

## APCC Monthly Climate Outlook for July – December 2020

(Issued: June 19, 2020)

- ***During May 2020, weak negative sea surface temperature anomalies were observed over the central and eastern equatorial Pacific.***
- ***The latest APCC ENSO outlook suggests 53% probability for ENSO neutral conditions during July – September 2020 and 52% probability for La Niña conditions with a weak level during October – December 2020.***
- ***Strongly enhanced probability for above normal temperatures is predicted for the western North Pacific (excluding equatorial regions), tropical Atlantic, subtropical South Atlantic, and the eastern Indian Ocean for July – December 2020.***
- ***Strongly enhanced probability for below normal precipitation is predicted for the western equatorial Pacific for July – September 2020, and enhanced probability for below normal precipitation is expected for the same region for October – December 2020.***

### Current Climate Conditions

In May 2020, weak negative equatorial sea surface temperature (SST) anomalies were observed over the central and eastern equatorial Pacific. Suppressed tropical convection and easterly wind anomalies persisted along the central Pacific. Positive monthly mean temperature anomalies were observed over the Arctic, Antarctic, and central Russia, whereas negative anomalies spanned over Eurasia (excluding central Russia, Kazakhstan, India, eastern China, and Western Europe), Canada, eastern USA, and Australia. Positive monthly mean precipitation anomalies were observed over the eastern Indian Ocean and northern Australia. Negative anomalies spanned over the western and central tropical Pacific, South China and Philippine Seas, equatorial Atlantic, central Russia, and northern Central Asia [Figs. 1, 2, and 3].

### Discussion of Climate Forecast

#### ***SST and ENSO Outlook:***

The prevailing ENSO phase is expected to be neutral to negative. Negative SST anomalies along the equatorial Pacific are predicted during July – September 2020, and these anomalies are expected to strengthen during October – December 2020. Along with these spatial distributions, nine out of ten dynamical coupled models predict negative Niño3.4 index for the whole forecast period. As a result, a decreasing Niño3.4 index from  $-0.4^{\circ}\text{C}$  to  $-0.6^{\circ}\text{C}$  is predicted. In summary, based on the running 3-month mean Niño3.4 index, the APCC ENSO outlook suggests about 53% chance of ENSO neutral conditions is dominant during July to September 2020. The chance for the conditions is likely to

gradually decrease until October to December 2020, whereas the chance for the La Niña conditions is likely to increase (~52%). Its intensity is expected to be weak [Figs. 4 and 5].

### ***Temperature and Precipitation Outlook:***

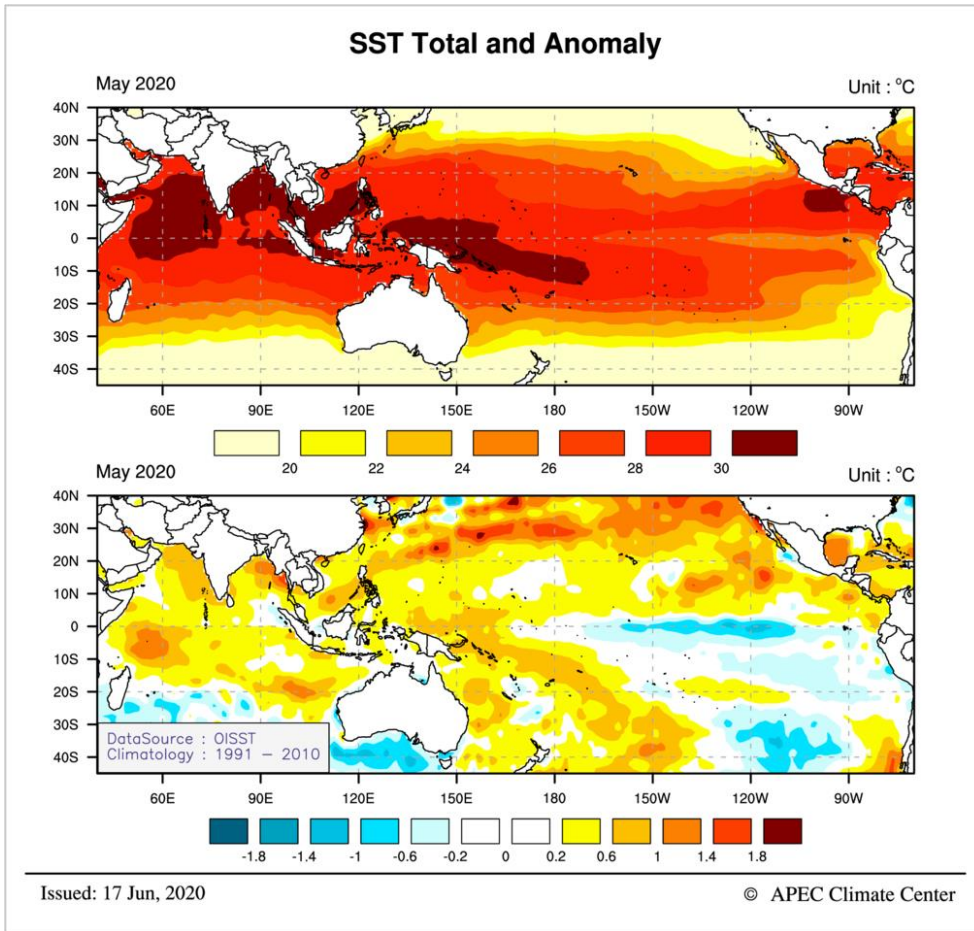
#### **1. Forecast for July – September 2020**

