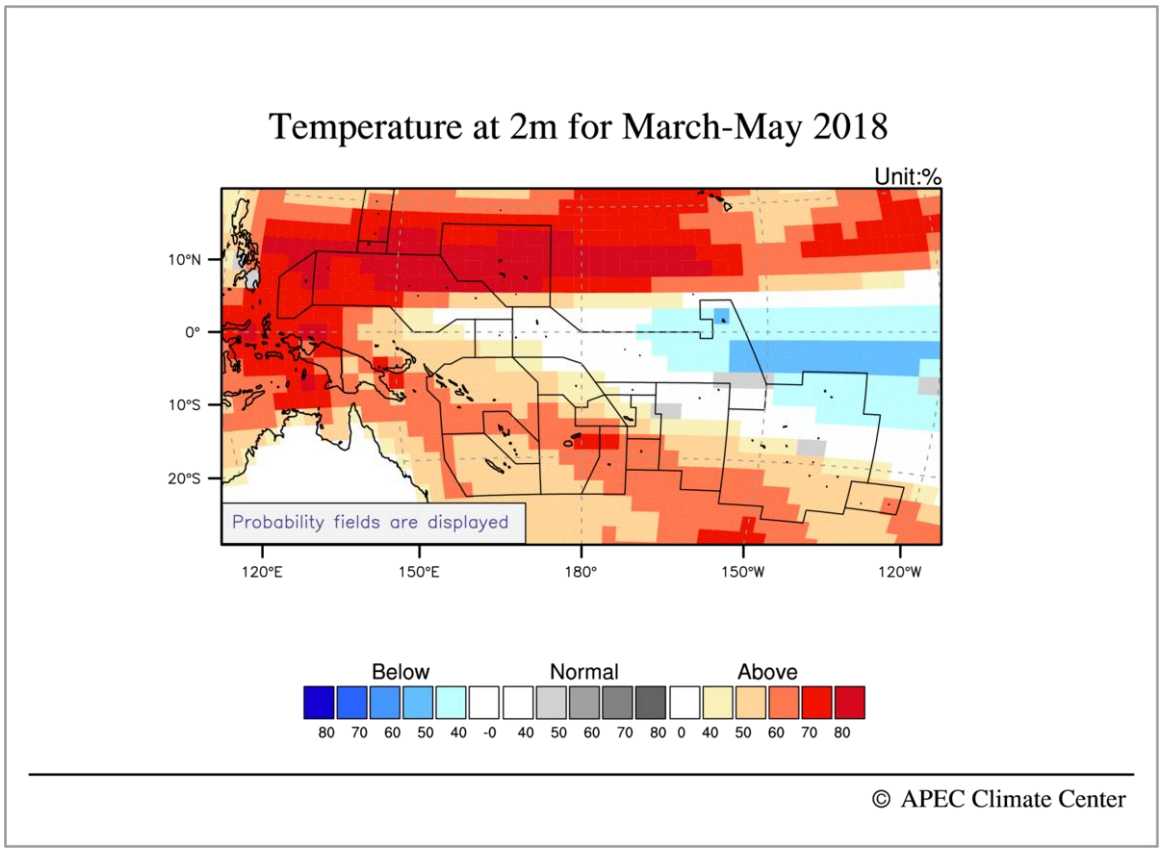


Fig. 5. Probabilistic MME seasonal 2m temperature forecast for March – May 2018.

