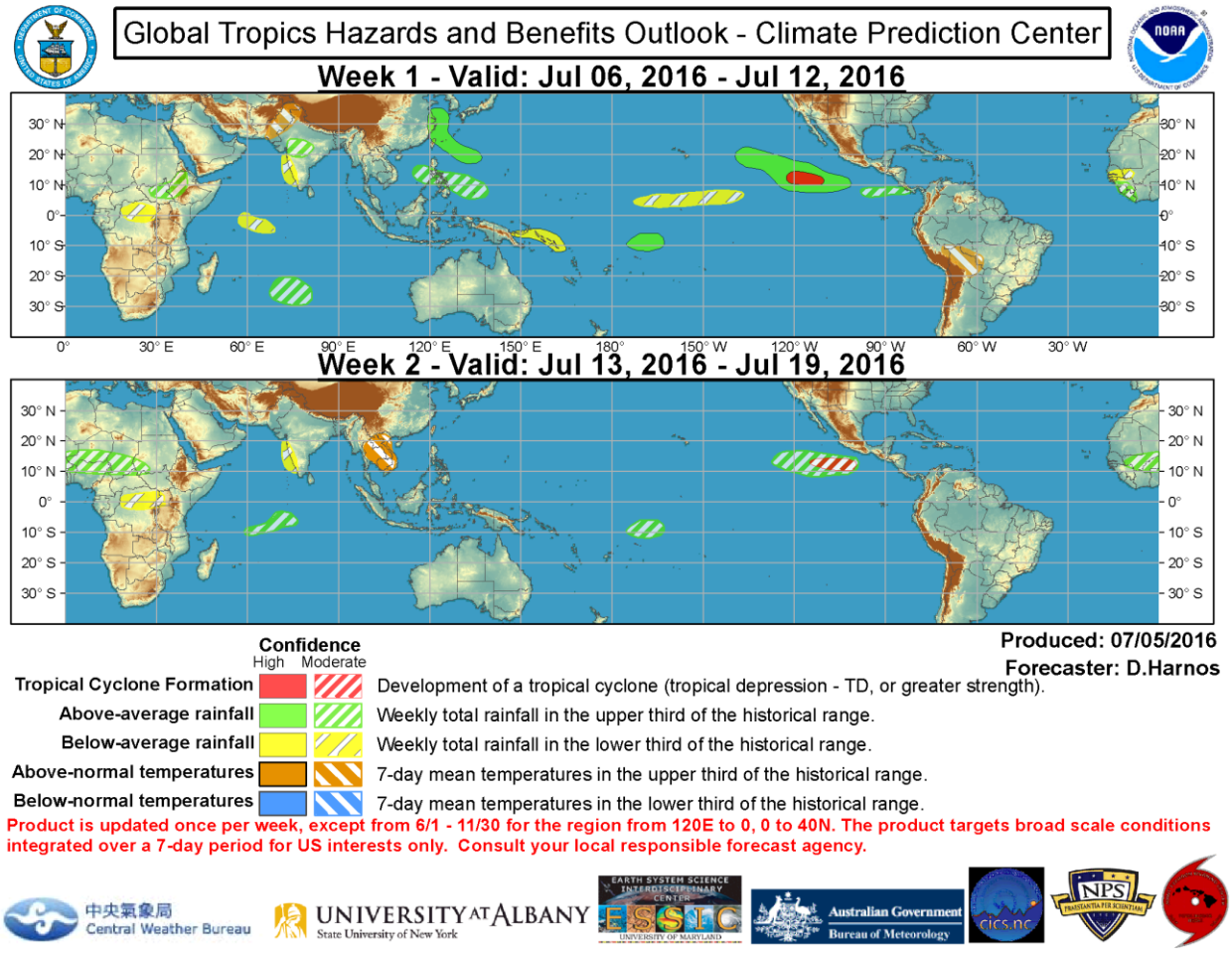

MJO signatures became muddled last week as the convective envelope attempted to traverse the Maritime Continent. OLR fields and low-level wind fields suggest the decay of the antecedent MJO event, apparent in the RMM index which returned to within the unit circle over the past week. 200-hPa velocity potential signatures reveal a different perspective however, with a robust region of upper-level divergence spanning eastward from the Date Line across the equatorial Pacific. Also apparent in 200-hPa velocity potential is a Kelvin Wave currently near 90W that likely aided in the development of Tropical Storm Agatha (since dissipated) and Hurricane Blas (ongoing) in the East Pacific over the past week. Elsewhere, Typhoon Nepartak developed into the first West Pacific tropical cyclone (TC) of the season on the third of July near the Caroline Islands. Nepartak developed in the vicinity of the decaying OLR signature of the MJO, and edge of the MJO-related velocity potential anomalies. Dynamical model forecasts suggest a continued weakness of the MJO over the next two weeks before potential re-emergence over the Western Indian Ocean late in week-2. Caution should be exercised with such a forecast, however, as a similar pattern was forecast with the MJO event of May that decayed in the OLR and low-level wind fields, but showed continued eastward propagation through the present in 200-hPa velocity potential. It is also noted that some of the weak MJO forecasts from the dynamical models may be due to differences in ensemble member phase speeds, that when averaged can appear to be a weak MJO event. Given the forecasts of a weak MJO, uncertainty regarding the MJO's development, and

typically limited coupling to the mid-latitudes this time of year any teleconnections from the MJO are anticipated to be tropical cyclone-related. Enhanced TC activity is possible across the East Pacific in week-1 and week-2 associated with forecast negative velocity potential anomalies associated with the MJO providing large-scale vertical ascent.

The precipitation outlook during week-1 is based on CFS and ECMWF model guidance, potential MJO influences in Phase 7, and observed climate variability including an atmospheric Kelvin wave currently near 90E and low-frequency suppression of convection west of the Date Line. A high confidence region of tropical cyclogenesis during week-1 is forecast near 10N between 110-125W that would be complimented by the MJO if it were in Phase 7. The National