Strongly enhanced probability for above normal temperatures is predicted for the Pacific (excluding equatorial regions and eastern South Pacific), eastern and western Indian Ocean, tropical and subtropical Atlantic. Enhanced probability for above normal temperatures is expected for Asia (excluding India), North America (excluding central Canada and USA), Central America, North and Central Africa, northern Australia, and the Arctic. A tendency for above normal temperatures is predicted for Europe, southern Africa, South America, and the Antarctic. Enhanced probability for below normal temperatures is expected for the eastern equatorial Pacific, eastern tropical South Pacific, Great Australian Bight, and the southern Indian Ocean near Madagascar. Enhanced probability for above normal precipitation is predicted for the eastern off-equatorial North Pacific, western Indian Ocean near Madagascar, Indonesia, northern India, and eastern Africa. A tendency for above normal precipitation is expected for southern Australia, the southern South Pacific, central Russia, and the western Arctic. Strongly enhanced probability for below normal precipitation is predicted for the western equatorial Pacific. Enhanced probability for below normal precipitation is expected for the Philippine Sea and the equatorial Atlantic. A tendency for below normal precipitation is predicted for the eastern subtropical South Pacific, southern Brazil, the southern Indian Ocean near Madagascar and southern Australia, southwestern Africa, and the Mediterranean Sea. Enhanced probability for near normal precipitation is expected for the eastern equatorial Pacific and northern North Africa [Fig. 6].

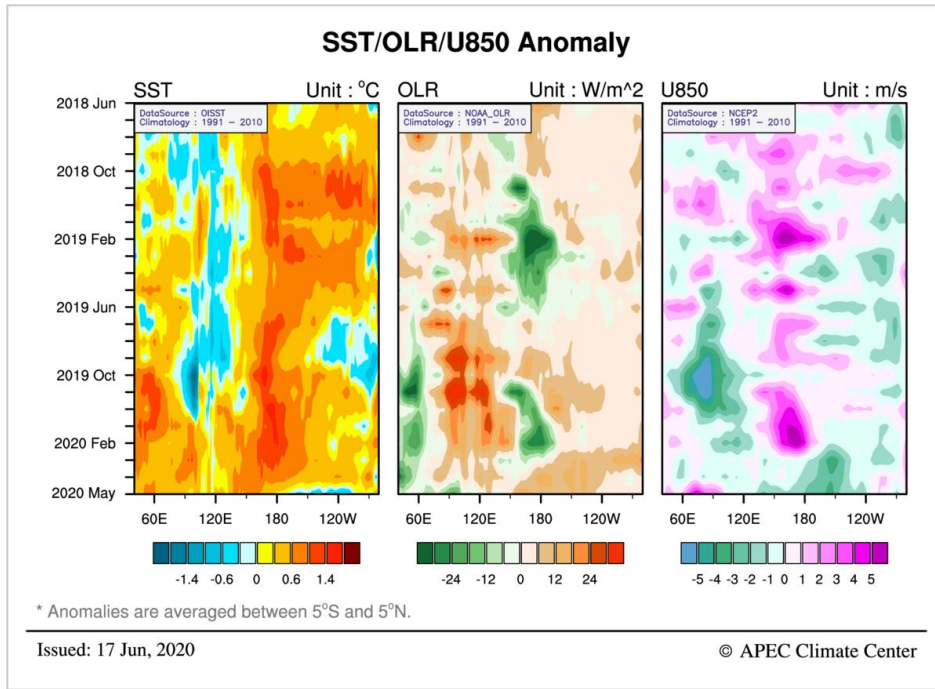
#### **2. Forecast for October – December 2020**

