



The APEC CLIMATE CENTER

Climate Outlook for April – September 2016

BUSAN, 25 March 2016 – Synthesis of the latest model forecasts for April to September 2016 (AMJJAS) at the APEC Climate Center (APCC), located at Busan, Korea, indicates the decaying phase of El Niño. The forecasts for AMJ 2016 shows positive temperature anomalies to prevail over the globe, with above normal rainfalls being highly probable in the equatorial Pacific surrounded by the negative precipitation anomalies in the subtropical Pacific. The forecasts for JAS 2016 suggest persistence of prevailing of positive temperature anomalies over the globe and a neutral ENSO phase with slightly negative temperature and rainfall anomalies in the equatorial Pacific.

Current Climate Conditions

In December through early February, a matured El Niño persisted in the equatorial Pacific. Positive temperature anomalies prevailed over the globe. The strongest positive seasonal mean temperature anomalies above +4°C were observed over the Arctic and western North America. Strong positive temperature anomalies above +2°C prevail over the Atlantic coasts, Eastern Europe, central Asia, central and eastern equatorial Pacific, and Indian Ocean. The negative temperature anomalies were observed over the northern Pacific and Atlantic oceans, East Asia. Strong positive precipitation anomalies associated with the matured El Niño were observed over the central equatorial Pacific. Positive precipitation anomalies were also observed in the tropical Africa, Australia. Strong negative precipitation anomalies were observed over the maritime continent and adjacent regions, with weaker negative precipitation anomalies being observed in the subtropical North and South Pacific, Amazonia, Arctic.

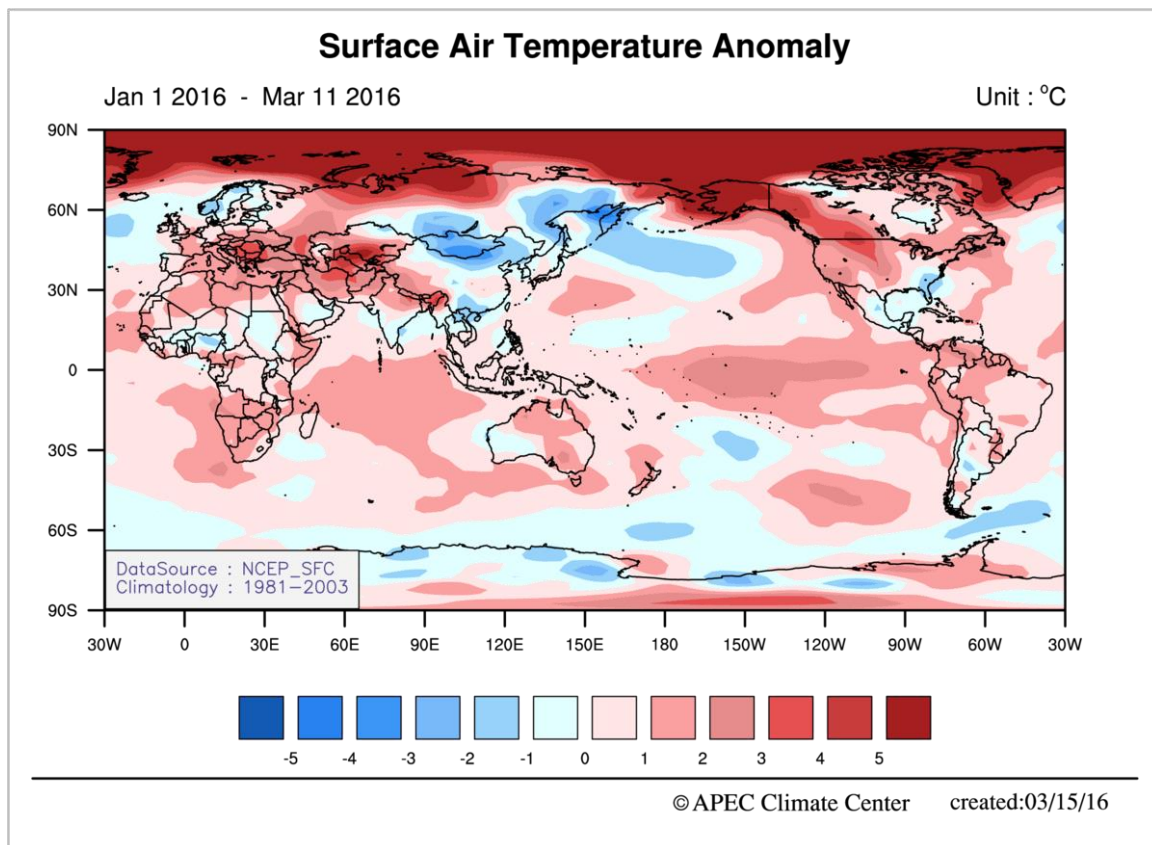


Fig. 1. Seasonal mean anomalies of the observed surface air temperature (1 January – 11 March 2016).

