

APCC Monthly Climate Outlook for November 2020 – April 2021

(Issued: Oct 20, 2020)

- *During September 2020, negative sea surface temperature anomalies were observed over the central and eastern equatorial Pacific.*
- *The latest APCC ENSO outlook suggests a 97% probability of La Niña with strong intensity during November 2020 – January 2021 and a 79% probability for the same conditions during February – April 2021.*
- *Strongly enhanced probability for above normal temperatures is predicted for the western tropical Pacific (excluding equatorial regions), northern North Pacific, and the subtropical North Atlantic, whereas strongly enhanced probability for below normal temperatures is expected for the central equatorial Pacific for November 2020 – April 2021.*
- *Enhanced probability for above normal precipitation is predicted for the western tropical Pacific (excluding equatorial region), whereas enhanced probability for below normal precipitation is expected for the eastern subtropical South Pacific and the northeastern subtropical Pacific for November 2020 – April 2021.*

Current Climate Conditions

In September 2020, negative equatorial sea surface temperature (SST) anomalies were observed over the central and eastern equatorial Pacific. Suppressed tropical convection persisted along the western and central equatorial Pacific and wind anomalies at 850hPa were easterly along the equatorial Pacific, which is consistent with La Niña conditions. Positive monthly mean temperature anomalies exceeding 4°C were observed over the eastern Arctic and Antarctic, and central Russia, whereas negative anomalies spanned over Central Asia, China, Greenland, North America, the eastern tropical Pacific, and the western Antarctic. Positive monthly mean precipitation anomalies were observed over the Arabian Sea, western Bay of Bengal, some regions of Indonesia, and southern China. Negative anomalies spanned over eastern Russia, eastern Europe, the South China and Philippine Seas, western tropical Pacific, off-equatorial North Pacific, western USA, southern Brazil, and the subtropical North Atlantic [Figs. 1, 2, and 3].

Discussion of Climate Forecast

SST and ENSO Outlook:

The prevailing ENSO phase is expected to be negative. Negative SST anomalies along the equatorial Pacific are predicted during November 2020 – April 2021. Along with these spatial distributions, all of ten dynamical coupled models predict negative Niño3.4 index for the whole forecast period. As a result,

a Niño3.4 index from multi-model ensemble is expected to be around -1.5°C and gradually increase to -0.6°C . In summary, based on the running 3-month mean Niño3.4 index, the APCC ENSO outlook suggests La Niña conditions (~97% probability) with strong intensity for November 2020 to January 2021 and the probability for the conditions is likely to decrease to 79% for February to April 2021 [Figs. 4 and 5].

Temperature and Precipitation Outlook:

1. Forecast for November 2020 – January 2021

Strongly enhanced probability for above normal temperatures is predicted for the Arctic, Pacific (excluding central and eastern tropical region and southern South Pacific), western and eastern Indian Ocean, Caribbean Sea, and the tropical and subtropical North Atlantic. Enhanced probability for above normal temperatures is expected for Russia, East Asia (excluding southeastern China), USA, eastern Canada, Argentina, and the subtropical South Atlantic. A tendency for above normal temperatures is predicted for Europe (excluding Northern Europe), Central Asia, the Middle East, southern Africa, central Canada, eastern Brazil, and the Antarctic. Strongly enhanced probability for below normal temperatures is expected for the central and eastern tropical Pacific. A tendency for near normal temperatures is predicted for northern South America. Enhanced probability for above normal precipitation is expected for the Arctic, northern North Pacific, the western subtropical South Pacific, central Russia, eastern Australia, the Philippine and South China Seas, eastern Indian Ocean, Caribbean Sea, northern South America, and the Antarctic Ocean. A tendency for above normal precipitation is predicted for western Australia, northern Russia, Northern Europe, and Canada. Strongly enhanced probability for below normal precipitation is expected for the western and central equatorial Pacific. Enhanced probability for below normal precipitation is predicted for the eastern subtropical South Pacific, northeastern Pacific near USA, Mexico, the southern Indian Ocean, western Indian Ocean near Somalia, Middle East, and the western and southeastern China. A tendency for below normal precipitation is expected for the subtropical North Atlantic and southern South America. Enhanced probability for near normal precipitation is predicted for the eastern equatorial Pacific and the Sahel [Fig. 6].

