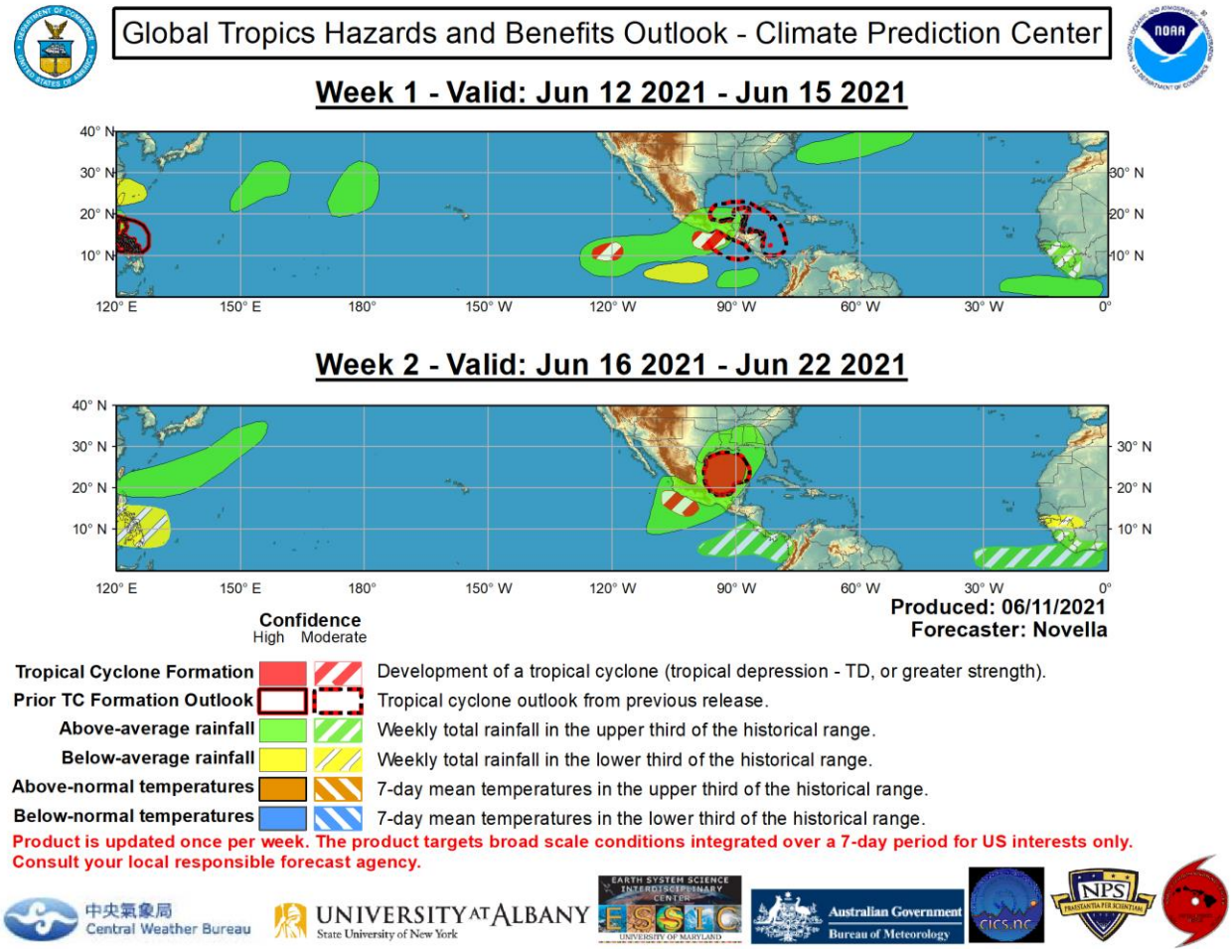

The RMM index has continued to propagate eastward across the Western Hemisphere while maintaining a low amplitude. This progression is depicted in the latest upper-level velocity potential anomalies featuring a weak, but expanded, coverage of anomalous divergence aloft extending from the central Pacific to Africa, and anomalous lower level westerlies persisting to the east of the Date Line during the past few days. RMM forecasts depict the continued eastward propagation of the intraseasonal signal with an increase in phase speed which is likely tied to forecast Kelvin wave activity in the Pacific projecting onto the index. While the GEFS and CFS continue to exhibit large spread in RMM space, the ECMWF favors a more coherent signal emerging near phases 8 and 1 by next week. Objective decomposition of tropical variability in the ECMWF upper-level velocity potential fields also reflects this trend with renewed MJO activity in the Western Hemisphere, which in turn could contribute to tropical cyclone (TC) formation across the East Pacific and Atlantic in the updated outlook periods.

While no TCs formed since the initial outlook this week, model guidance continues to maintain elevated chances for tropical cyclogenesis across the Pacific and the western Atlantic through mid-June. The Joint Typhoon Warning Center (JTWC) is monitoring a disturbance west of the Philippines, where there is continued model support for further development during the next few days tied to Rossby wave activity.

