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APCC Monthly Climate Outlook for February – July 2020

(Issued: January 20, 2020)

- ***During December 2019, weak positive Niño3.4 index was observed with weak positive sea surface temperature anomalies over the equatorial Pacific.***
- ***The latest APCC ENSO outlook suggests the probability for weak El Niño conditions (44%) during February – April 2020. The probability for neutral conditions is likely to gradually increase and become dominant (~48%) through May – July 2020.***
- ***Positive temperature anomalies are likely to prevail over most of the globe, especially over the subtropical North Pacific, subtropical North Atlantic, and the western Indian Ocean for February – July 2020.***
- ***Above normal precipitation anomalies are predicted for the western Indian Ocean and the central off-equatorial North Pacific for February – July 2020.***

Current Climate Conditions

In December 2019, weak positive equatorial sea surface temperature (SST) anomalies remained over the equatorial Pacific, while the weak negative anomalies remained over the eastern off-equatorial South Pacific. Suppressed tropical convection over Indonesia persisted, while the convection over the Date Line was intensified. Positive monthly mean temperature anomalies exceeding +5^{o}C were observed over Eastern Europe and the Chukchi Sea. Negative anomalies spanned over eastern Siberia, northern Canada, and the Arctic Archipelago. Positive monthly mean precipitation anomalies were observed over the western Indian Ocean, whereas negative anomalies spanned over the eastern Indian Ocean, maritime continent, and eastern Australia [Figs. 1, 2, and 3].

Discussion of Climate Forecast

SST and ENSO Outlook:

The prevailing ENSO phase is expected to be weak positive to neutral. Weak positive SST anomalies in the western and central equatorial Pacific are predicted during February – April 2020, and a weak cold tongue is expected to expand over the eastern equatorial Pacific during May – July 2020, which corresponds to a decreasing Niño3.4 index from 0.44^{o}C to -0.17^{o}C. In summary, based on the running 3-month mean Niño3.4 index, the APCC ENSO outlook suggests 44% chance of weak El Niño conditions which is comparable to the chance of neural conditions during February to April 2020. The chance for El Niño conditions is likely to decrease until May to July 2020, whereas the chance for neutral

conditions is expected to gradually increase and become dominant (~48%) compared to the chances of El Niño and La Niña conditions [Figs. 4 and 5].

Temperature and Precipitation Outlook:

1. **Forecast for February – April 2020**

Strongly enhanced probability for above normal temperatures is predicted for the tropical Pacific (excluding the central and eastern regions), northwestern and northeastern North Pacific, western Indian Ocean, Southeast Asia, equatorial Atlantic, subtropical North Atlantic, and the Caribbean Sea. Enhanced probability for above normal temperatures is expected for most of the globe except North Africa, India, the Middle East, North America, Greenland, and some of austral seas. Enhanced probability for near normal temperatures is predicted for the central and eastern off-equatorial South Pacific. Enhanced probability for above normal precipitation is expected for the central off-equatorial North Pacific, off-equatorial South Atlantic, and the western Indian Ocean. Enhanced probability for below normal precipitation is predicted for the central and eastern off-equatorial South Pacific, tropical North Atlantic, and southern Africa. Enhanced probability for near normal precipitation is expected for the equatorial Pacific and the Sahel [Fig. 6].

2. **Forecast for May – July 2020**

Strongly enhanced probability for above normal temperatures is predicted for the northern North Pacific, tropical North Pacific, Indian Ocean, and the maritime continent. Enhanced probability for above normal temperatures is expected for most of the globe except the eastern South Pacific, and some austral seas. Enhanced probability for above normal precipitation is predicted for the central and eastern off-equatorial North Pacific and some areas of western Indian Ocean. Enhanced probability for below normal precipitation is expected for the central and eastern equatorial Pacific. Enhanced probability for near normal precipitation is predicted for the eastern equatorial Pacific [Fig. 7].