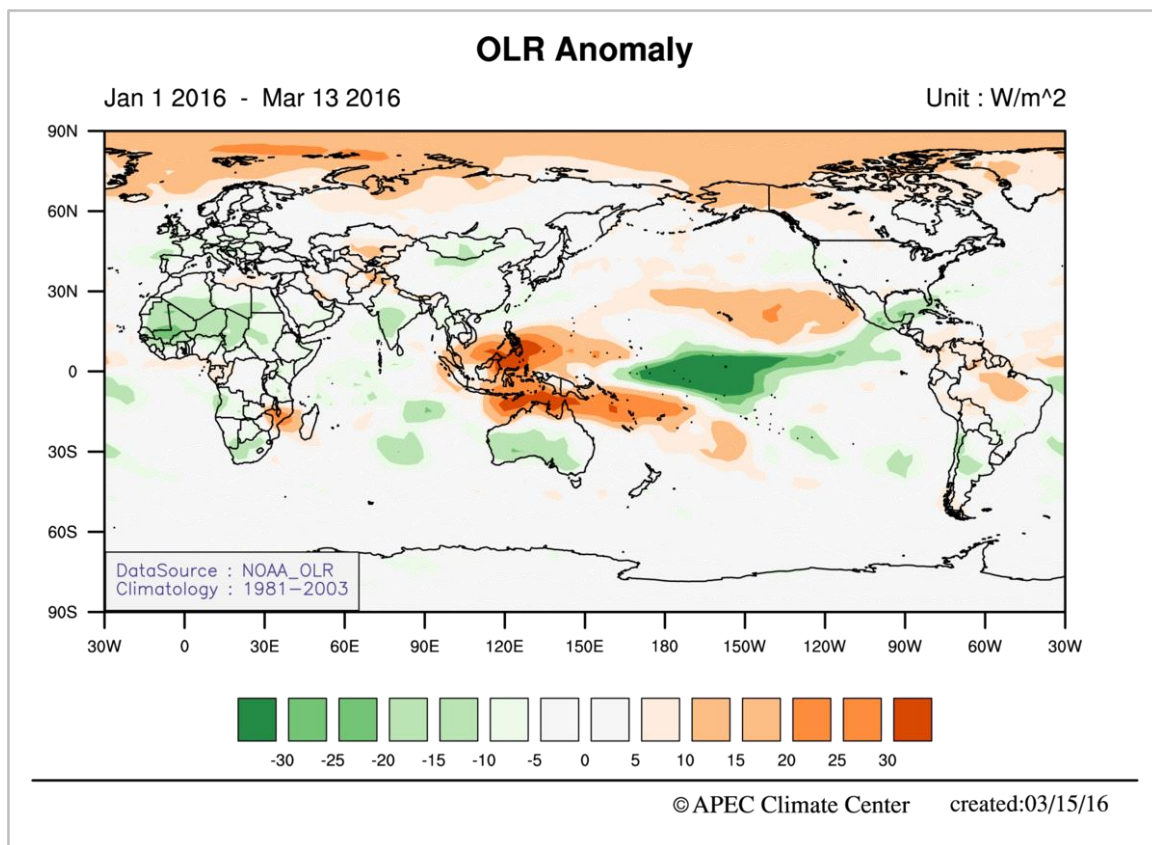


Fig. 2. Same as Fig. 1 but for outgoing longwave radiation (1 January – 13 March 2016).

Forecast

Sea Surface Temperature and ENSO Outlook:

Decaying phase of the El Niño episode is predicted for the first half and near normal conditions for the second half of the forecast period. The positive SST anomalies in the central and eastern equatorial Pacific are expected to gradually weaken, with the weak negative SST anomalies appearing at the latter part of forecast period. The positive SST anomalies are predicted throughout the whole Indian Ocean with no sufficient zonal gradient corresponding to the neutral phase of the Indian Ocean Dipole.

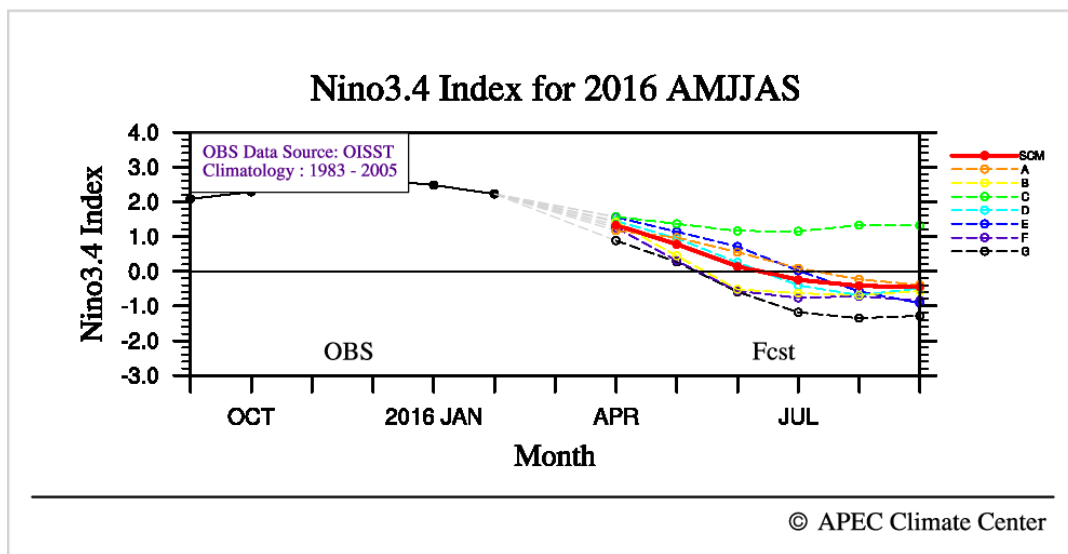


Fig. 3. Predicted Niño 3.4 Index. The predictions from the individual models are marked A, B, C, D, E, F, and G while that from the simple composite MME method is marked as SCM.

