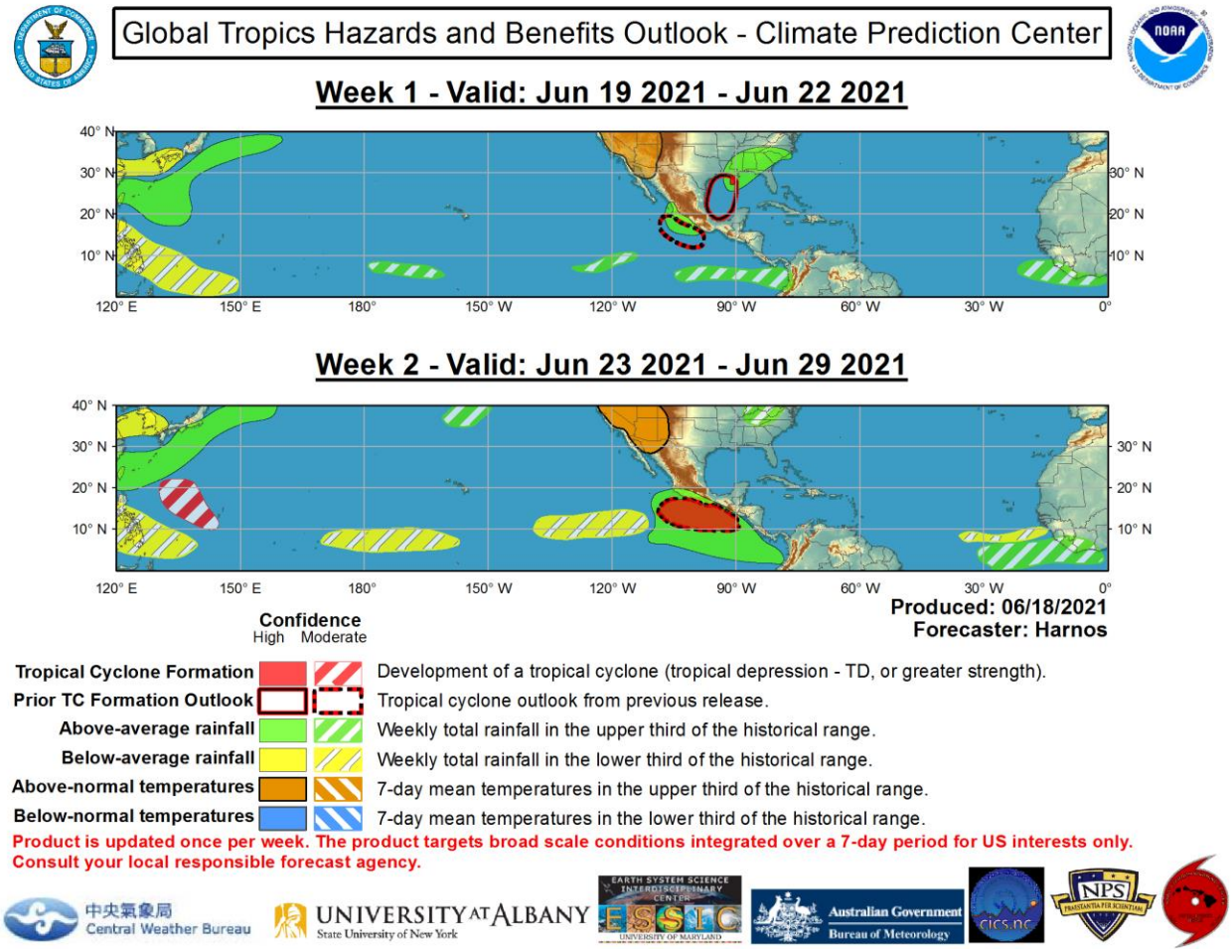

The original forecast remains largely on track model guidance continuing to show a transition of the RMM index from focusing on a Kelvin wave over the Indian Ocean to another crossing the Western Hemisphere over the course of the outlook. Tropical Storm Dolores formed over the East Pacific on the 18th near 14N/101W. The National Hurricane Center (NHC) forecasts Dolores to skirt the southwestern coast of Mexico over the coming days with an accompanying threat of flash flooding, mudslides, high surf, rip currents, and high winds. The tropical cyclone (TC) formation area over the East Pacific during Week-1 from the initial outlook is removed as a result. Over the Atlantic, NHC is issuing advisories for Potential TC 3 which is located near 27N/91W as of 2 PM EDT on the 18th. NHC gives this system a 90% chance of becoming a TC over the next two days while moving northward. Associated hazards with Potential TC 3 include 4-8 inches of rainfall (isolated totals approaching 12 inches), storm surge of up to 2-3 feet, tropical storm force winds, and isolated tornadoes. The original TC formation area over the Gulf of Mexico is refined based on the latest NHC advisory and forecast track, with interested parties referred to NHC, the Weather Prediction Center, or your local Weather Forecast Office for more information.