2. Forecast for February – April 2021

Strongly enhanced probability for above normal temperatures is predicted for western tropical Pacific (excluding equatorial region), northern North Pacific, subtropical North Atlantic, Mexico, and the Gulf of Mexico. Enhanced probability for above normal temperatures is expected for the Arctic, Eurasia (excluding India and the Indochinese Peninsula), the Bay of Bengal, Arabian Sea, subtropical South Atlantic, and USA (excluding northwestern region). A tendency for above normal temperatures is predicted for the tropical Atlantic and Canada. Strongly enhanced probability for below normal temperatures is expected for the western and central equatorial Pacific. Enhanced probability for below normal temperatures is predicted for the eastern tropical Pacific and northern South America. A

tendency for near normal temperatures is expected for the western Indian Ocean near Madagascar and central South America. Enhanced probability for above normal precipitation is predicted for western tropical Pacific (excluding equatorial region) and northern Brazil. A tendency for above normal precipitation is expected for the Arctic, eastern Russia, and southern Canada. Strongly enhanced probability for below normal precipitation is predicted for the western and central equatorial Pacific. Enhanced probability for below normal precipitation is expected for the eastern off-equatorial South Pacific, eastern subtropical South Pacific, northeastern Pacific near USA, northern Middle East, and Central Asia (excluding Kazakhstan). A tendency for below normal precipitation is predicted for the Mediterranean Sea, and the subtropical North Atlantic [Fig. 7].