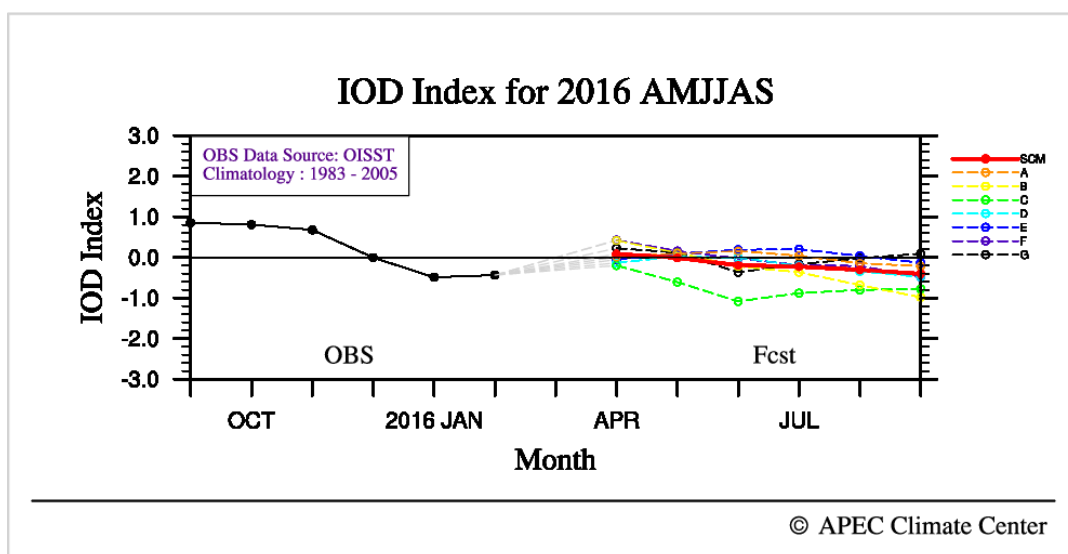


Fig. 4. Same as Fig. 3 but for the Indian Ocean Dipole mode index (IODMI).

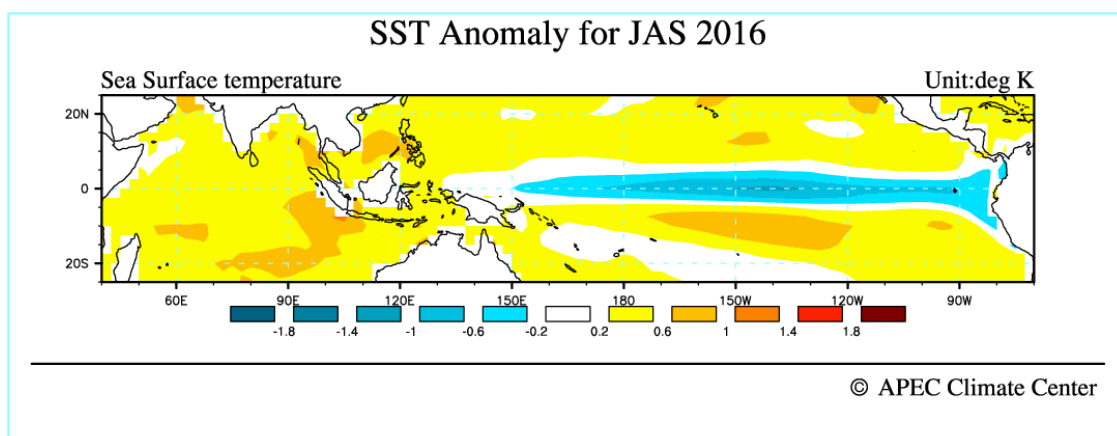
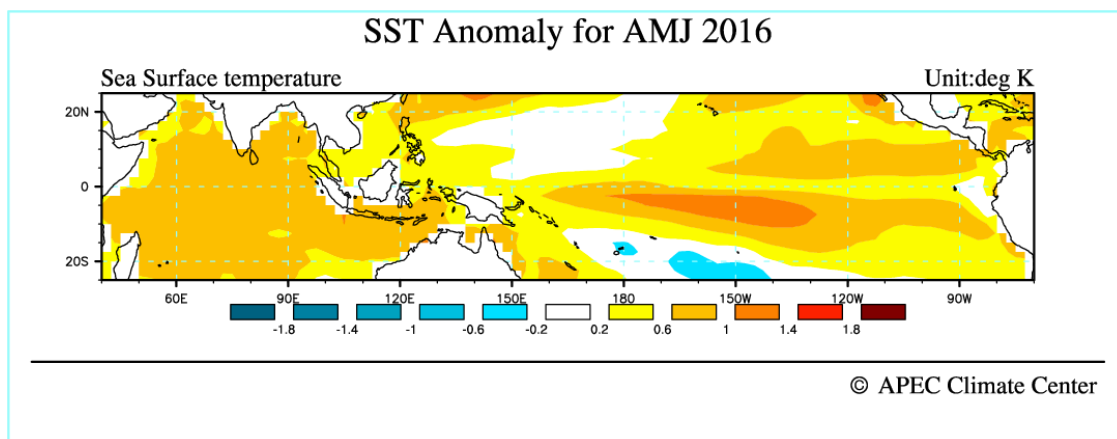


Fig. 5. Spatial distributions of forecasted SST anomalies for April – September 2016 over the tropical Indo-Pacific. Top panel shows SSTA forecast for April – June 2016 and bottom panel shows SSTA forecast for July – September 2016.

