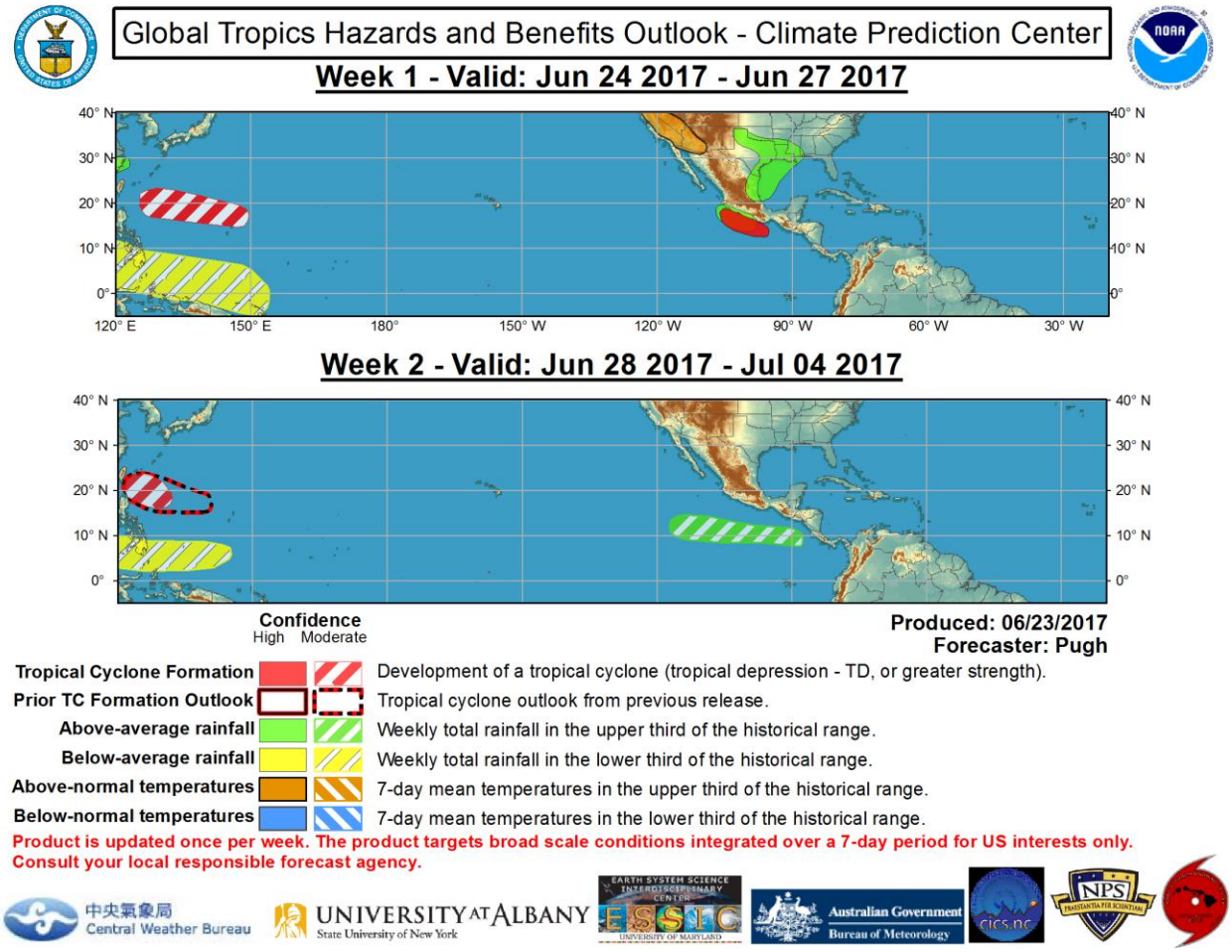

The MJO signal remained incoherent during the past few days, according to the Wheeler-Hendon RMM index and the CPC index based on the 200-hpa Velocity Potential. The consensus among dynamical model forecasts continues to indicate a weak MJO signal continuing into the beginning of July.

A pair of tropical cyclones developed over the Atlantic basin during the past week. Tropical Storm Bret formed on June 19 at an unusual location for this time of year, near the Windward Islands. Bret brought heavy rainfall to Aruba, Bonaire, Curacao, and the northern coast of Venezuela before increasing wind shear across the southern Caribbean Sea weakened it. Tropical Storm Cindy developed over the Gulf of Mexico on June 20 and made landfall two days later between Cameron, Louisiana and Port Arthur, Texas. An amplifying upper-level trough interacting with enhanced low-level moisture (partly associated with the remnants of Cindy) is expected to result in above-average rainfall during the next few days across parts of the central and western Gulf Coast, lower Mississippi Valley, and southern Great Plains.