Strongly enhanced probability for above normal temperatures is predicted for the Arctic, western tropical Pacific (excluding equatorial regions), western subtropical North Pacific, seas between Indonesia and Australia, eastern Indian Ocean, tropical Atlantic, and the subtropical South Atlantic. Enhanced probability for above normal temperatures is expected for the eastern Pacific (excluding equatorial regions), Eurasia (excluding Central Asia and India), America (excluding western Canada and northern South America), and the subtropical North Atlantic. Enhanced probability for below normal temperatures is predicted for the central equatorial Pacific and the eastern tropical South Pacific. Enhanced probability for near normal temperatures is expected for the central and eastern off-equatorial North Pacific. Enhanced probability for above normal precipitation is predicted for the Arctic, South China Sea, Philippine Sea, and the Coral Sea. Enhanced probability for below normal precipitation is expected for the western equatorial Pacific and the eastern subtropical South Pacific. A tendency for below normal precipitation is predicted for the southern Indian Ocean, Mediterranean Sea, southern Central Asia, and southern West Africa. Enhanced probability for near normal

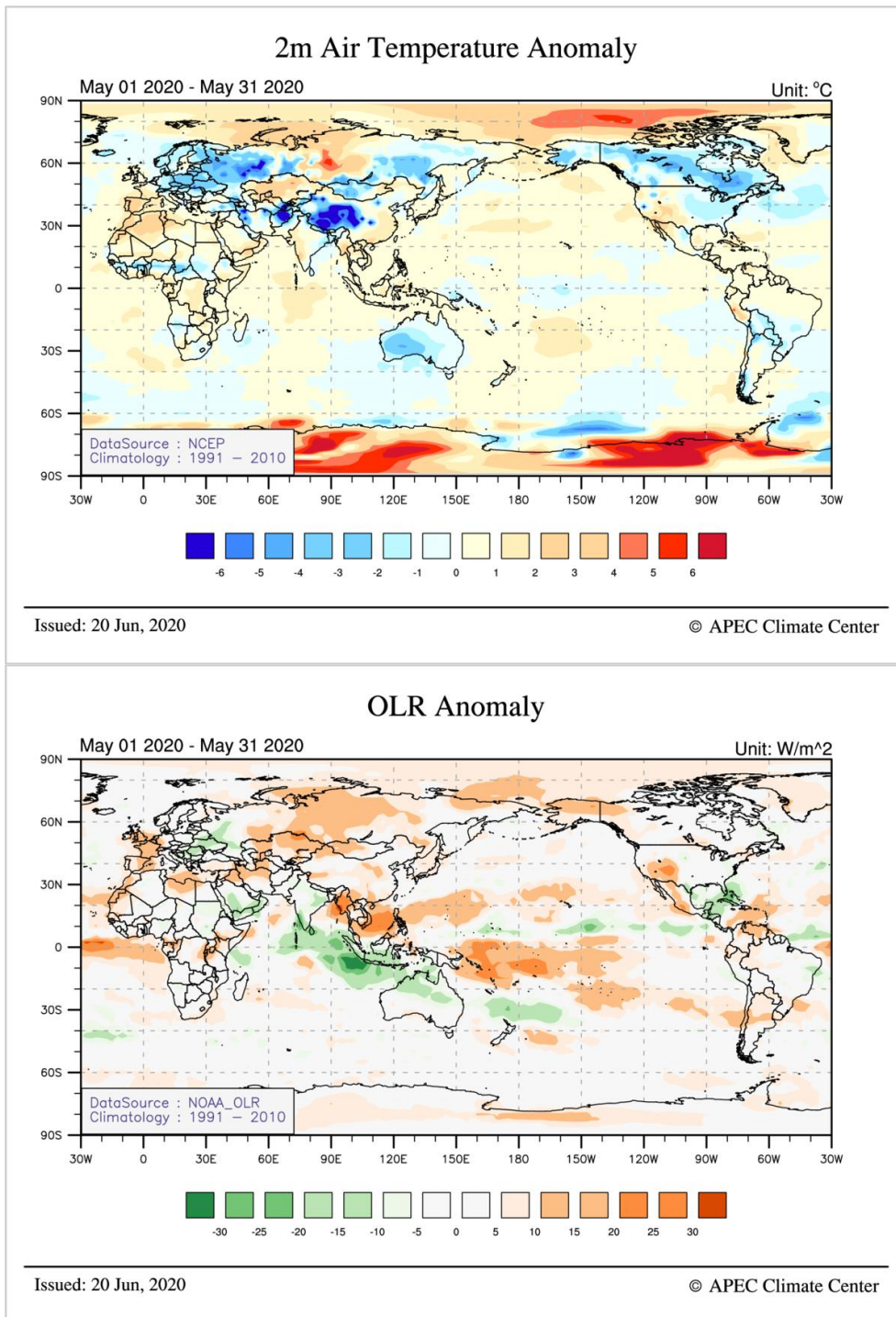
precipitation is expected for the eastern equatorial Pacific. A tendency for near normal precipitation is predicted for North Africa [Fig. 7].