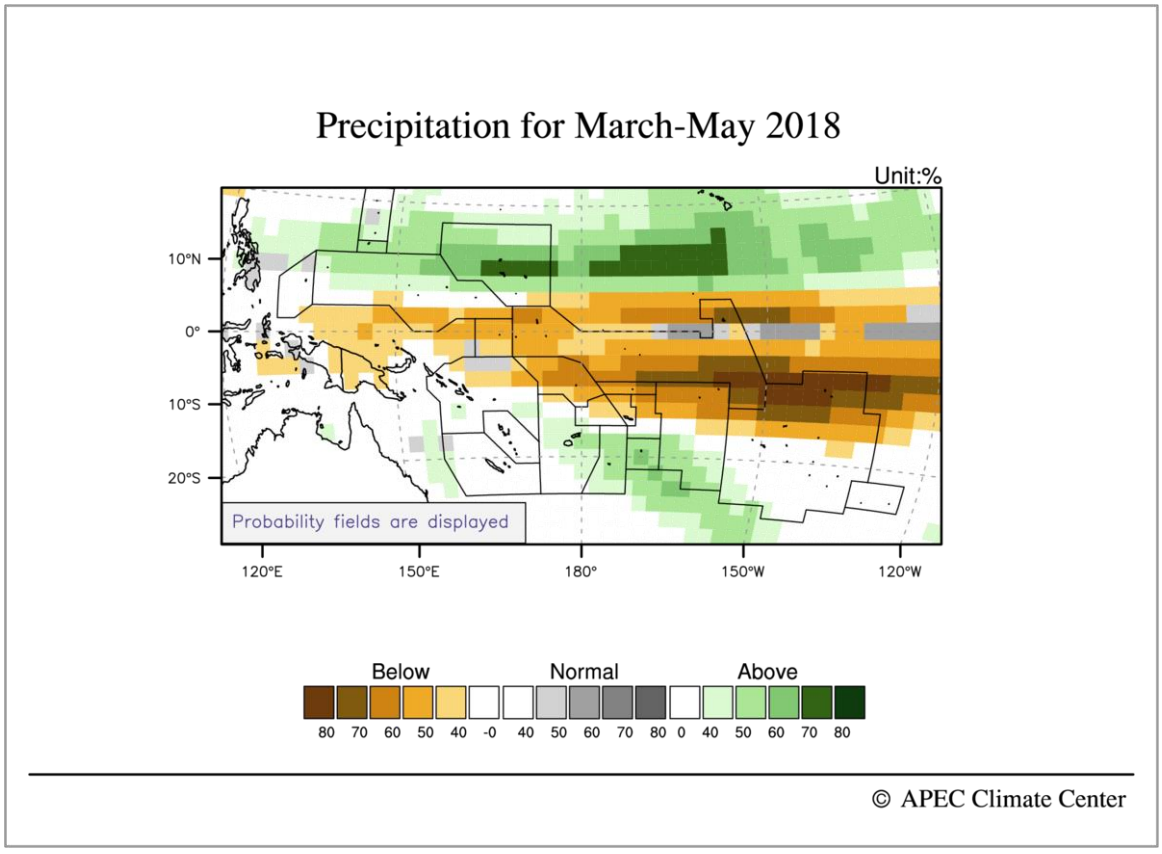


Fig. 6. Probabilistic MME seasonal precipitation forecast for March – May 2018.