The Week-2 period added some TC considerations from the original outlook. The Joint Typhoon Warning Center is currently monitoring disturbance 94W near 5N/156E. Model guidance suggests the system is forecast to track toward Guam over the coming days and gradually intensify, with TC formation potentially happening around the middle of next week. As a result, a moderate confidence of TC formation is introduced during Week-2 with some lesser confidence of genesis happening during late Week-1. TC formation over the East Pacific continues to manifest among model guidance, with stronger signals than the original outlook for at least one TC forming off the southern coast of Mexico during Week-2 amidst the presence of atmospheric Kelvin wave activity. As a result, the TC formation region over the East Pacific from the original outlook has not changed, but confidence is increased to high for tropical cyclogenesis. While not on the forecast map, there are some signals among ensemble guidance for TC development across the far western Caribbean around the weekend of the 26th and 27th. Only a few members have this signal, and this area is prone to false alarms in model guidance, although the large-scale state is likely favorable for TC development here given the presence of the Kelvin wave also increasing TC formation odds for the East Pacific. Temperature and precipitation outlooks for each of the next two weeks are updated to align with the latest Weather Prediction Center forecasts, Days 6-10 outlook from CPC, and consensus among the CFS, ECMWF, and GEFS ensembles.

--- The original discussion from Tuesday, June 15th follows below. ---

Two eastward-propagating modes of intraseasonal variability associated with convective enhancement are currently present across the global tropics. The first is an atmospheric Kelvin wave currently over Southeast Asia that emerged from the active Madden-Julian Oscillation (MJO) envelope during mid-May. The second eastward-propagating feature is what remains of the MJO that sourced the aforementioned Kelvin wave, although the phase speed of this envelope has sped up to near the MJO/Kelvin wave interface on the wavenumber-frequency power spectra. Regardless of semantics, this feature is currently over Africa and projecting onto Phase 1 of the RMM index. Model forecasts of the RMM generally show the MJO/Kelvin wave feature to propagate to the Indian Ocean over the next few days prior to retreating within the unit circle and eventually emerging again over the Western Hemisphere late in Week-2. This evolution is sourced by the RMM index initially emphasizing the MJO/Kelvin wave over the Indian Ocean, before shifting focus to the Kelvin wave presently over Southeast Asia. It is unclear if the signal over the Western Hemisphere during Week-2 will be able to grow into a full-fledged MJO event or not, thus increasing uncertainty in precipitation outlooks the next two weeks. Some guidance continues to emphasize the mode currently approaching the Indian Ocean and instead bring this feature to the West Pacific by late June. Model guidance is most consistent on a likely continuation of equatorial Rossby wave activity over the tropics in the Eastern Hemisphere throughout June.

Three tropical cyclones (TCs) developed over the past week. Short-lived Tropical Storm Koguma briefly formed over the South China Sea on June 12th and dissipated within 24 hours. Depsite its short lifetime

and peak intensity of only 35 knots, Koguma brought heavy rains and flooding to portions of Vietnam and Laos. Additionally, Tropical Storm Carlos, formed over the East Pacific near 12N/123W on June 12th amidst a favorable background state from the MJO/Kelvin wave passage. Carlos reached peak intensity with 45 knot winds the following day, and is presently a tropical depression located near 10N/132W. Carlos is forecast to continue tracking west and gradually decay through Thursday. Lastly, Tropical Storm Bill developed on the 14th off the Outer Banks in association with a decaying cold front situated over the warm Gulf Stream waters. Bill presently has 45 knot winds with the National Hurricane Center (NHC) forecasting the system to rapidly track northeastward and possibly approach Newfoundland on Wednesday.

In addition to the active TCs, the NHC is currently monitoring two additional areas for tropical cyclogenesis over the Atlantic. The first is over the southwestern Gulf of Mexico, with NHC giving the disturbance a 40% (80%) chance of becoming a tropical cyclone over the next two (five) days while drifting northward, corresponding to a high risk of TC formation during Week-1. Interests along the Gulf of Mexico are referred to the latest guidance from the NHC, Weather Prediction Center, and their local Weather Forecast Office for the latest information on this system and any possible impacts. A robust easterly wave is presently over the main development region of the Atlantic, but is given a low chance of becoming a tropical cyclone (10% chance over both the next 48 hrs and 5 days) due to a hostile large-scale environment over the Central Atlantic in the wake of the MJO/Kelvin wave to its east. For the East Pacific, the NHC is monitoring the potential for a disturbance to form off the southern coast of Mexico around this weekend (60% chance of development through 5 days, moderate confidence throughout Week-1). Model guidance suggests this system could approach Baja California, which historically implies some chance of increased moisture making it into the Desert Southwest. Lastly, the Kelvin wave currently over Southeast Asia is forecast to induce a favorable large-scale environment for TC development off of southern Mexico during Week-2, leading to moderate confidence for cyclogenesis. TC formation chances appear quiet elsewhere, with the greatest potential likely tied to development within the Meiyu front during either of the next two weeks.

The precipitation outlook during the next two weeks is largely based on a consensus among the CFS, GEFS, and ECMWF ensemble means, anticipated TC tracks, and tropical waves. Above-normal temperatures across the Western U.S. during Week-1 are linked to mid-level ridging and in line with the latest Weather Prediction Center Medium-Range Hazards Outlook. Above-normal temperatures forecast during Week-2 across the Middle East and North Africa through Southern Europe align with calibrated reforecast guidance from the GEFS and ECMWF models. For hazardous weather concerns across the U.S., please refer to regular tropical updates from the NHC, as well as your local NWS Forecast Office, the Weather Prediction Center's Medium Range Hazards Forecast, and CPC's Week-2 Hazards Outlook. Forecasts over Africa are made in consultation with the International Desk at CPC and can represent local-scale conditions in addition to global scale variability.