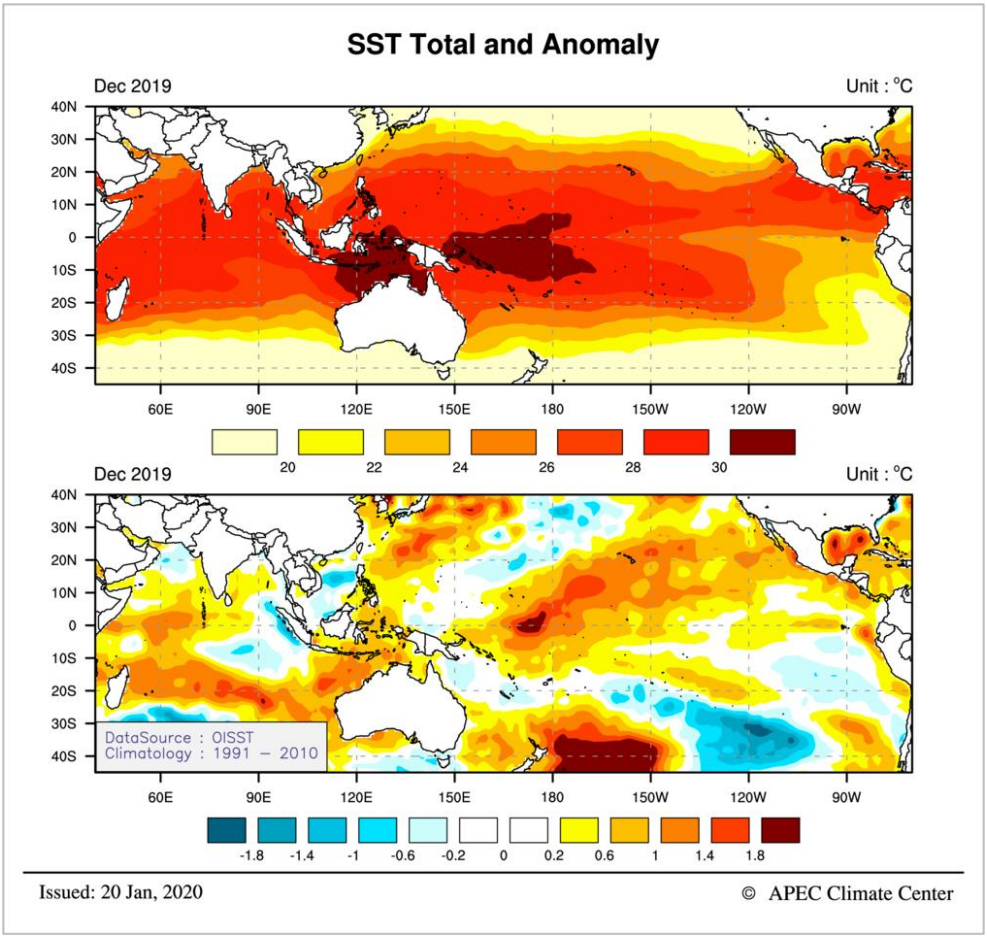

Fig. 1. Monthly mean observed sea surface temperatures (SSTs; top) and anomalies (bottom) for December 2019.