Temperature and Precipitation Outlook:

1. Forecast for April – June 2016

The APCC forecast indicates that the positive temperature anomalies will continue to prevail over much of the globe. Strongly enhanced probability for above normal temperature is predicted for the entire tropical and most of subtropical belt, northern North America, and eastern coasts of the Pacific and Atlantic oceans. Enhanced probability of above normal temperature is predicted for the Arctic, northern Eurasia, Australia. Below normal temperature is highly probable over the central North Atlantic, North Pacific, and austral seas. Strongly enhanced probability for above normal precipitation is predicted for the central and eastern equatorial Pacific. Most likely category is above normal for precipitation over Eastern Europe and Central Asia, western and eastern North Pacific, most of North America, Caribbean Sea, extratropical South America, and tropical Indian Ocean. Strongly enhanced probability for below normal precipitation is predicted for the north-eastern part of maritime continent and adjacent seas, tropical North and South Pacific surrounding equatorial precipitation maximum. Below normal precipitation is also probable over the equatorial Atlantic, Amazonia and the southernmost South America, southern Africa.

2. Forecast for July – September 2016

Strongly enhanced probability for above normal temperature is predicted for the western Atlantic and Indian oceans, maritime continent, the Pacific ocean except for the equatorial and central north Pacific. Enhanced probability for above normal temperature is also predicted for the Arctic. Below normal temperature is probable for the central and eastern equatorial Pacific. Enhanced probability for above normal precipitation is expected for the equatorial Indian Ocean, South Asia, Australia, eastern part of maritime continent, Sahel and Eastern Africa. Enhanced probability for below normal precipitation is predicted for the equatorial Pacific and Atlantic oceans.

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, 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.

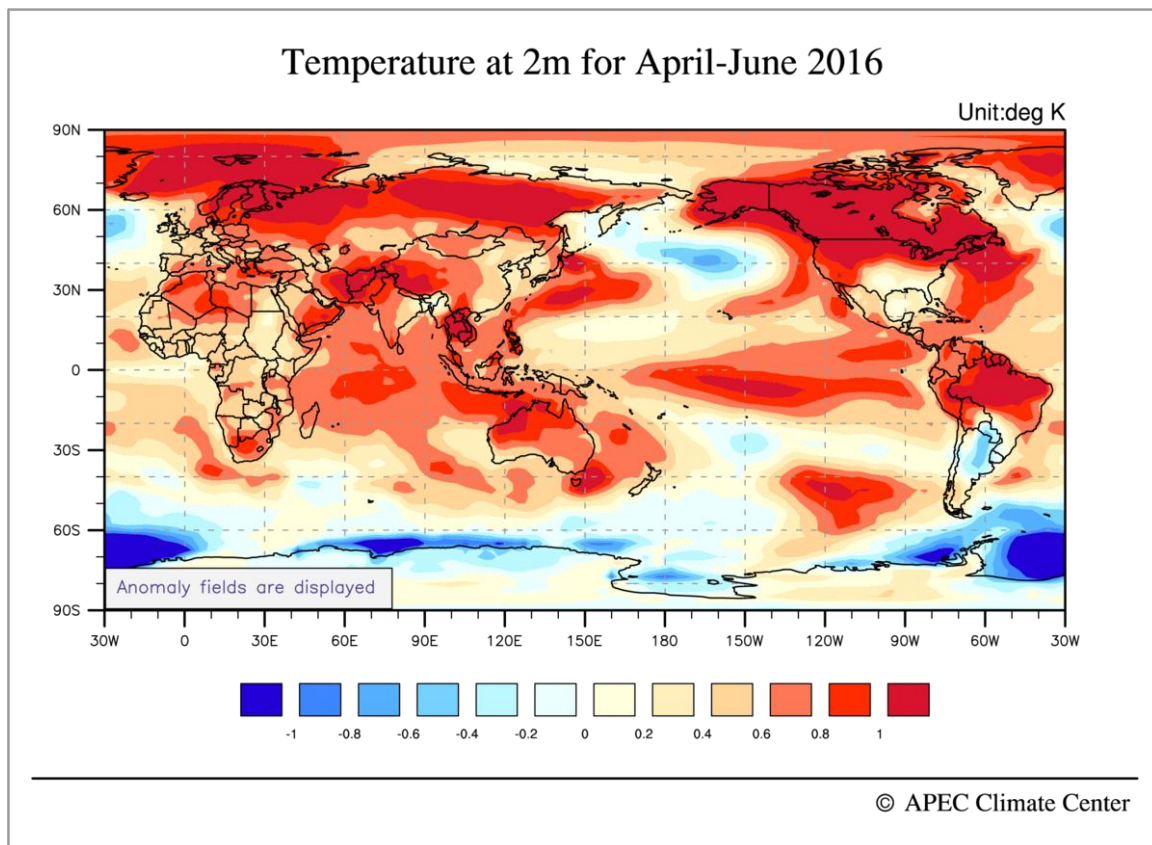


Fig. 6. Deterministic MME seasonal 2m temperature forecast for April -June 2016.