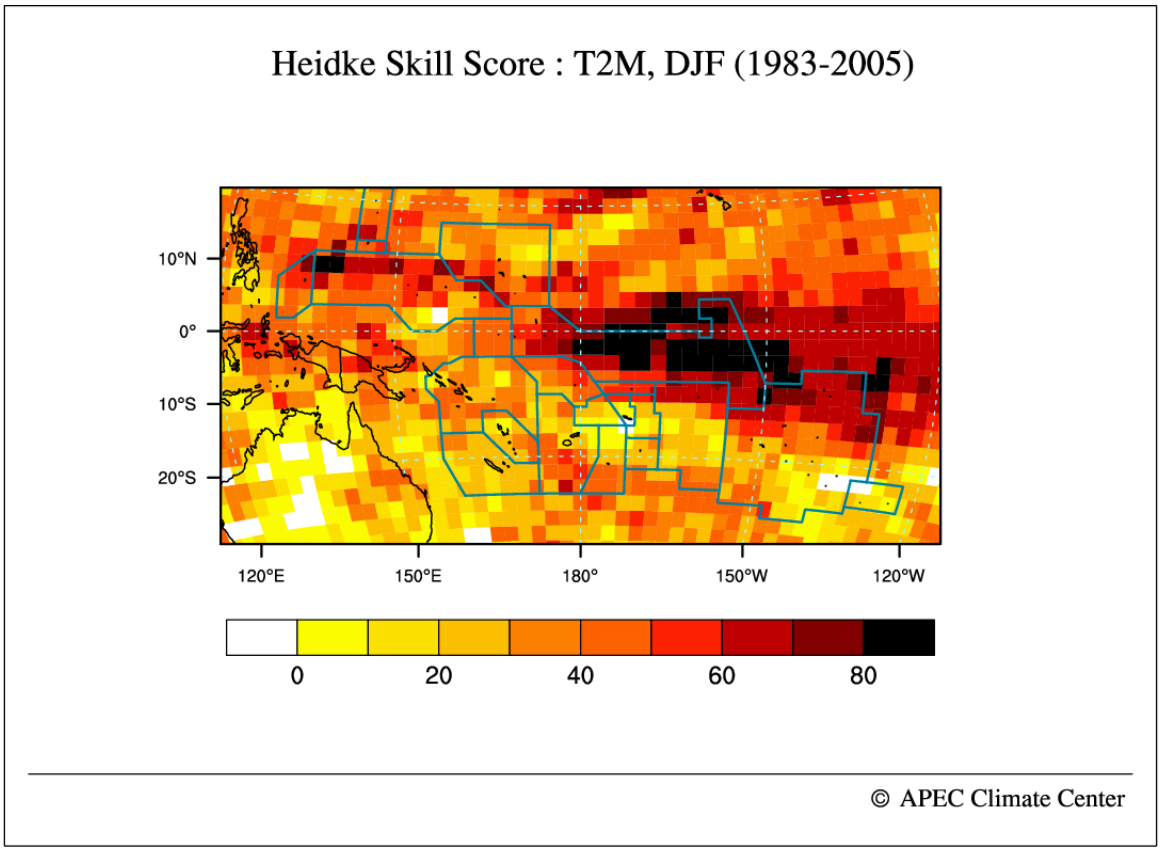


Fig. 7. Heidke Skill Score for probabilistic MME seasonal 2m temperature forecast for December – February.