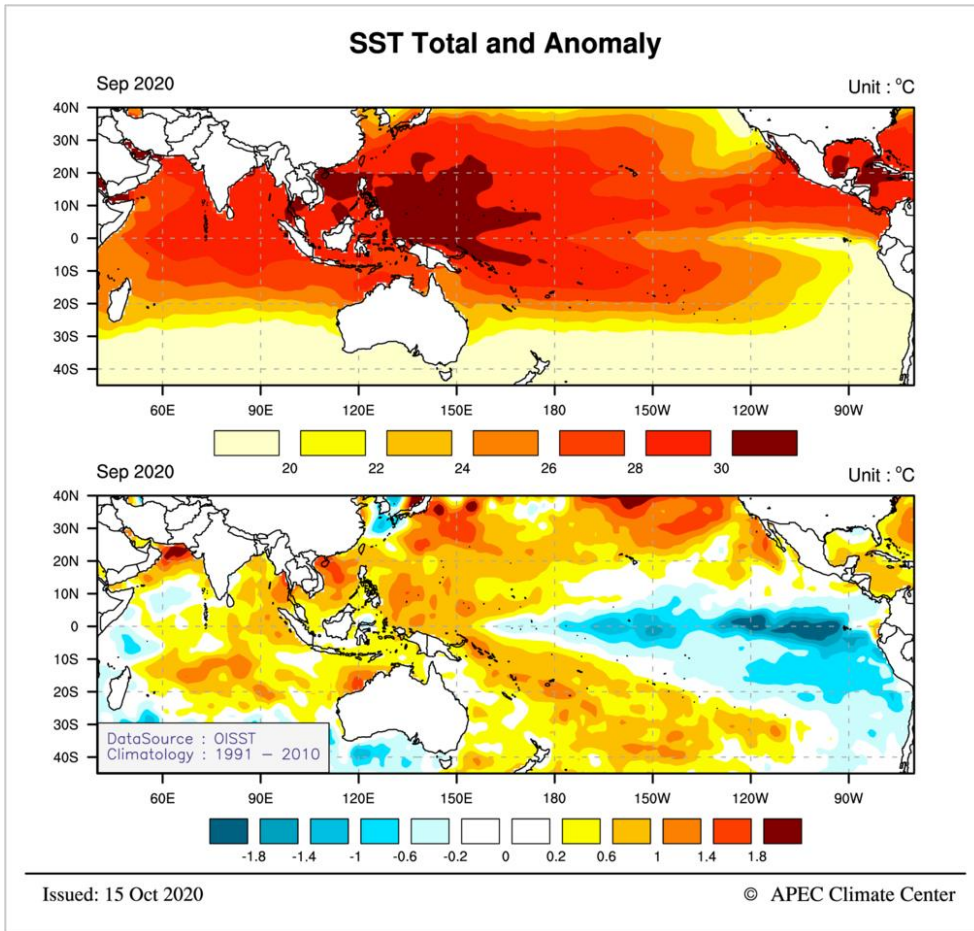


Fig. 1. Monthly mean observed sea surface temperatures (SSTs; top) and anomalies (bottom) for September 2020.

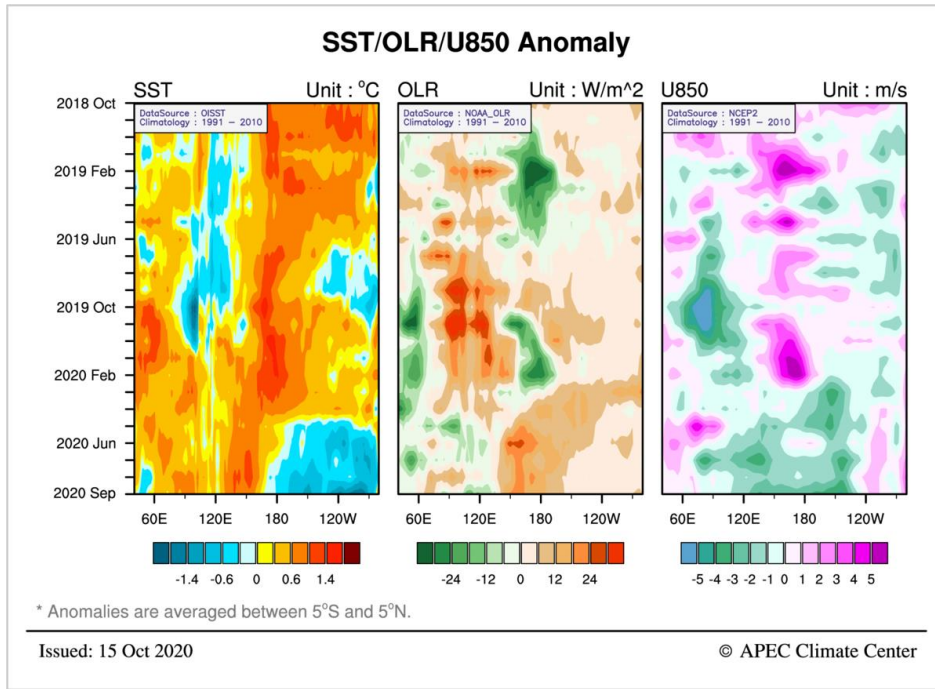


Fig. 2. Time-longitude cross section of the observed monthly mean SST anomalies, outgoing longwave radiation (OLR) anomalies, and zonal wind anomalies at 850hPa (U850) along the equator (5°S-5°N) in the Indian and Pacific Oceans (40°E-80°W) for October 2018 – September 2020.