Convection recently became more organized with a broad area of low pressure located a few hundred miles south-southwest of the Gulf of Tehuantepec in the East Pacific. Environmental conditions appear

to be conducive for development, and the National Hurricane Center (as of 11am PDT on June 23) states that it has a 70 or 80 percent chance of becoming a tropical cyclone during the next 48 hours or 5 days, respectively. Model guidance indicates a weak signal for additional tropical cyclone development across the East Pacific from June 28 to July 4, but the signal is not strong enough to warrant a shape on the map at this time.

A disturbance with limited convection exists across the west Pacific (15-20N/145-150E). Since the GFS model indicates a closed low forming as this system approaches the northern Philippines, a tropical cyclone development area (moderate confidence) is added to the west Pacific for June 24 to 27.

Precipitation forecasts from the latest GFS and CFS models were consulted for the update outlook. Due to the continued weak signals among the model guidance and the likelihood for an incoherent MJO signal, major revisions to the previous outlook issued on June 20 were not needed. Modifications were necessary for the remainder of the Week-1 period (June 24-27) since Tropical Storm Bret dissipated and Tropical Storm Cindy moved inland to the United States.

The prolonged period of excessive heat across the southwestern U.S. is expected to persist through Monday, June 26 with maximum temperatures ranging from 111 to 115 for the lower deserts, 123 to 125 for Death Valley, and 113 to 120 along the Colorado River Valley. Minimum temperatures in these locations are forecast to range from the upper 80 to mid 90s. Much above-normal temperatures are forecast to extend north into the Pacific Northwest this weekend with the heat peaking on June 24 when record high temperatures are likely across Oregon.

---------- Original discussion from June 20 continues below. ----------

The MJO remained weak during the past week as atmospheric Kelvin waves continue to be the major contributor to anomalous rainfall across the global tropics. Although the amplitude of the RMM index increased recently with the enhanced phase over Africa, the CPC 200-hpa velocity potential index features an incoherent MJO signal. Dynamical model forecasts vary on the evolution of the MJO during the next two weeks. The European ensemble mean depicts a weak to moderate MJO propagating east from Africa to the Indian Ocean, but the GFS model and many of the ensemble members from the Canadian model indicate a continued weak signal with little or no eastward propagation. Based on the model consensus and recent diagnostic tools, the MJO is expected to remain weak during the next two weeks and not play a major role in anomalous rainfall and tropical cyclone activity across the global tropics.

Tropical cyclone development was limited to the Atlantic Basin during mid-June. On June 19, Tropical Storm Bret formed at a low latitude and near the Windward Islands (9.4N/59.8W). This origin of development, so far to the east, is unusual for this time of year. Tropical Storm Bret is forecast to bring heavy rain (2-4 inches, locally more) to Aruba, Bonaire, Curacao, and the northern coast of Venezuela during the next 24 hours before increasing wind shear weakens Bret over the Caribbean Sea. Tropical or subtropical cyclone development is imminent across the Gulf of Mexico as surface pressures slowly fall and deep convection begins to develop around an area of low pressure. Vertical wind shear, associated with an upper-level low near the Texas Gulf Coast, is expected to limit strengthening of the tropical or subtropical cyclone as it tracks north towards the Gulf Coast. During the next week, heavy rainfall (up to 10 inches or more) is forecast for the western and central Gulf Coast, lower Mississippi Valley, and parts of the southeastern U.S.

An atmospheric Kelvin wave is likely to result in above-average rainfall across parts of western Africa and the Ethiopian highlands. Following an increase in rainfall across central India this past week, model guidance indicates that rainfall associated with the Indian Monsoon will be near or below-average through at least Week-1. Above-average rainfall is likely along a stationary front across southern China during Week-1, while below-average rainfall is favored for parts of the Maritime Continent and West Pacific.

During Week-2, the favored areas of anomalous rainfall are based primarily on guidance from the CFS model due to large uncertainty on the MJO evolution and generally small precipitation anomalies from the European model. The most likely area for below-average rainfall exists across parts of the Maritime Continent, while convection is expected to increase across parts of the East Pacific. Forecast confidence in these precipitation shapes is moderate at best due to uncertainty on how different modes of subseasonal tropical variability interact at this time scale.

The GEFS tool indicates that an area east of Philippines may become more favorable for tropical cyclone development by Week-2. Elsewhere, tropical cyclone activity is expected to be near or below climatology.

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