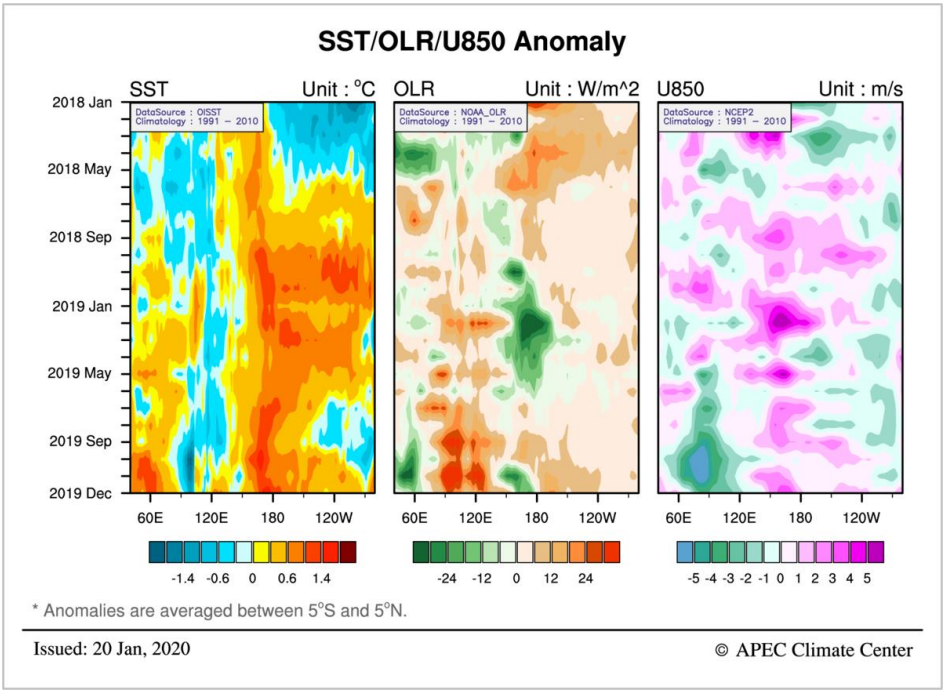

Fig. 2. Time-longitude cross section of the observed monthly mean SST anomalies, outgoing longwave radiation (OLR) anomalies, and zonal wind anomalies at 850hPa (U850) along the equator (5°S-5°N) in the Indian and Pacific Oceans (40°E-80°W) for January 2018 – December 2019.

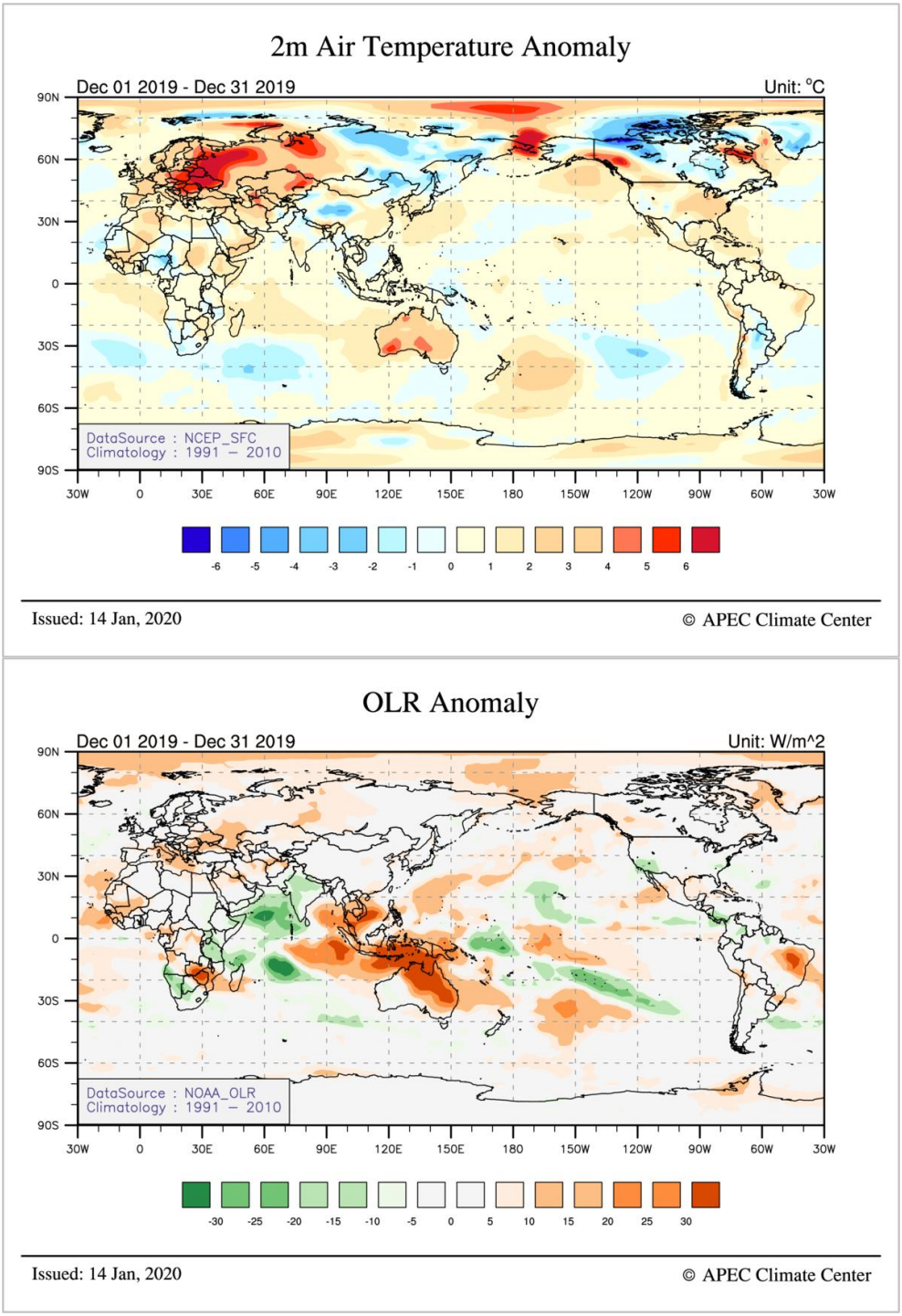

Fig. 3. Monthly mean anomalies of the observed surface air temperature (top) and OLR (bottom) for December 2019.