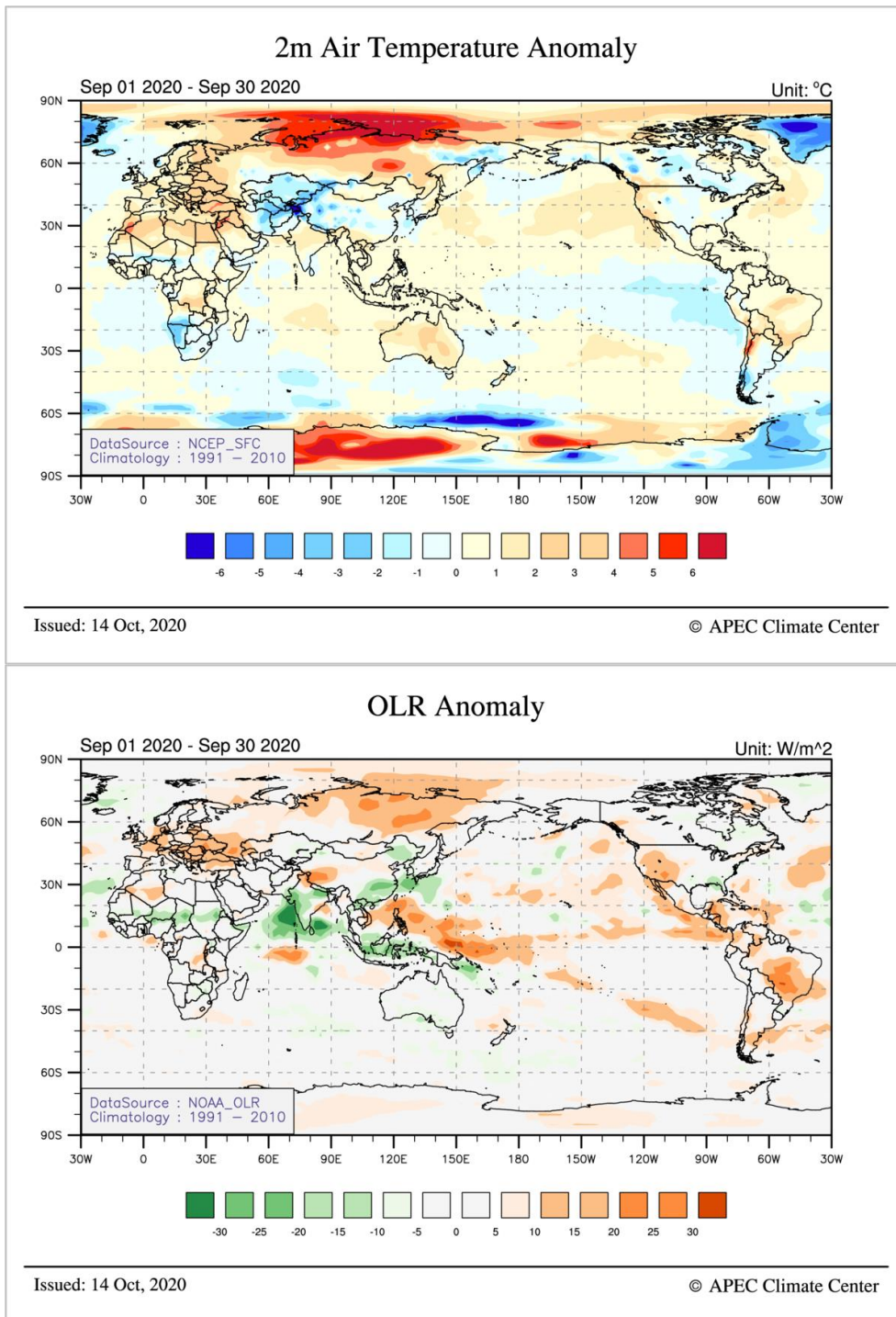


Fig. 3. Monthly mean anomalies of the observed 2m air temperature (top) and OLR (bottom) for September 2020.