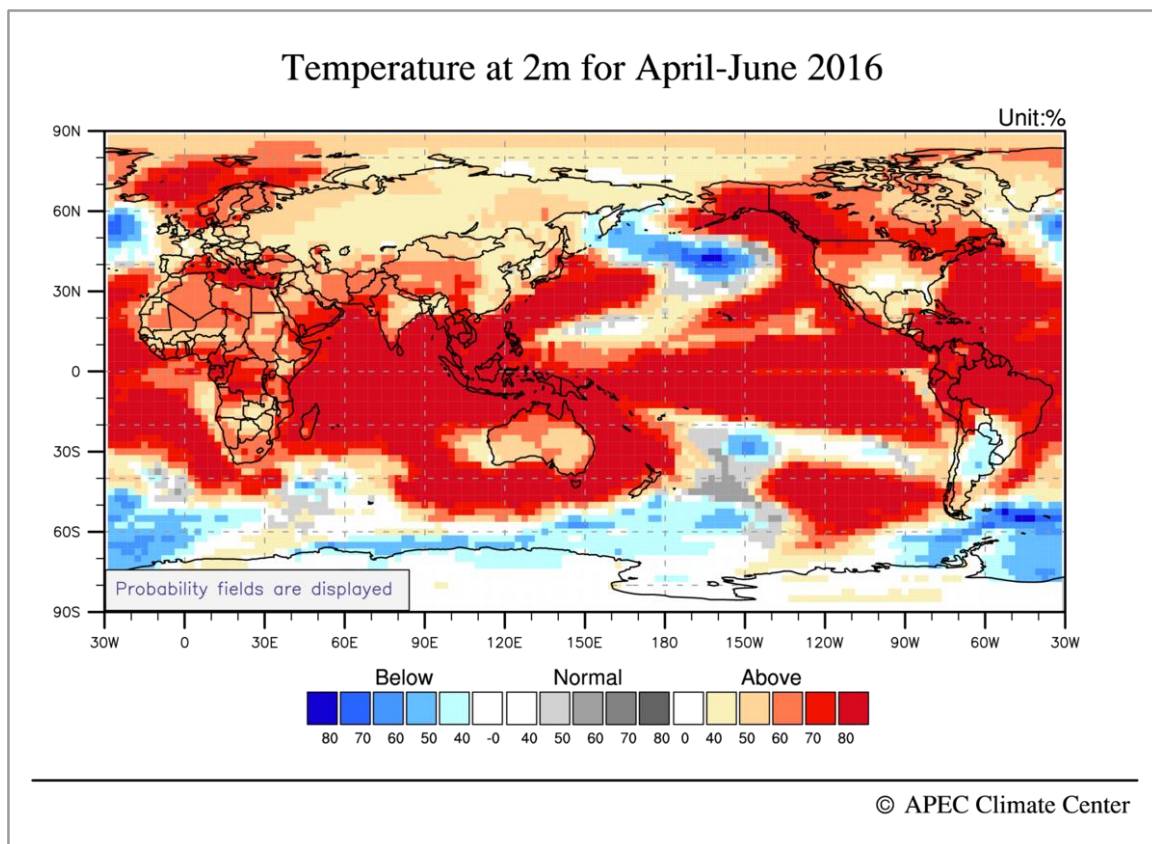


Fig. 7. Same as Fig. 6 but for the probabilistic MME.

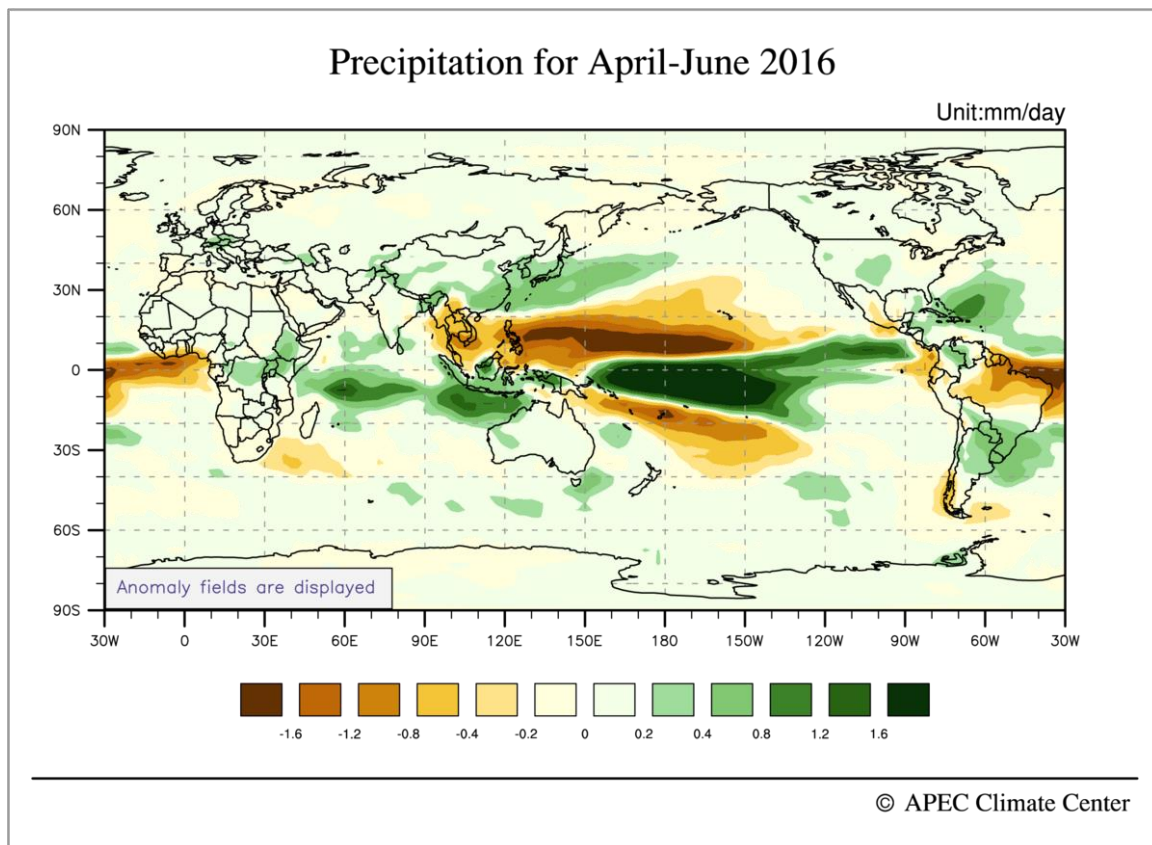


Fig. 8. Same as Fig. 6 but for precipitation.