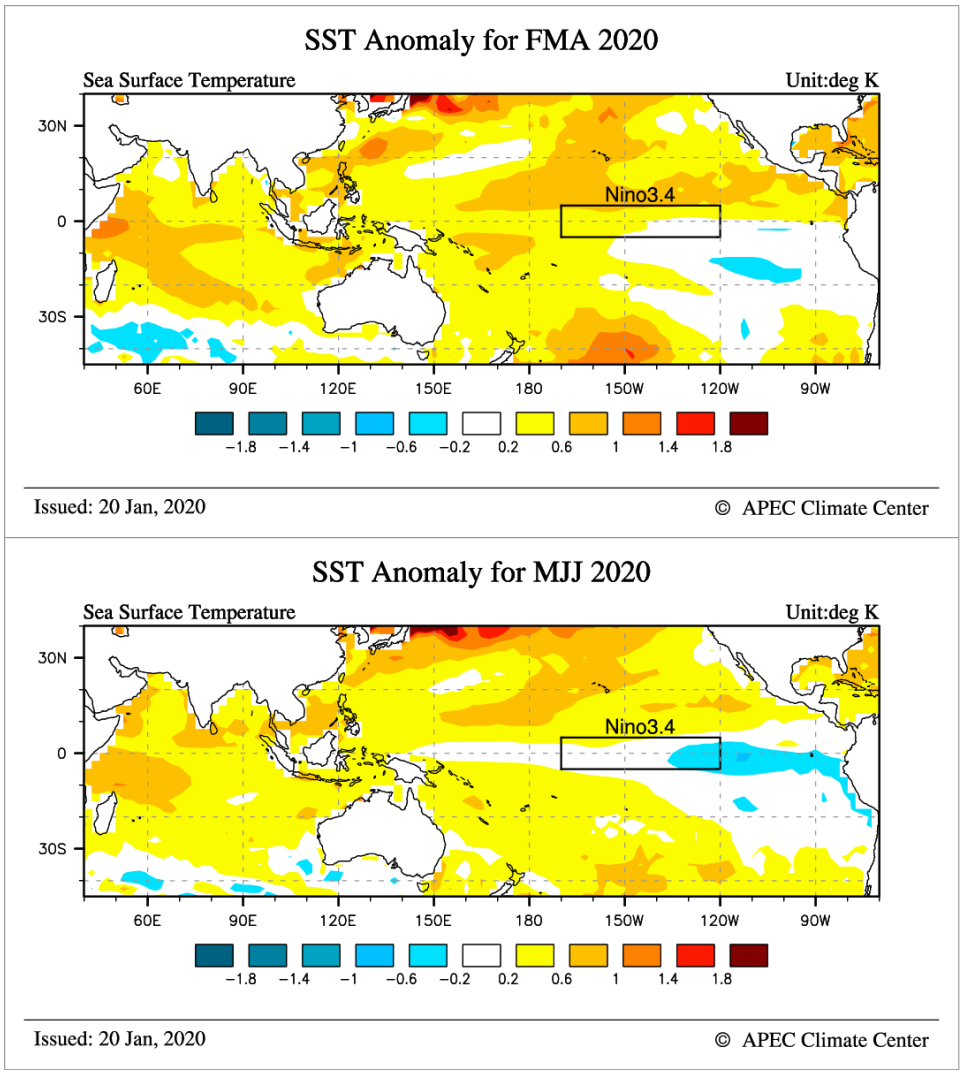

Fig. 4. Multi-model ensemble (MME) forecasts of SST anomalies for February – April 2020 (top) and May – July 2020 (bottom). Anomalies are computed with respect to the common base period of participating models in the APCC MME prediction (1991-2010).