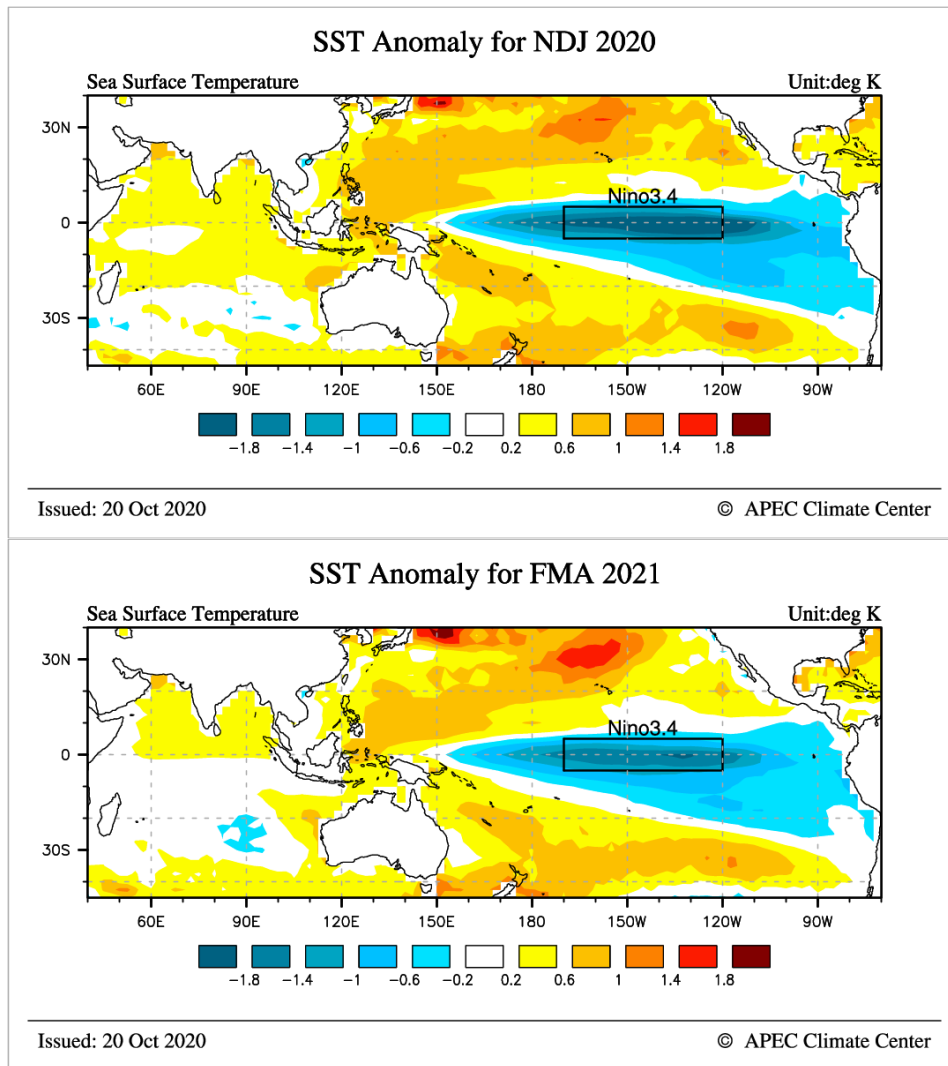


Fig. 4. Multi-model ensemble (MME) forecasts of SST anomalies for November 2020 – January 2021 (top) and February – April 2021 (bottom). Anomalies are computed with respect to the common base period of participating models in the APCC MME prediction (1991-2010).