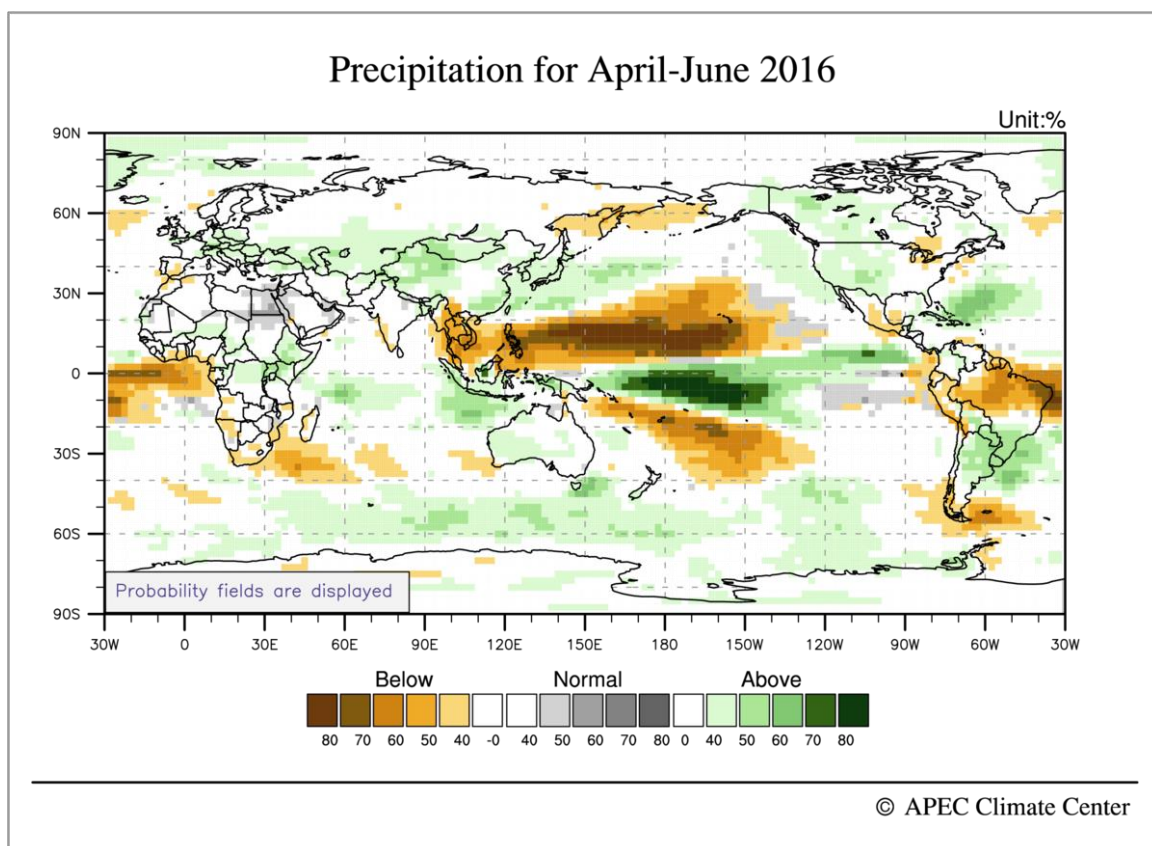


Fig. 9. Same as Fig. 7 but for precipitation.

