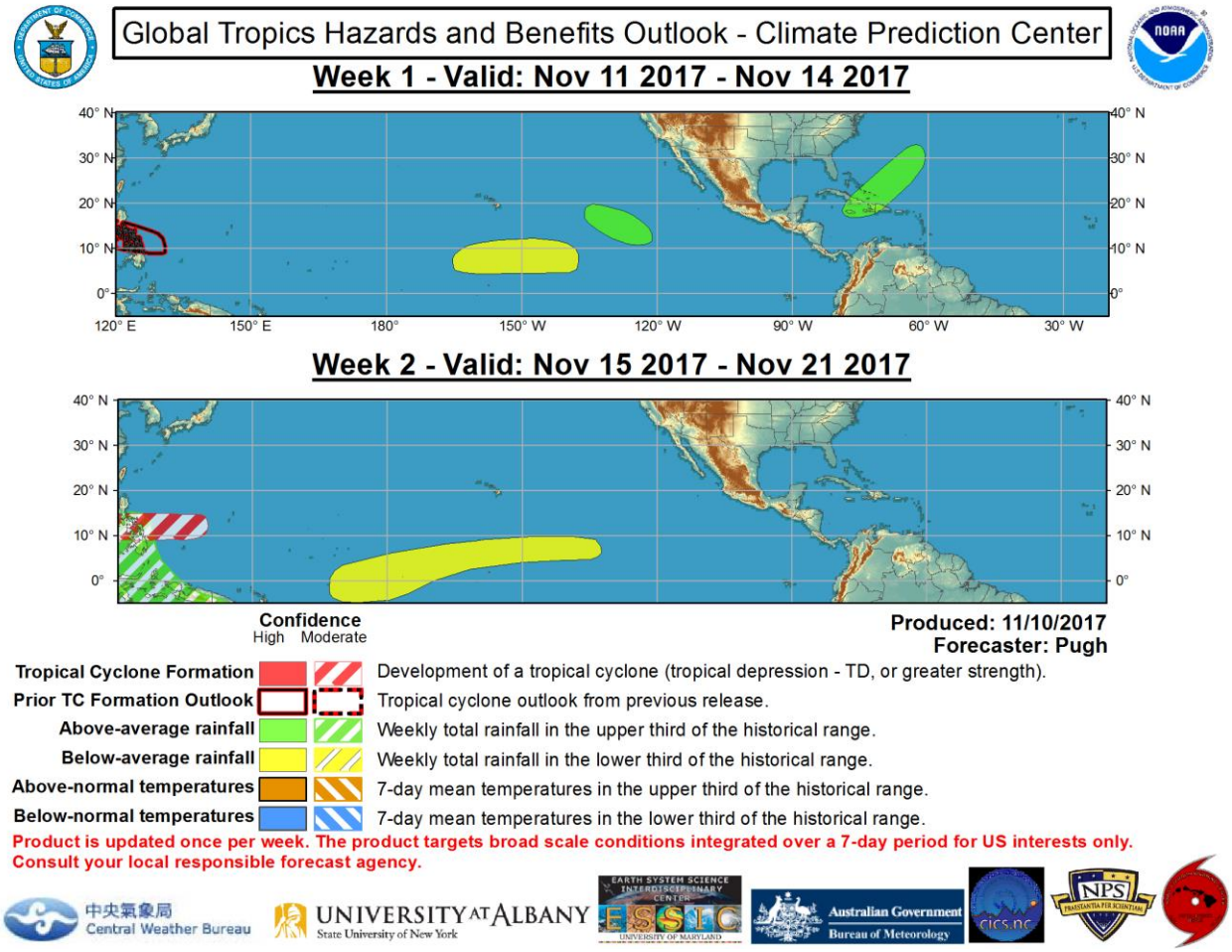

The MJO continues to be weaker in early November than it was during much of October. Diagnostic tools, including the RMM index, indicate that the remnant enhanced phase of the MJO propagated rapidly east from Africa to the eastern Indian Ocean since the beginning of November. During the past five days, easterly wind anomalies at 850-hpa have returned to the equatorial central Pacific as La Nina conditions become more dominant. The MJO is forecast to remain weak during mid-November with La Nina likely the major contributor to anomalous rainfall throughout the global tropics. Modifications to the favored areas of above- and below-average rainfall from the previous outlook are based on current satellite imagery and recent model guidance.