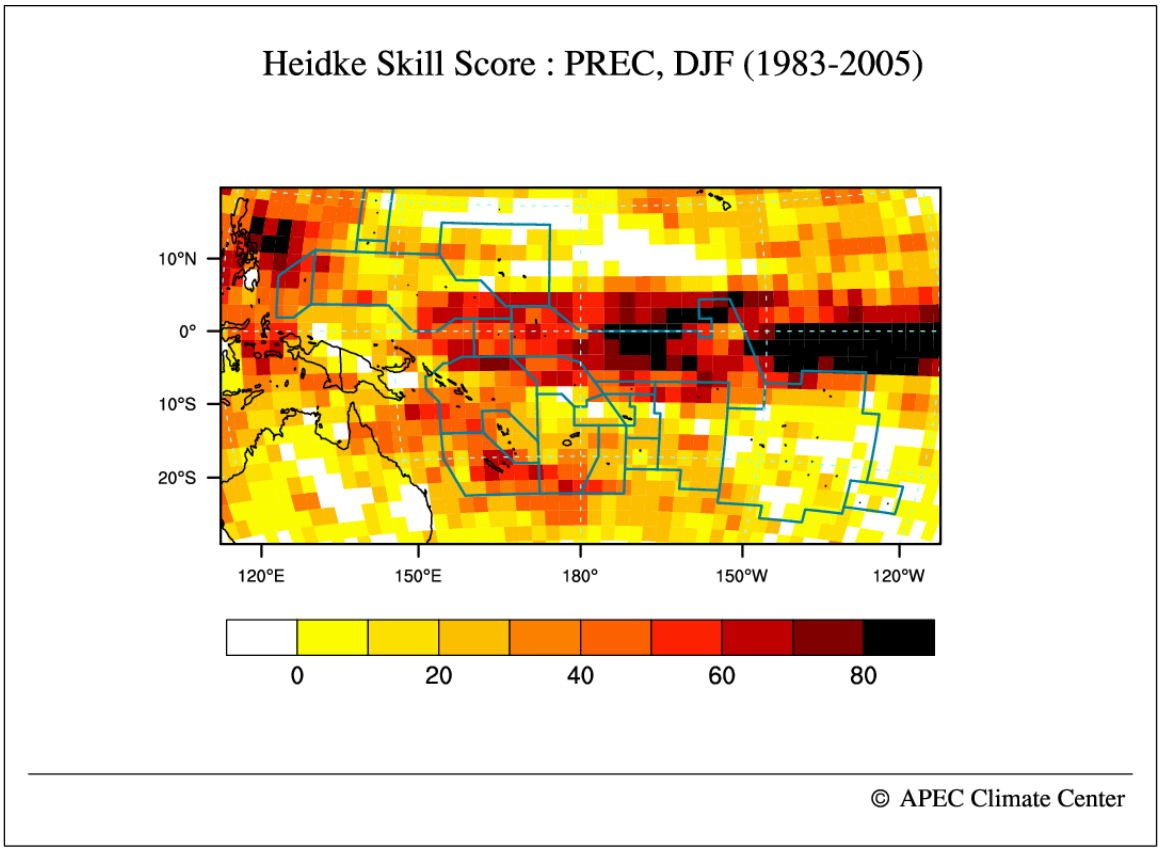


Fig. 8. Heidke Skill Score for probabilistic MME seasonal precipitation forecast for December – February.