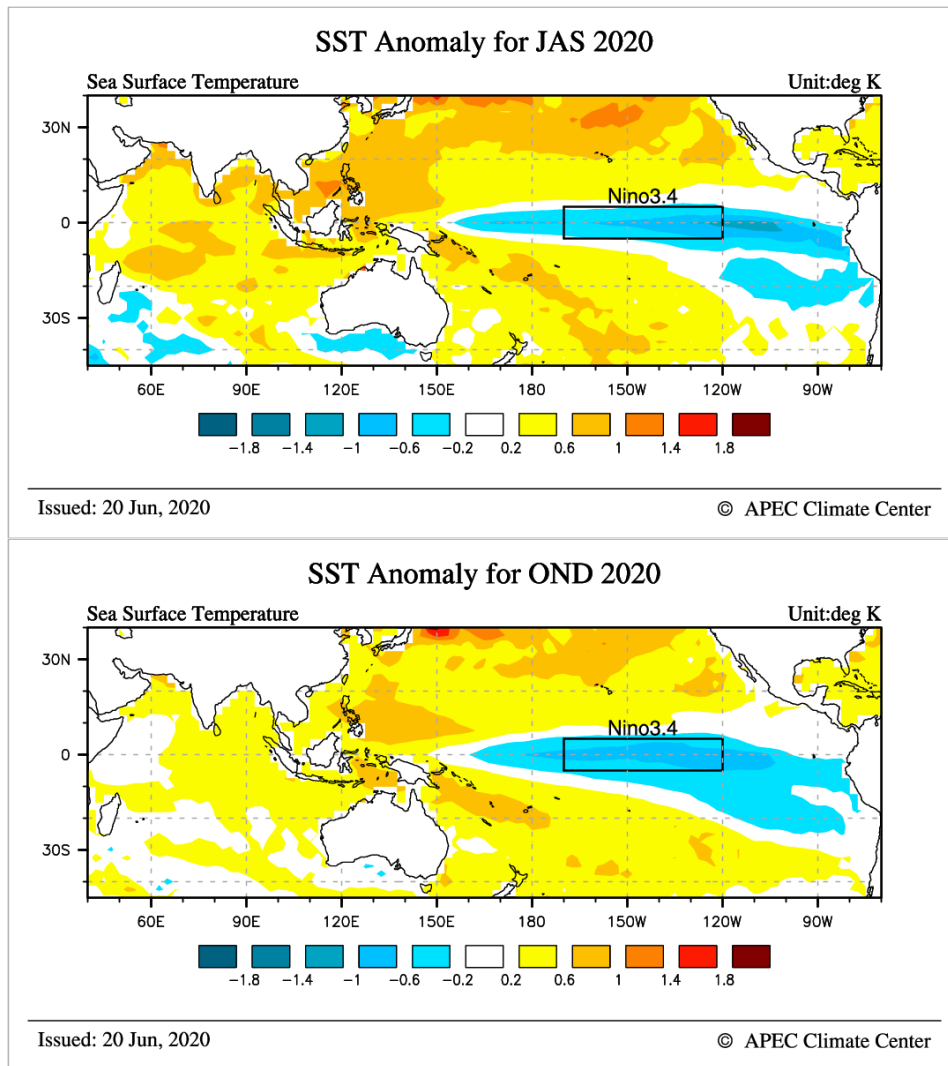
**Fig. 1.** Monthly mean observed sea surface temperatures (SSTs; top) and anomalies (bottom) for May 2020.