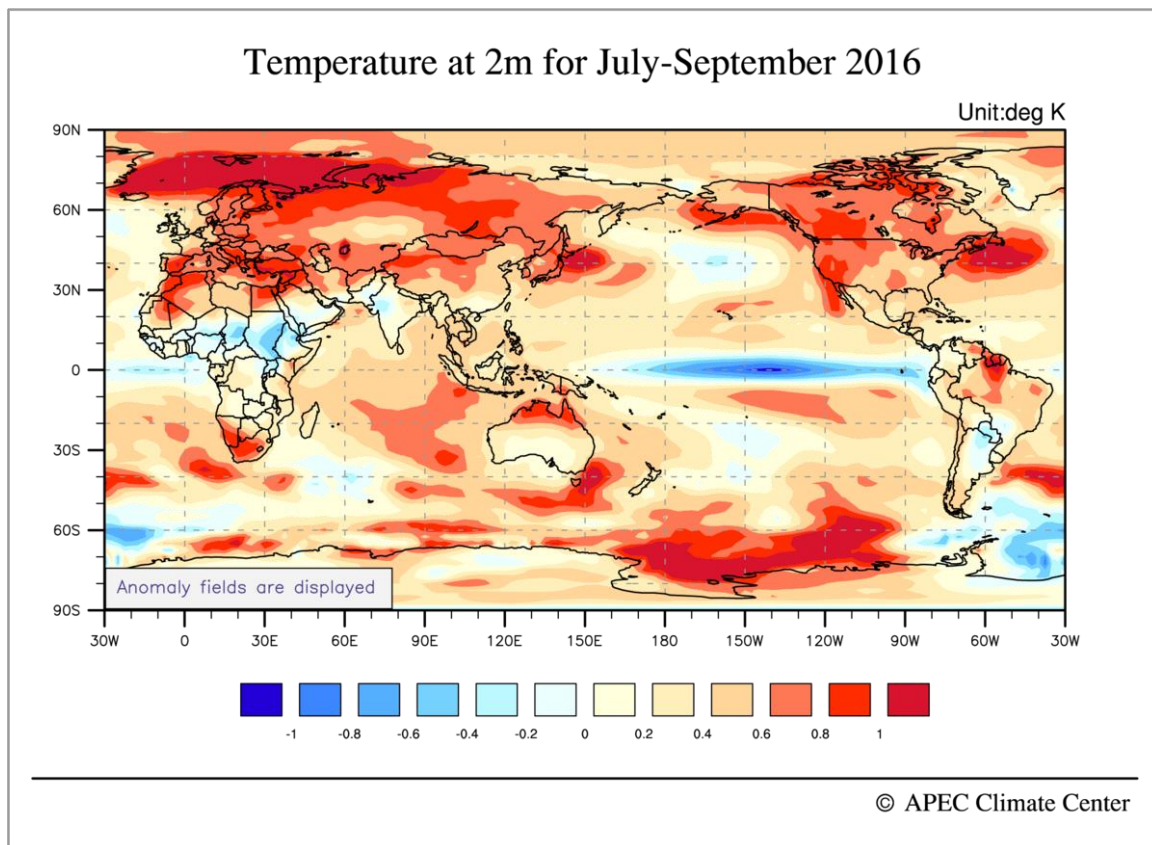


Fig. 10. Same as Fig. 6 but for July – September 2016.

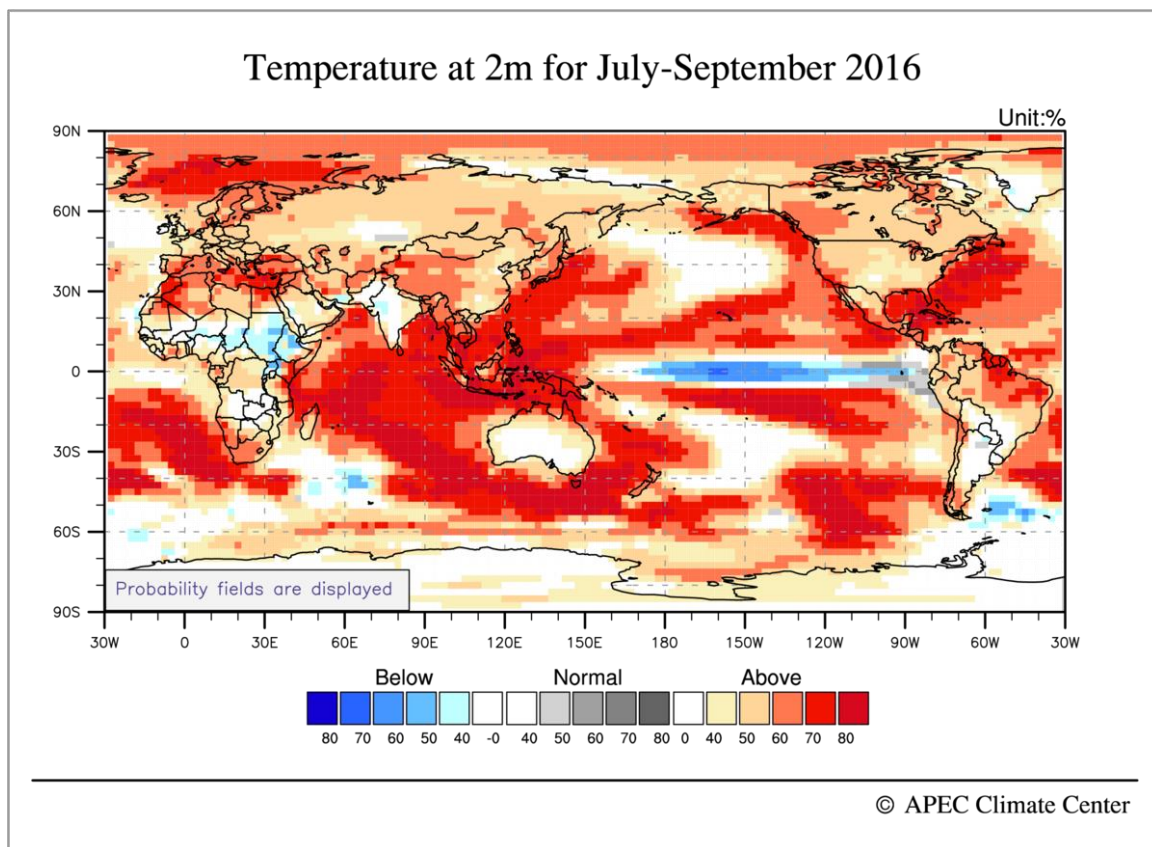


Fig. 11. Same as Fig. 10 but for the probabilistic MME.