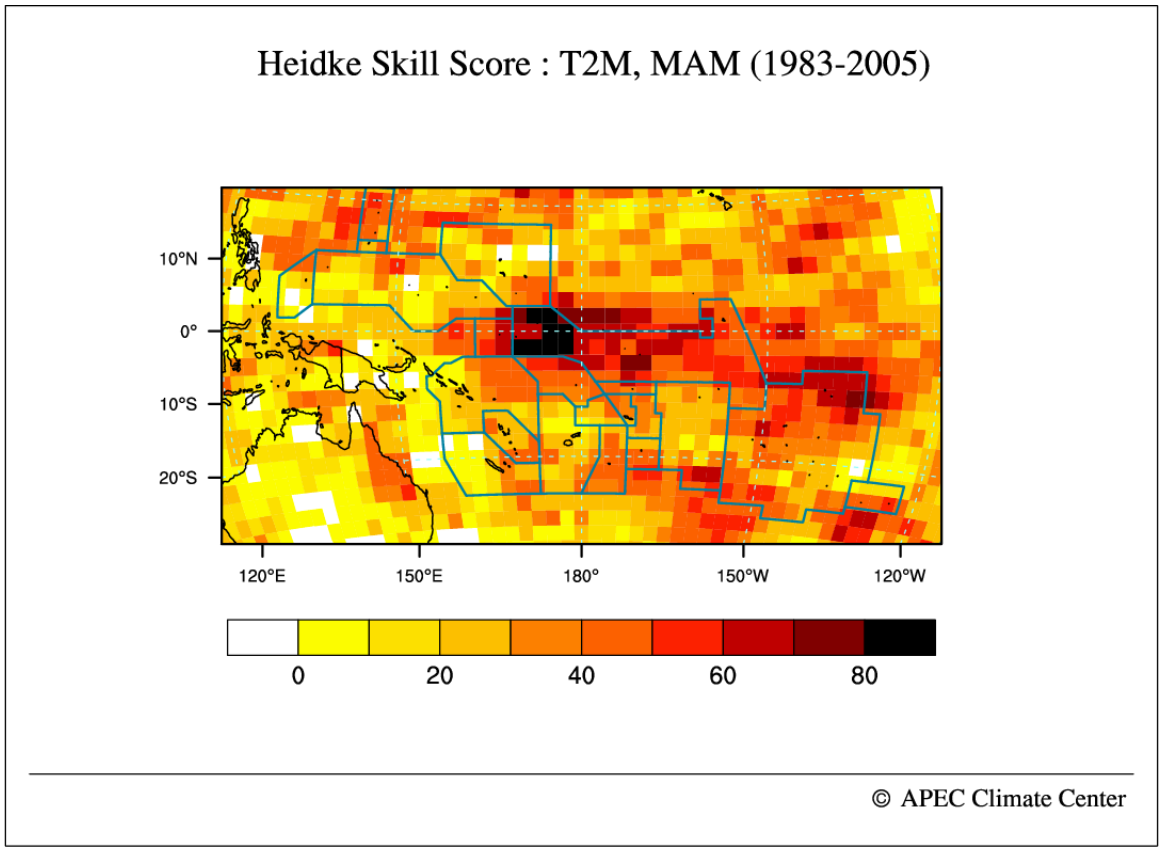


Fig. 9. Heidke Skill Score for probabilistic MME seasonal 2m temperature forecast for March – May.

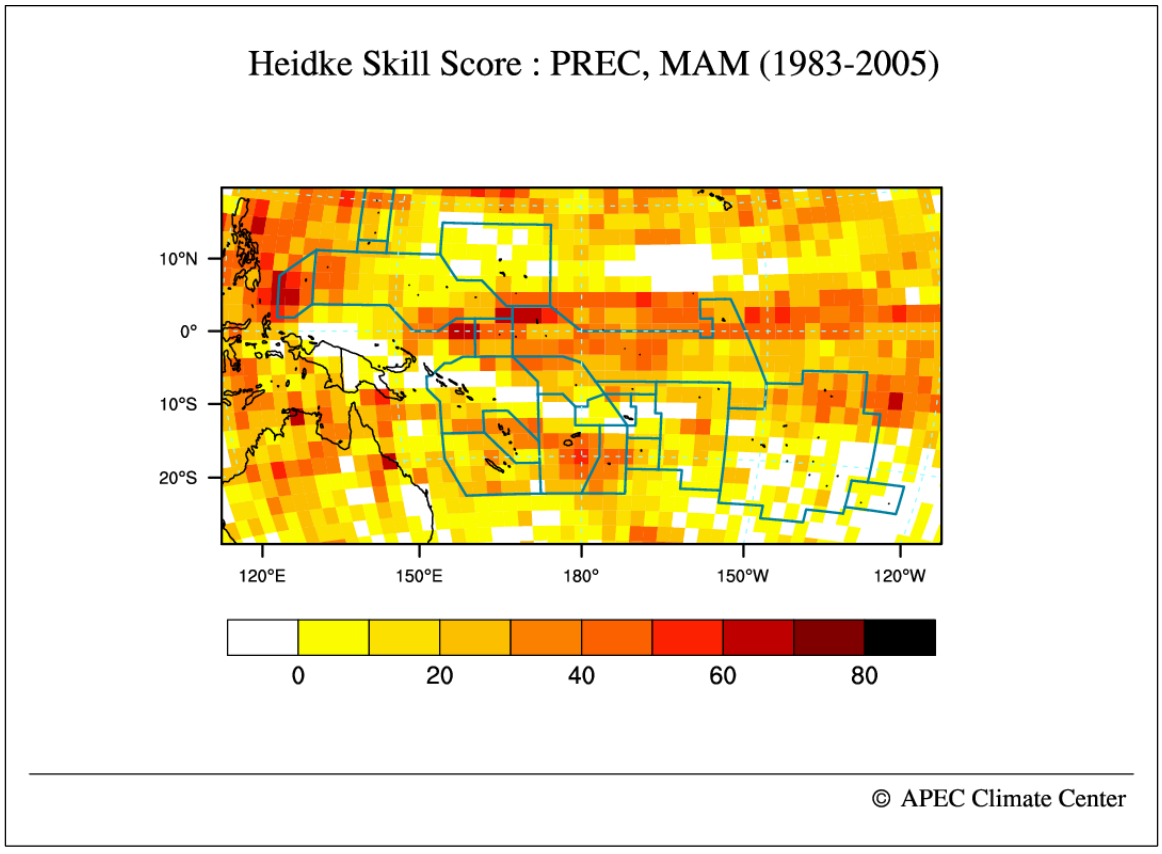


Fig. 10. Heidke Skill Score for probabilistic MME seasonal precipitation forecast for March – May.