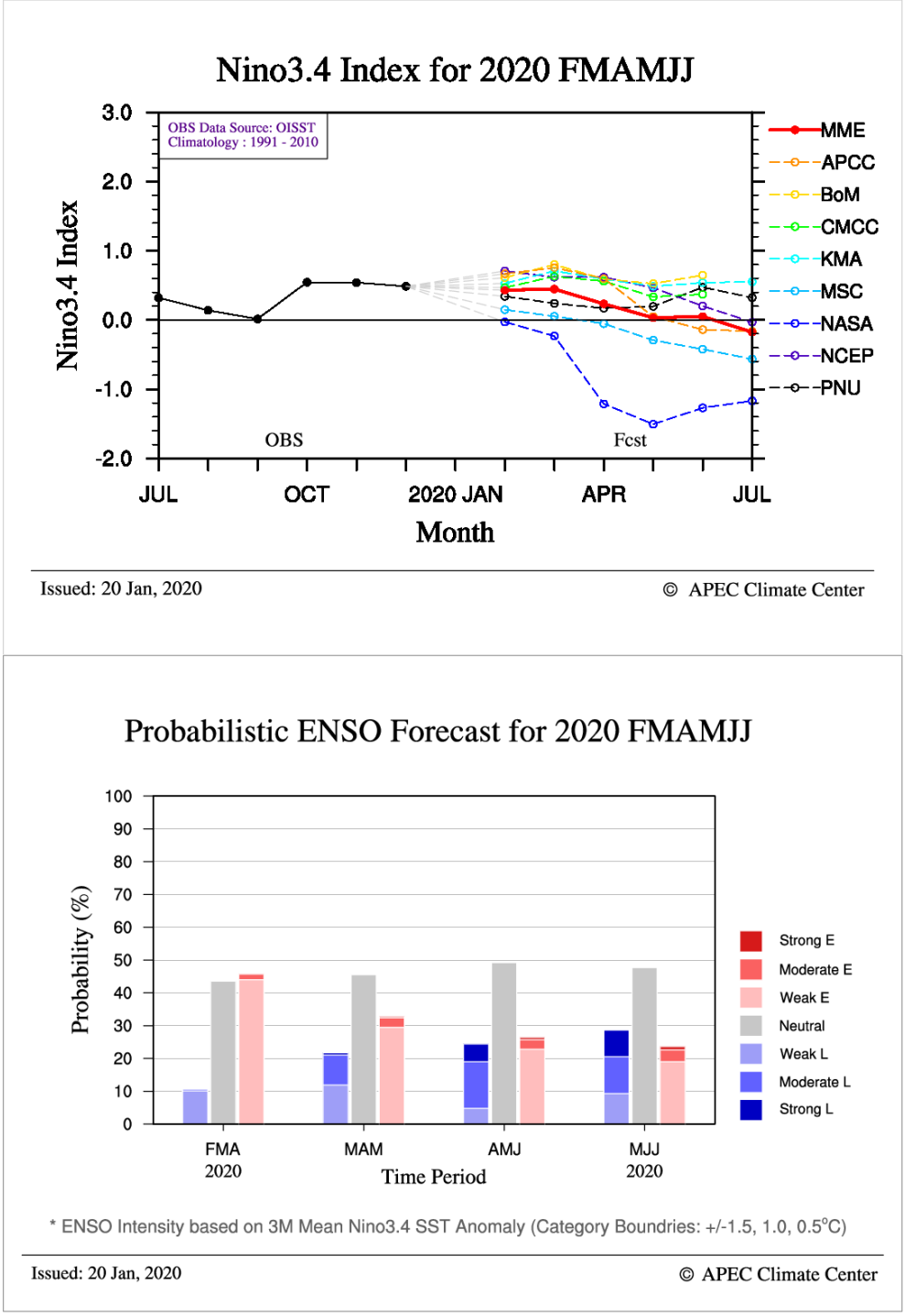

Fig. 5. Predicted monthly mean Niño3.4 index from individual models and the MME for February – July 2020 (top). Probabilistic MME forecasts of the status and intensity based on 3-month mean Niño3.4 index for four overlapping 3-month mean periods (bottom). Anomalies are computed with respect to the common base period of participating models in the APCC MME prediction (1991-2010).