Tropical Storm Rina accelerated north over the north Atlantic during the past few days. Tropical Storm Haikui formed near the central Philippines at 12.8N/124.4E on November 9 and tracked into the South China Sea. According to the Joint Typhoon Warning Center, Haikui is forecast to continue on a westward track, moving near Hainan Island and making landfall in central Vietnam. The most likely area for tropical cyclone development across the updated forecast domain is the west Pacific, to the east of the Philippines from November 15 to 21. This area is based primarily on the GEFS model. A weak area of low pressure is located well south of the Baja California peninsula over the east Pacific. Although conditions

may become more conducive for this low pressure system to become a tropical cyclone next week, chances of formation during the next five days are low (20 percent).

A broad area of low pressure is forecast to lift north from the Caribbean Sea and interact with a developing mid-level trough over the western Atlantic by early next week. Model agreement is good in a large area of above-average rainfall extending northeast from the northern Caribbean Sea to near Bermuda from Nov 11 to 14.The 12Z GFS model on Nov 10 indicates locally more than 5 inches of rainfall across Jamaica, Hispaniola, and the Turks and Caicos during this time period.

The original discussion released on November 7 follows.

The MJO weakened since late October, according to the Wheeler-Hendon RMM index and the CPC index based on the 200-hpa velocity potential. An equatorial Rossby wave, crossing the west Pacific, was a contributing factor to the decrease in amplitude of the MJO signal. The preferred ECMWF model solution indicates a continued weakening of the MJO during early November.

A tropical depression (TD) formed near the Philippines on Oct 31. This TD rapidly intensified as it tracked west across the South China Sea and became Typhoon Damrey on November 3. It made landfall in south-central Vietnam with maximum sustained winds of 105 mph (Category-2 on the Saffir-Simpson scale). TD 29W formed in the Gulf of Thailand on Nov 6. The Joint Typhoon Warning Center calls for this tropical depression to remain weak as it emerges into the northeast Bay of Bengal. Elsewhere, Tropical Storm Rina developed on Nov 7 at the middle latitudes of the central Atlantic (31N/50W). Rina is forecast to remain a weak tropical storm with a rapid track to the north.

Satellite imagery on Nov 7 indicates enhanced convection east of the Philippines from 130 to 160E. The deterministic GFS and ECMWF models are in good agreement that a tropical cyclone (TC) forms near the Philippines, strengthens over the South China Sea, and then eventually tracks near or over Hainan Island early next week. The latest runs of the GFS model are bullish with TC development near the Andaman and Nicobar Islands during Week-1, with rapid strengthening of over the northern Bay of Bengal. Due to many of the GFS ensemble members also favoring TC development during Week-1, a high confidence area is posted for the Bay of Bengal. MOderate confidence exists for TC development across the south

Indian Ocean, to the west of Sumatra, based on the latest model guidance. An equatorial Rossby wave also supports TC development over the Bay of Bengal and south Indian Ocean during Week-1.

Along the expected track of a tropical cyclone (TC), above-average rainfall is likely from the central Philippines northwest to Hainan Island during Week-1. The presence of Tropical Depression 29W, an increasing chance of a developing TC, and the remnant enhanced phase of the MJO signal favor above-average rainfall over the Bay of Bengal and to the north of the equator in the Indian Ocean. If the GFS model verifies with its rapidly strengthening TC in the Bay of Bengal, northeast India and Bangladesh will be prone to excessive rainfall and flooding late in Week-1. Model consensus indicates below-average rainfall across parts of the south Indian Ocean during the next week, while below-average rainfall over the equatorial central Pacific is consistent with the base state. An atmospheric Kelvin wave along with an amplifying mid-level trough favors above-average rainfall across parts of the Caribbean including the Dominican Republic, Puerto Rico, and the Virgin Islands.

The favored areas of above and below-average rainfall during Week-2 are primarily based on a consensus between the CFS and ECMWF precipitation forecasts along with the base state. The highest confidence in above-average rainfall during Week-2 exists across Bangladesh, where heavy rainfall is expected to linger due to the likelihood of a tropical cyclone.

Week-1 forecasts over Africa are made in consultation with CPCs international desk, and can represent local-scale conditions in addition to global-scale variability.