Hurricane Center presently gives this region an 80% chance of TC development over the next 5 days. High confidence in above-median precipitation exists surrounding this shape and to its west given the favorable MJO state, expected TC development, and Hurricane Blas lying within the area at the start of the forecast period. Elsewhere, high confidence also exists for above-median precipitation to the east and north of Taiwan along the anticipated recurving track of Typhoon Nepartak. A final region of high-confidence above-median precipitation lies southeast of the Date Line over the Central Pacific, where persistent anomalously warm SSTs have driven observed values above 30 degrees Celsius. Lower confidence regions of above-median precipitation are indicated by CFS and ECMWF guidance for portions of the far East Pacific, the vicinity of the Philippines, Central India, and the Southern Indian Ocean. A high confidence region of below-median precipitation is forecast for the vicnity of the Solomon Islands where low-frequency variability has been supressing convection in recent weeks. Moderate confidence regions of below-median precipitation suggested by dynamical guidance exist across the Western Ghats of India, northeast of the Date Line, and western Indian Ocean. Moderate confidence regions of above normal temperatures in week-1 are forecast across portions of Eastern Pakistan and Northwestern India and across central South America based on dynamical guidance.

During week-2, upper-level MJO signatures continue to be forecast over the East Pacific, while low-level fields suggest no MJO presence. As in week-1, the MJO presence in Phase 7 or 8 would support potential TC development in the East Pacific, resulting in a moderate risk region shown for week-2 between 10-15N and 100-115W. GEFS and CFS guidance also suggest potential possible tropical cyclogenesis for this region. A moderate confidence above-median precipitation shape extends around the aforementioned TC shape. Elsewhere, moderate confidence of above-median precipitation is expected southeast of the Date Line in the same region as week-1 associated with anomalously warm SSTs. Dynamical model guidance suggests moderate confidence of below-median precipitation across the Western Ghats again in week-2, with above-median precipitation for portions of the South Indian Ocean. Above normal temperatures with moderate confidence are forecast by dynamic models across much of Southeast Asia in week-2.

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