A high confidence area remains issued, but its extent is now more focused mainly over the South China Sea (not shown on days 1-4 outlook map). There are some indications for additional TC formation near the Mariana Islands by days 10 and 11, however confidence is too low at this time to include in the outlook. In the East Pacific, the National Hurricane Center (NHC) is currently eyeing two disturbances, one near 11N/115W and the other located to the southwest of the Gulf of Tehuantepec. The NHC gives these two disturbances at least a 50% chance of formation during the next five days and corresponding moderate confidence areas are posted for the days 1-4 period. Environmental conditions appear to be more conducive for further development of the latter disturbance which is associated with the anticipated enhancement of the Central American Gyre (CAG). As the center of this anomalous circulation is expected to shift further north by next week, there are elevated signals in the probabilistic TC tools to the south of Mexico during the days 5-11 period and a moderate confidence area is added here in the event a TC doesn't form before Jun 16.

Under this favorable environment, the NHC also expects the development of a trough of low pressure over the Bay of Campeche where there currently is a 20% chance of a TC formation during the next five days. Since earlier this week, dynamical models continue to favor the strengthening of this area of low pressure that shifts northward while deepening in the Gulf of Mexico by late next week. As there is also better support of this realization from probabilistic TC tools, this results in the formation area being upgraded to high confidence in the updated day 5-11 outlook. By next weekend, there are some disparities between the latest GEFS and ECMWF guidance with respect to its potential track toward the Gulf States. Ensemble members from the 6z GEFS depict low centers tracking towards the central and eastern Gulf, which is also consistent with today's 6z deterministic solution. The 0z ECMWF deterministic and 0z ensemble mean solution remain aligned along the western Gulf, favoring more of a northerly track along the 95th parallel, taking the system toward portions of eastern Texas and western Louisiana. Although above-normal rainfall is likely along the Gulf Coast, there is still a good deal of uncertainty regarding the track and intensity of this system and the resulting location of heavy rainfall and high winds in the region. For the latest information on system, please follow updates from the NHC (https://www.nhc.noaa.gov/), the Weather Prediction Center's Medium Range Hazards Forecast (https://www.wpc.ncep.noaa.gov/threats/threats.php), or your local Weather Forecast Office.

The RMM index indicates the enhanced phase of the MJO remains over the Western Pacific, where it has encountered destructive interference with Rossby wave activity and enhanced trades tied to a persistent atmospheric response to La Nina over the equatorial Pacific since late May. Eastward propagation of the intraseasonal signal has been rather limited since the beginning of the month, however there are indications that this signal is beginning to resume propagating eastward given a larger coverage of upper-level divergence anomalies extending east of the Date Line, and anomalous

lower-level westerlies that have developed across the central and eastern Pacific during the last few days. There is a general consensus in the dynamical models which favor continued eastward propagation of the MJO but maintain a low amplitude through the Western Hemisphere during week-1. By week-2, there is increased uncertainty with respect to the strength and evolution of the MJO as RMM forecasts continue to exhibit large spread among the GEFS, ECMWF and Canadian models. Regardless, the active phase of the MJO traversing the Western Hemisphere is likely to contribute to TC development across the eastern Pacific and western Atlantic through the middle of June. An uptick in tropical cyclone (TC) activity is also favored over the northern Indian Ocean and West Pacific tied to Rossby and Kelvin wave activity forecast over the region.

While no TCs formed during the last week, there are several areas across the global tropics with heightened potential for development through mid-June. In the western Hemisphere, the National Hurricane Center (NHC) anticipates the development of a broad trough of low pressure located to the south of Central America and extending into the Gulf of Tehuantepec. There is good model support for the enhancement of the Central American Gyre (CAG) late in week-1, and with probabilistic TC tools indicating moderate chances for development in the region a moderate confidence area is highlighted in the outlook for week-1. Tied to this favorable circulation environment, the NHC also anticipates the development of an area of low pressure across the southwestern Caribbean. The GEFS continues to depict several ensemble member low centers shifting northwestward into the Gulf of Honduras and into the Bay of Campeche by late in week-1. Given lesser support of this realization in the ECMWF guidance, a moderate confidence area is present for week-1. By the early portion of week-2, probabilistic TC tools maintain elevated chances of formation focused in the western Gulf of Mexico associated with mean low pressure in the ensembles. In the event a system does not develop further south during the week-1 period, a moderate confidence region is also added over the Gulf of Mexico to account for this potential. Regardless of formation, enhanced precipitation is favored across much of Central America, Mexico, the western Caribbean and into the lower Gulf States of the U.S. during the next two weeks. Elsewhere, increased signals of TC formation also exist in the western Atlantic associated with an area mid-latitude low pressure forecast to move off the Eastern Seaboard and stall offshore near the Southeast and mid-Atlantic. However, there is insufficient confidence this low will gain tropical characteristics and no corresponding TC area is posted.

In the eastern Hemisphere, the Joint Typhoon Warning Center (JTWC) is currently monitoring an area of convection east of the Mariana Islands. Although there is good agreement between the GEFS and ECMWF ensembles favoring some strengthening over the next day or so, this potential system is expected to soon encounter a high shear environment to inhibit development, thus no corresponding TC area is included in the week-1 outlook. However, high confidence areas for TC development are issued farther west for week-1 over the West Pacific (extending from the South China Sea through the Philippines), as well as over the Indian Ocean (northern Bay of Bengal) due to the aforementioned Rossby and Kelvin wave activity as well as continued agreement in ensemble guidance and probabilistic

TC tools. For week-2, there is more uncertainty in the TC perspective across the Pacific and Indian Basins. Ensembles favor an area of surface low pressure to persist over western India and the Bay of Bengal which may lead to additional tropical cyclogenesis in the region, however confidence is too low at this time to include in the outlook.

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. 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.