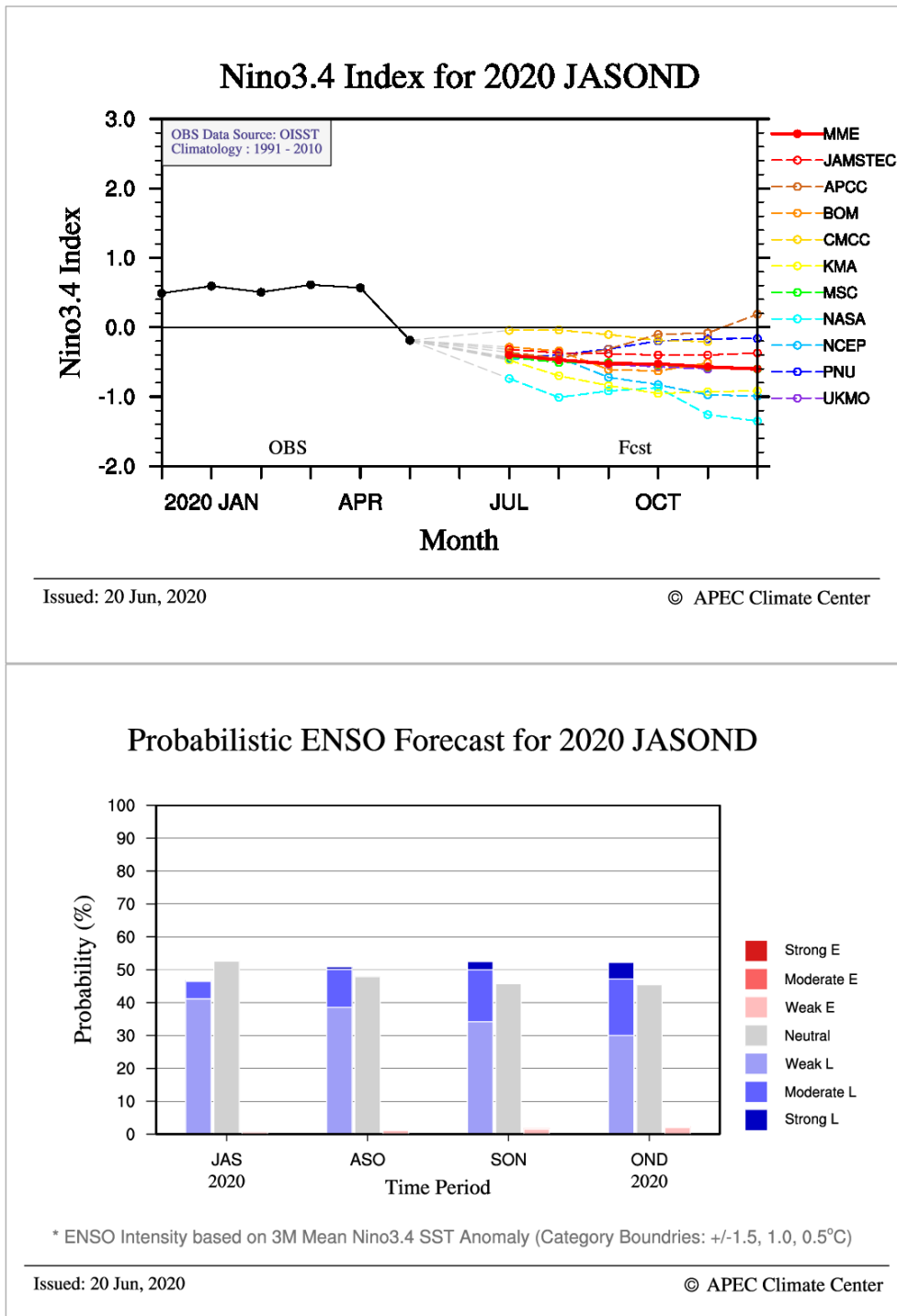
**Fig. 2.** Time-longitude cross section of the observed monthly mean SST anomalies, outgoing longwave radiation (OLR) anomalies, and zonal wind anomalies at 850hPa (U850) along the equator ( $5^{\circ}\text{S}$ - $5^{\circ}\text{N}$ ) in the Indian and Pacific Oceans ( $40^{\circ}\text{E}$ - $80^{\circ}\text{W}$ ) for June 2018 – May 2020.