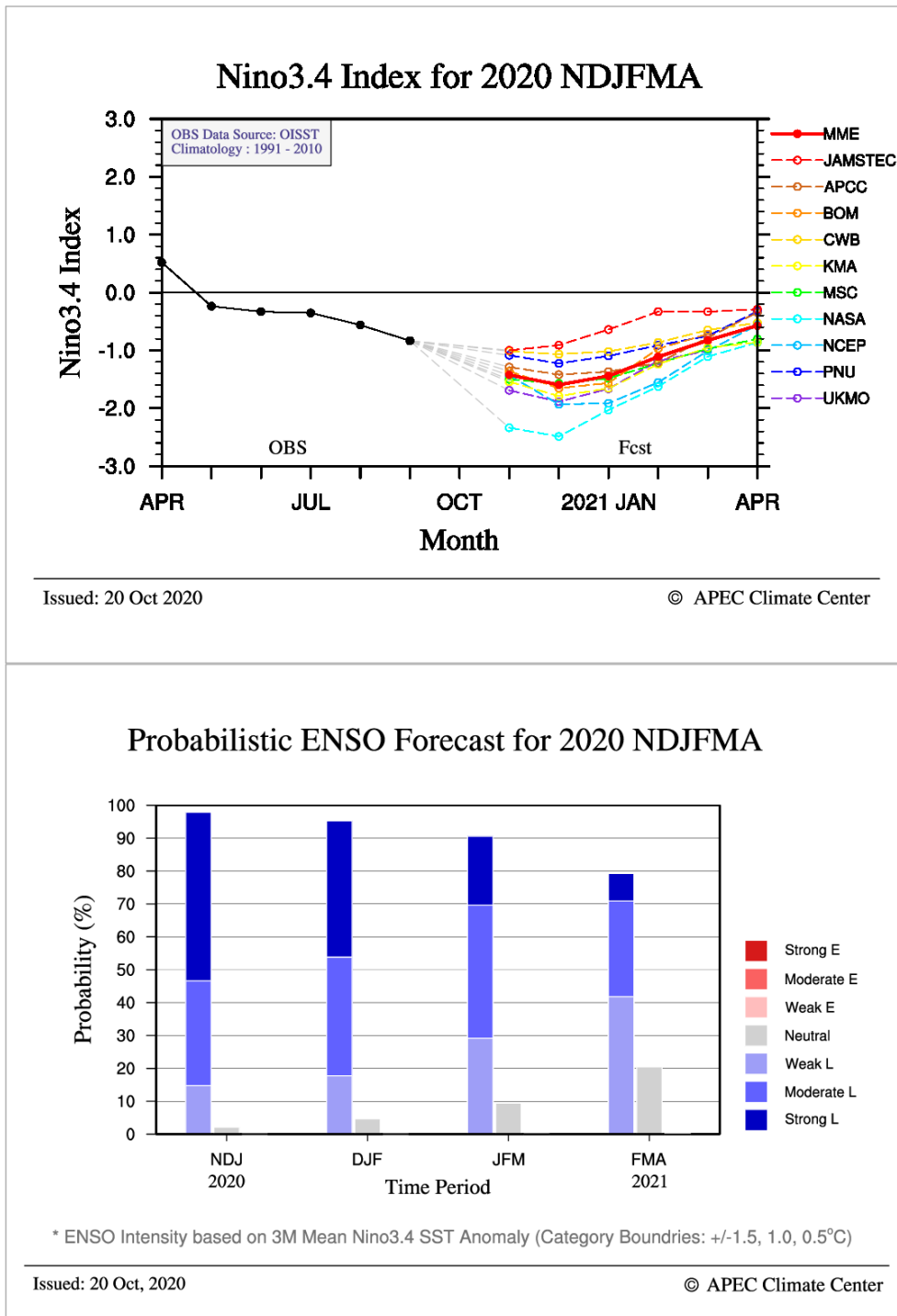


Fig. 5. Predicted monthly mean Niño3.4 index from individual models and the MME for November 2020 – April 2021 (top). Probabilistic MME forecasts of the status and intensity based on 3-month mean Niño3.4 index for four overlapping 3-month mean periods (bottom). Anomalies are computed with respect to the common base period of participating models in the APCC MME prediction (1991-2010).