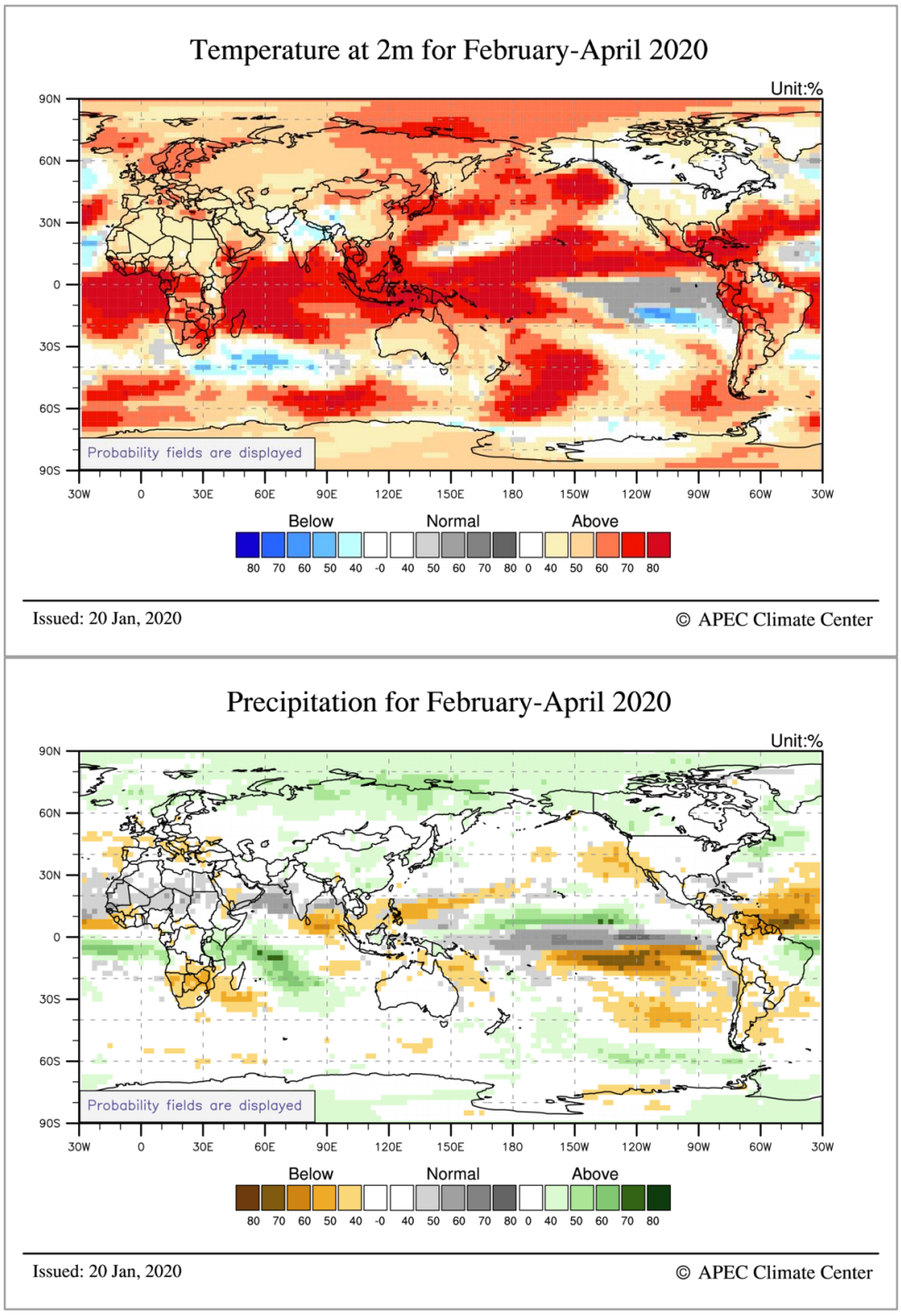

Fig. 6. Probabilistic MME forecasts of 2m temperature (top) and precipitation (bottom) for February – April 2020. Normal conditions are computed with respect to the common base period of participating models in the APCC MME prediction (1991-2010).

