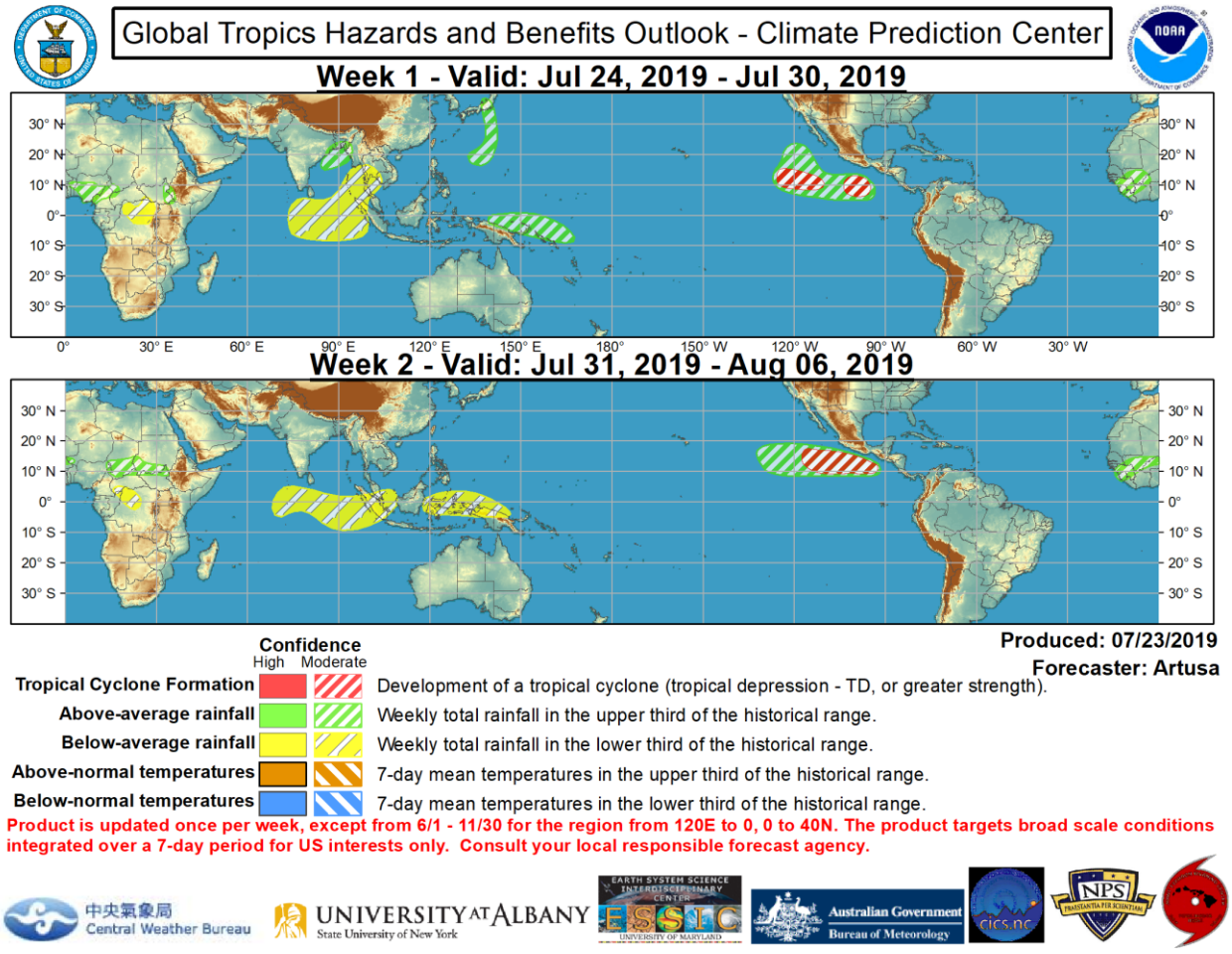

The MJO continues to be incoherent this week. The enhanced convective phase of the MJO is broadly located over the Western Hemisphere and western Indian Ocean, and the suppressed convective phase of the MJO is located in the vicinity of the Maritime Continent. In the past few weeks, frequent equatorial Rossby waves (ERWs) have interfered with the eastward-propagating MJO signal over the Indian Ocean. In the absence of significant tropical cyclone (TC) activity, these ERWs have been the primary westward-moving mode of variability in the tropics. A strong atmospheric Kelvin wave (KW) moving across the Western Hemisphere may have significant impacts on the tropics, as will be discussed below.