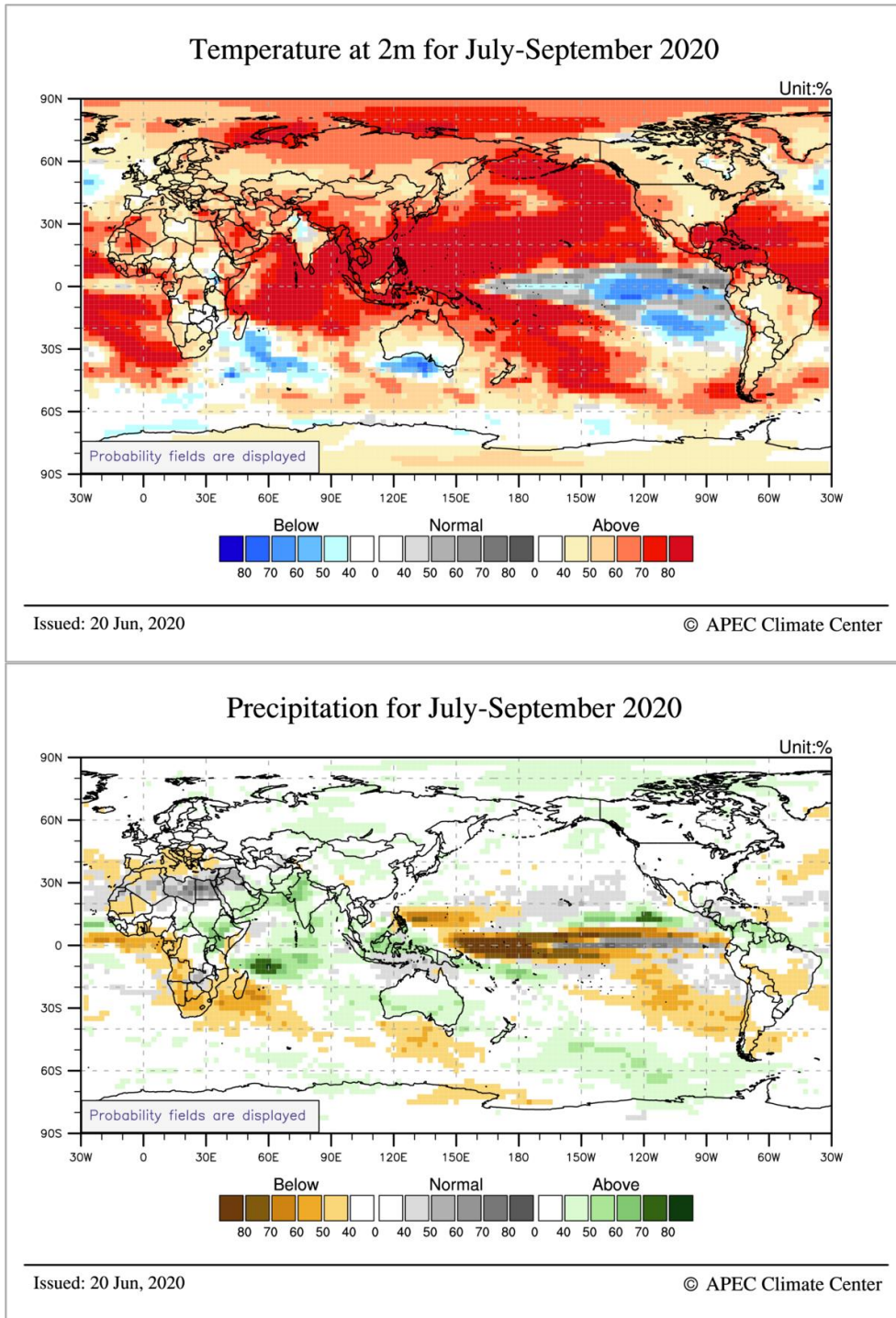
**Fig. 3.** Monthly mean anomalies of the observed 2m air temperature (top) and OLR (bottom) for May 2020.