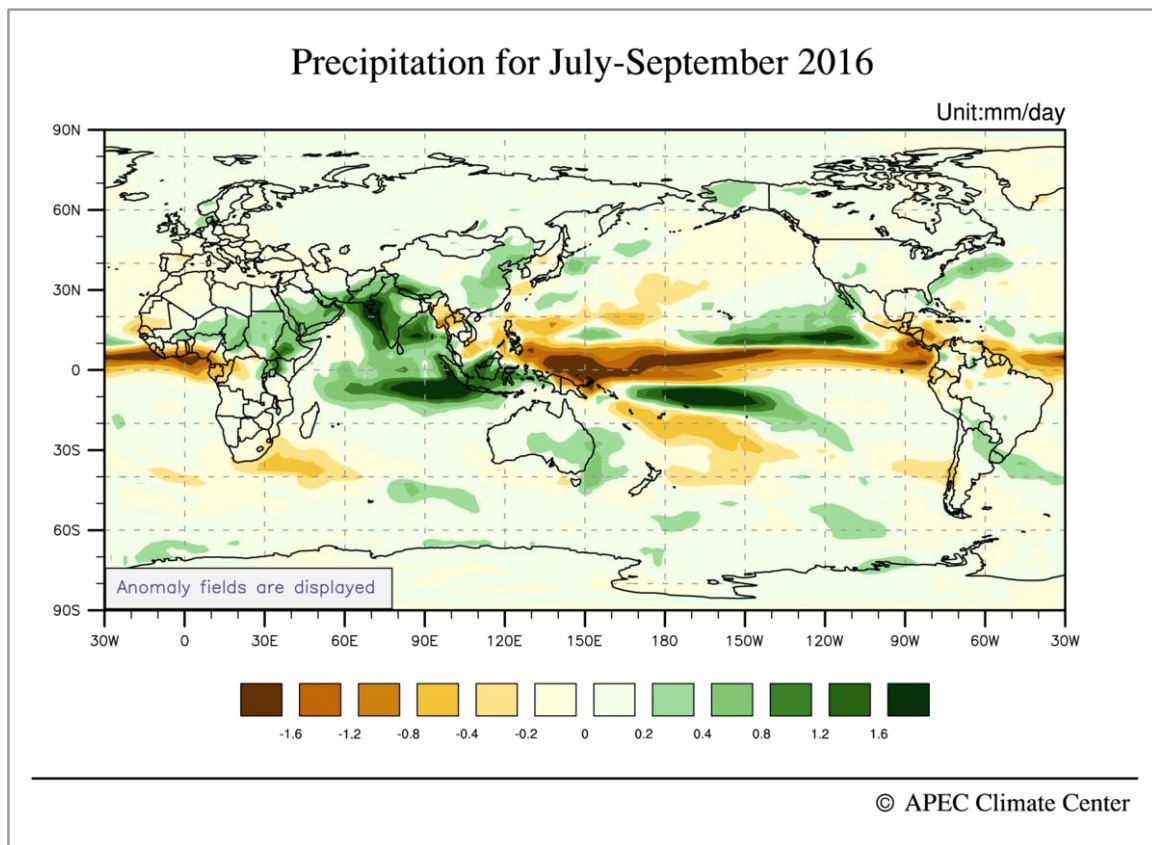


Fig. 12. Same as Fig. 10 but for precipitation.

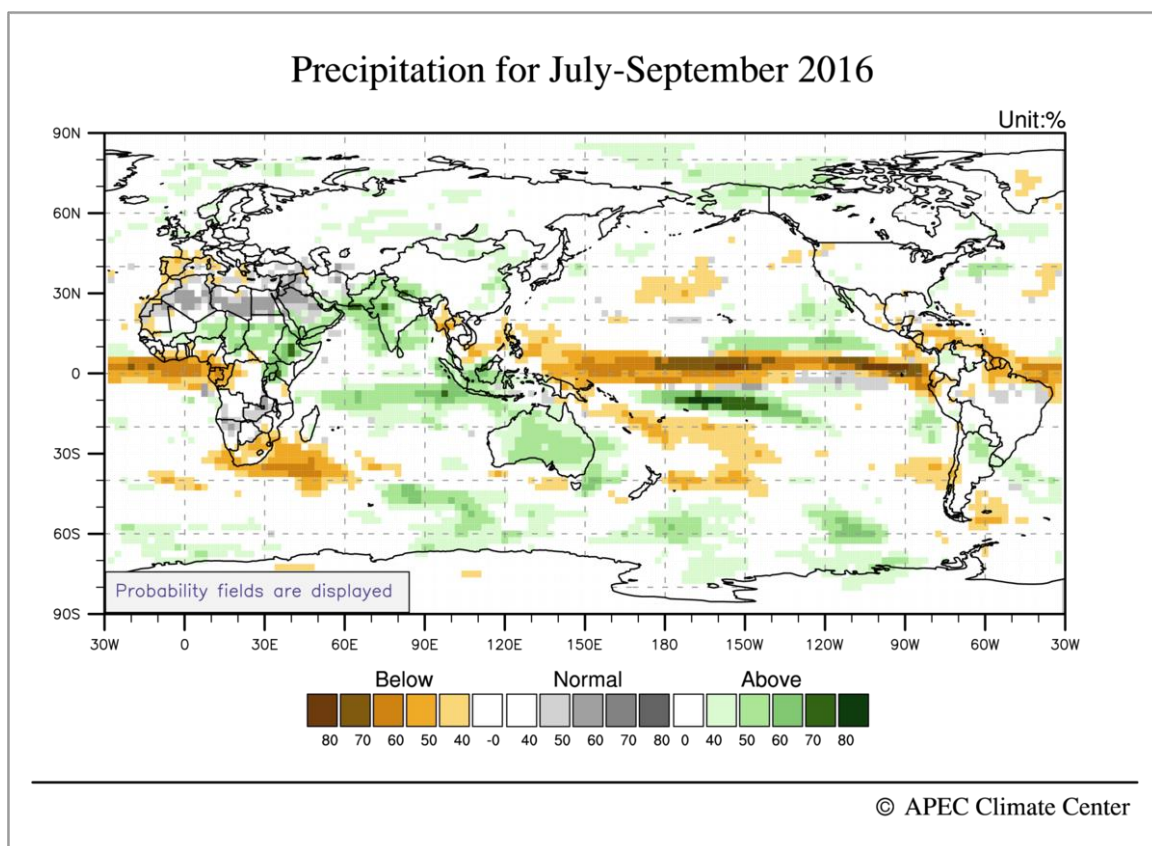


Fig. 13. Same as Fig. 11 but for precipitation.