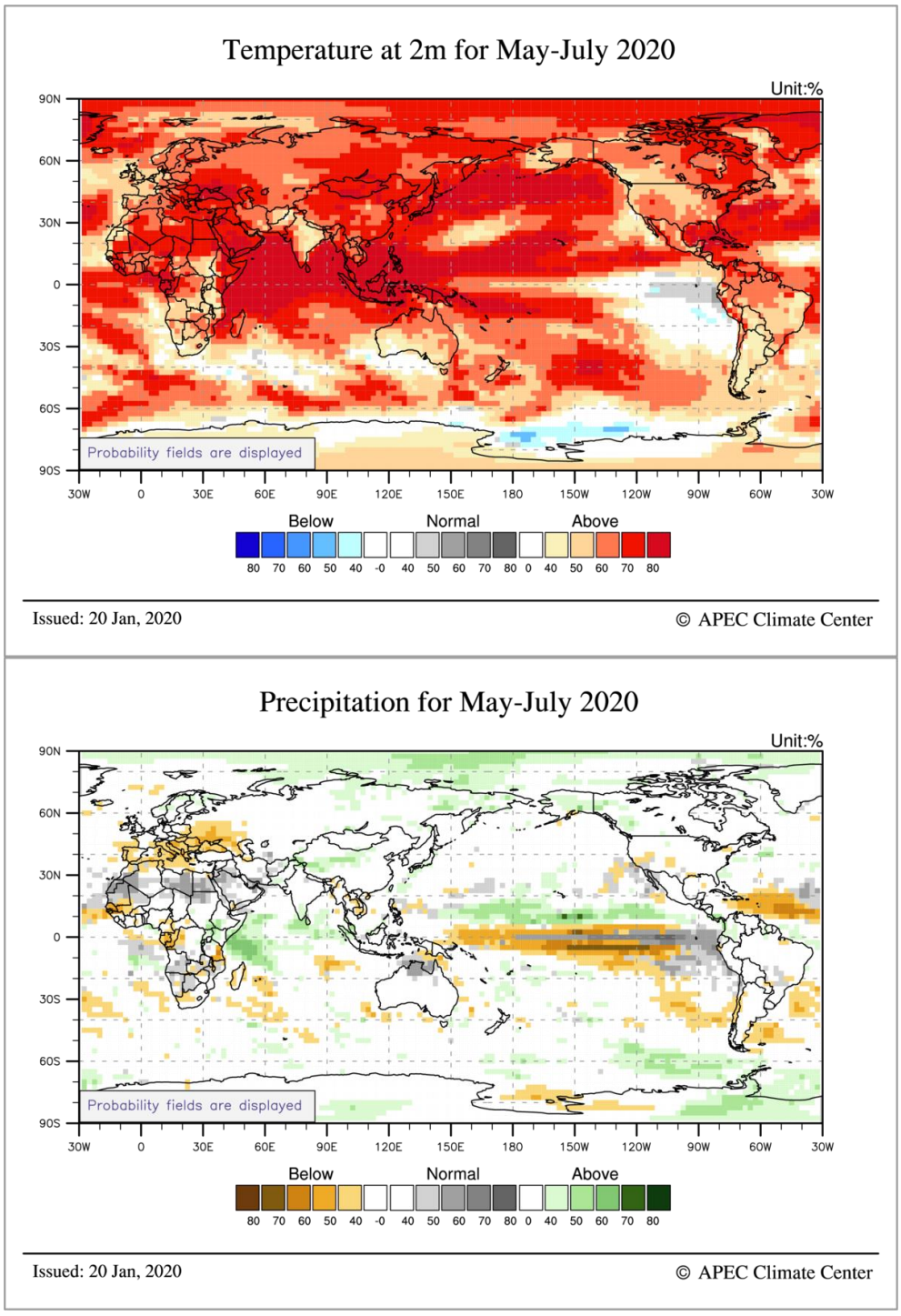

Fig. 7. Probabilistic MME forecasts of 2m temperature (top) and precipitation (bottom) for May – July 2020. Normal conditions are computed with respect to the common base period of participating models in the APCC MME prediction (1991-2010).

* 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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Acknowledgements

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. The APCC climate forecasts are based on model simulations from 14 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. APCC collects seasonal forecasts from 14 institutes in the APEC region: the Australian Bureau of Meteorology (BoM), Meteorological Service of Canada (MSC), Beijing Climate Center China (BCC), Japan Meteorological Agency Japan (JMA), APEC Climate Center Korea (APCC), Korea Meteorological Administration (KMA), Pusan National University Korea (PNU), Met Office United Kingdom (UKMO), Euro-Mediterranean Center on Climate Change Italy (CMCC), Hydrometeorological Research Center of Russia (HMC), Voeikov Main Geophysical Observatory of Russia (MGO), Central Weather Bureau Chinese Taipei (CWB), National Aeronautics and Space Administration USA (NASA), and the National Centers for Environmental Prediction USA (NCEP).