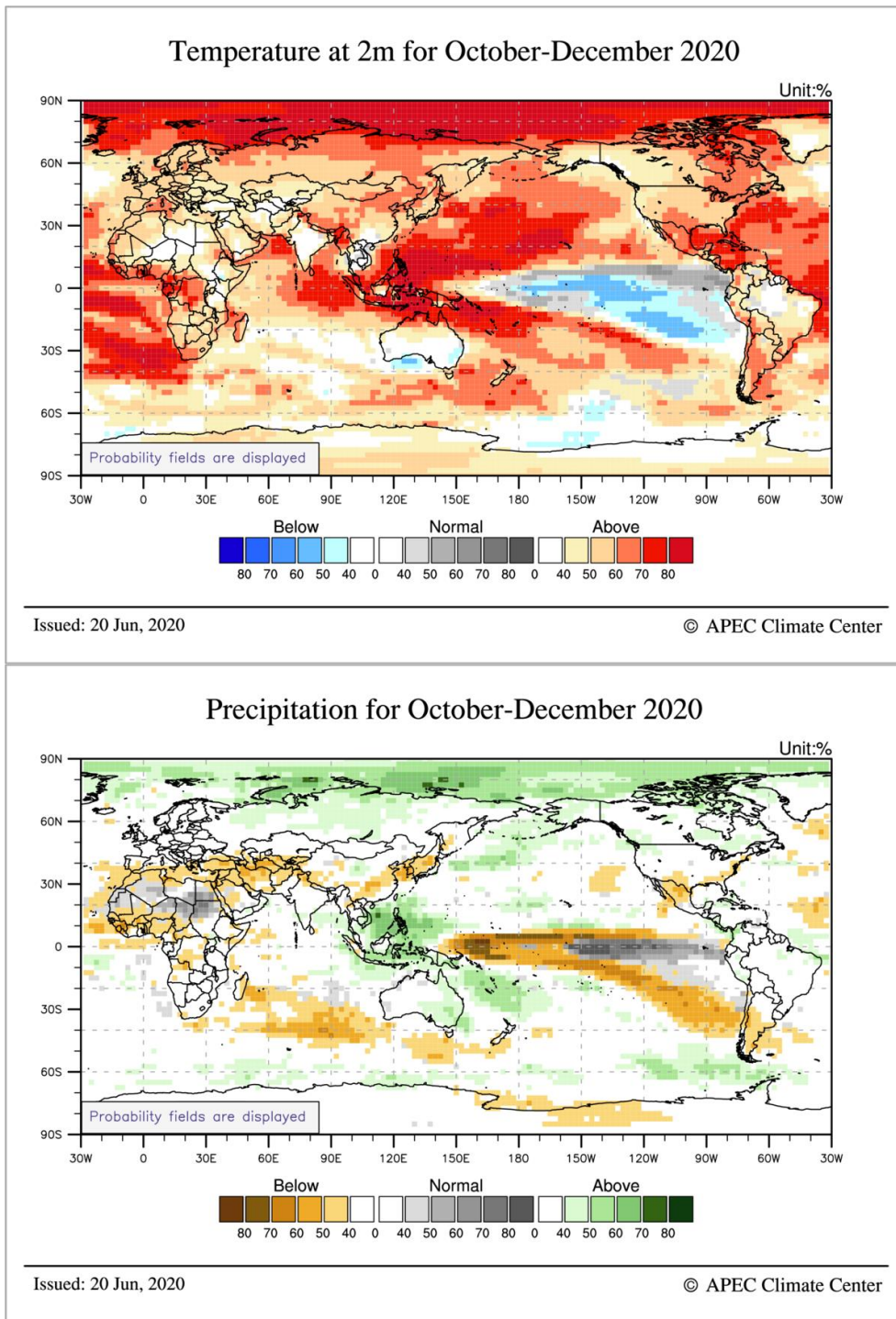
**Fig. 4.** Multi-model ensemble (MME) forecasts of SST anomalies for July – September 2020 (top) and October – December 2020 (bottom). Anomalies are computed with respect to the common base period of participating models in the APCC MME prediction (1991-2010).



**Fig. 5.** Predicted monthly mean Niño3.4 index from individual models and the MME for July – December 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 July – September 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 October – December 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.*

*If you would like to subscribe to our Climate Outlook or have any questions, please e-mail [mme@apcc21.org](mailto:mme@apcc21.org).*

#### **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).*