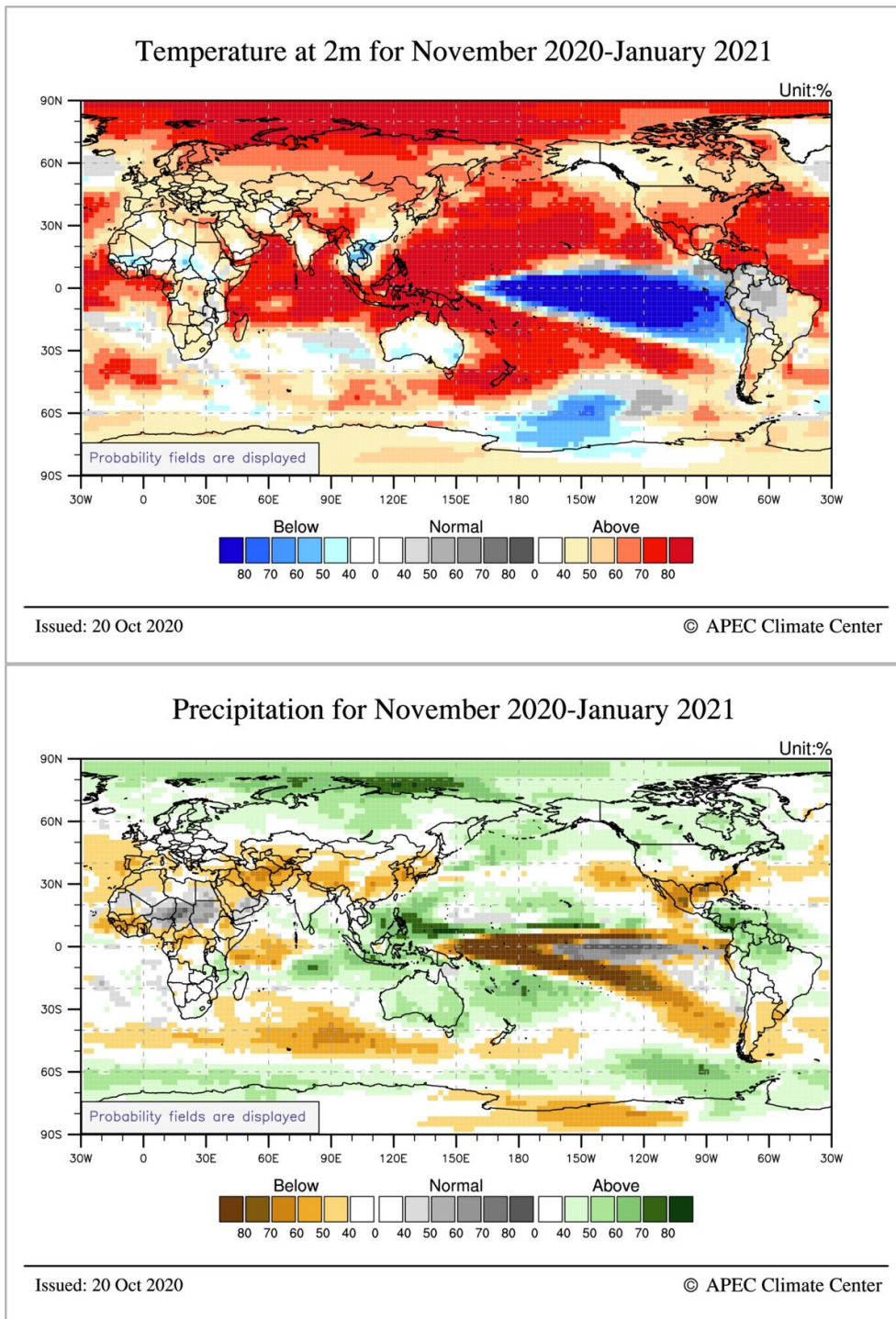


Fig. 6. Probabilistic MME forecasts of 2m temperature (top) and precipitation (bottom) for November 2020 – January 2021. Normal conditions are computed with respect to the common base period of participating models in the APCC MME prediction (1991-2010).