There is a wide range of possibilities predicted by the various dynamical models during the next two weeks, with the enhanced phase of the MJO expected to be located anywhere between Phase 1 (Western Hemisphere and Africa) and Phase 5 (eastern Maritime Continent) in RMM space. The current MJO observation lies just outside the unit circle, along the boundary between Phases 1 (Western Hemisphere and Africa) and 2 (western Indian Ocean). The GEFS predicts the subseasonal signal will propagate eastward across much of the Indian Ocean during Week-1 before retrograding back towards the west during Week-2, and remaining weak the entire time. This may be due to expected interference

with ERWs, as has been the case the past few weeks. The CFS follows a similar scenario during Week-1, and then deamplifies the signal further over the Indian Ocean. The ECMWF predicts the MJO will propagate eastward to the Phase 3/4 interface (vicinity of the eastern Indian Ocean and western Maritime Continent), before the signal amplitude (shown by the ensemble mean) collapses to near the origin of the RMM plot. About half a dozen ensemble members carry the signal even farther east, across Phase 5. The Canadian model predicts comparable eastward propagation as the ECMWF, but in contrast predicts a higher amplitude signal during Week-2.

The global tropics are expected to be fairly active during the upcoming two-week period. The key to this activity appears to be the strong KW noted earlier, currently in the general vicinity of the eastern Pacific. As of 2am PDT this morning (July 23), Tropical Storm Dalila was centered near 18.0N/117.3W in the eastern Pacific, heading toward the north-northwest at 7 mph, with peak sustained winds near 40 mph. The National Hurricane Center (NHC) predicts that Dalila will weaken by tomorrow (July 24). A tropical wave currently located southeast of Dalila is being monitored for possible development. Additional tropical development is also possible later in Week-1 and/or during Week-2. In the Atlantic basin, Tropical Depression 3 is currently (5am EDT July 23) moving northward between southeastern Florida and the northwest Bahamas. Winds have increased to near 35 mph with higher gusts. NHC predicts the center of the depression should remain off the Southeast U.S. coast, and the system is expected to dissipate on Wednesday (July 24). The strong KW noted above may help to spark tropical development across the Main Development Region of the tropical Atlantic between the coast of Africa and Central America (10N-20N latitude), especially in Week-2. As the KW reaches the Indian Ocean, it will likely interact/interfere with an ERW packet. Beyond this, it is thought the KW may couple more strongly with regional convection, possibly strengthening into a significant MJO. The Joint Typhoon Warning Center (JTWC) is monitoring a weak subtropical cyclone (Invest 91W) currently (July 23 06z) located near 24.8N/135.2E, or about 670 nautical miles south-southwest of Yokosuka, Japan. Although sea-surface temperatures (SSTs) are between 28C-30C in the region, low to moderate wind shear is expected to restrict any significant development of this system during the next 24 hours as it tracks toward mainland Japan. After that, dynamical model guidance suggests that 91W could consolidate into a warm-core tropical system within the next 2-3 days, but confidence is insufficient to be included in this Outlook. At the very least, it is reasonable to expect an area of above normal rainfall to accompany its track up towards central Japan during the Week-1 period.

The predicted anomalous rainfall patterns for Week-1 and Week-2 are based on several considerations such as the expected state of the MJO, areas of agreement among rainfall forecasts from the ECMWF, CFS, and GFS dynamical models, a weakening El Nino, and expected TC tracks. There are significant differences between the various model precipitation forecasts in terms of both placement and spatial extent of anomalous precipitation features on the maps. The anomalous rainfall areas indicated over the Eastern Hemisphere (with the exception of the far western North Pacific and Japan) are generally related to the expected evolution of the MJO.

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