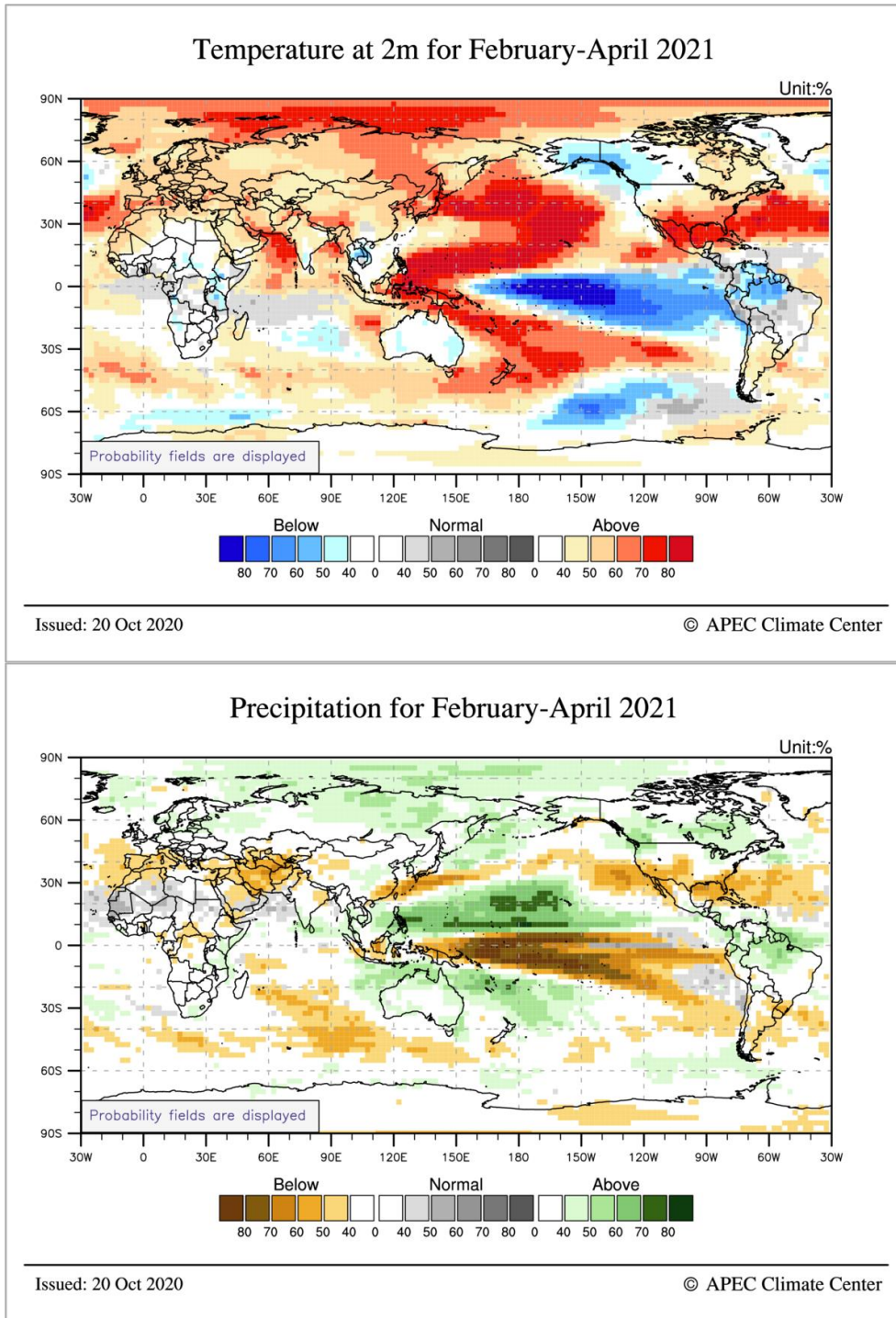


Fig. 7. Probabilistic MME forecasts of 2m temperature (top) and precipitation (bottom) for February – April 2021. Normal conditions are computed with respect to the common base period of participating models in the APCC MME prediction (1991-2010).

* 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.

If you would like to subscribe to our Climate Outlook or have any questions, please e-mail mme@apcc21.org.

Disclaimer

The APCC seasonal forecast is produced through a multi-model ensemble method, utilizing climate models from 14 climate forecasting centers and institutions in 10 countries around the world. Our forecast information should be used for reference only. Please consult the respective country's national meteorological service for the official seasonal forecast for that county.

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).