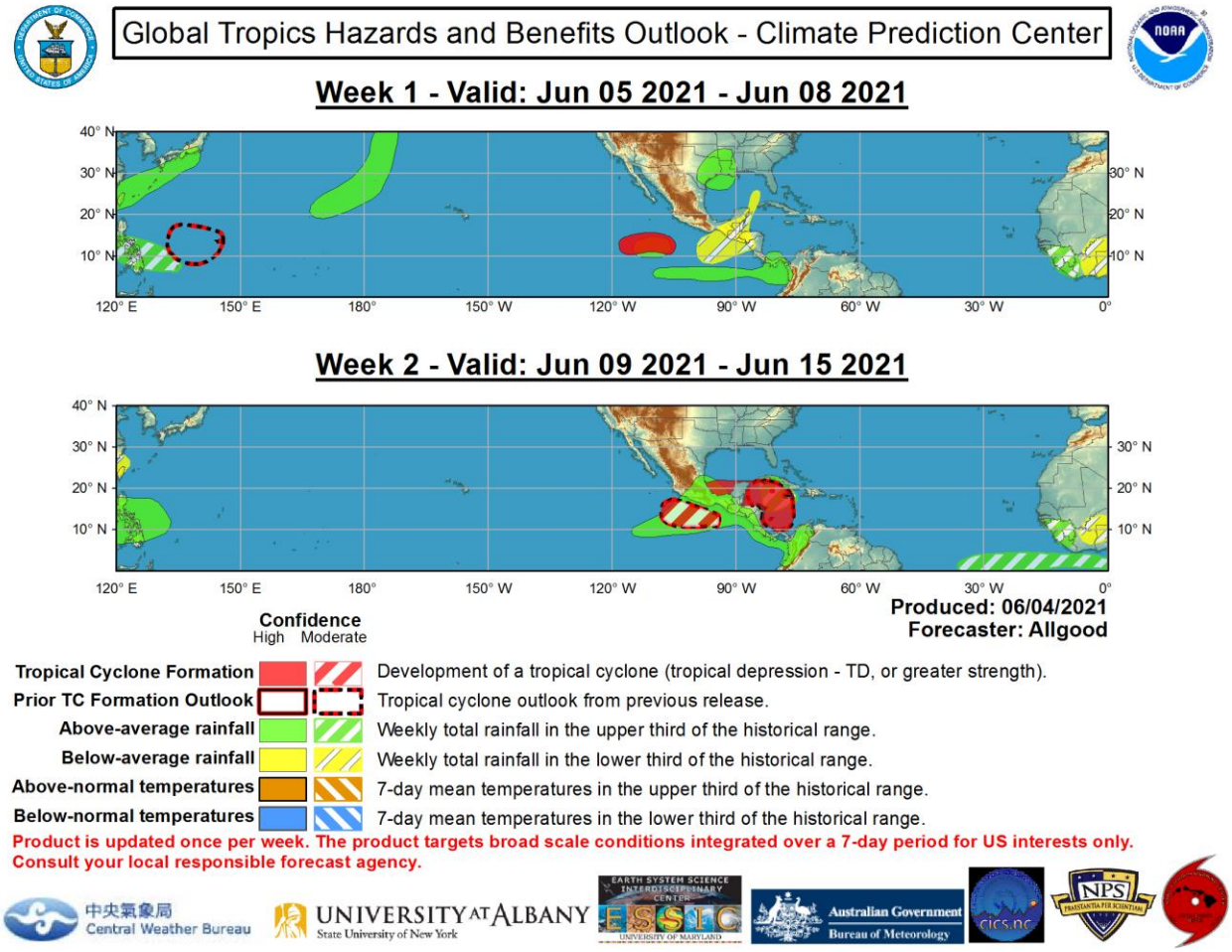

The RMM-based Madden-Julian Oscillation (MJO) index continued to show West Pacific enhancement, with the beginnings of eastward propagation. In contrast, the CPC upper-level velocity potential based index depicts fast eastward propagation with an enhanced signal over Africa. This latter signal is due to a robust Kelvin wave that has a strong upper-level projection. MJO index forecasts differ little from Tuesdayâ€™s outlook, with the ECMWF continuing to show propagation across the Western Hemisphere, while the GEFS is a bit more mixed due to interference from the Kelvin wave. Overall, this pattern would be supportive of an enhancement of the Central American Monsoon Gyre (CAG) during the forecast period, which in turn increases the potential for tropical cyclone formations in the vicinity of Central America.

Tropical Depression Blanca dissipated over the East Pacific, and the National Hurricane Center (NHC) issued its last advisory on the system today. Over the next five days, there is an increasing potential for new tropical cyclone development over the East Pacific southeast of the last position of Tropical Depression Blanca. Confidence has increased to high for tropical cyclone development in the Days 5-11 period (Week-2 on the initial outlook) over the western Caribbean or the Bay of Campeche. Dynamical models show a potential closed low forming over the western Caribbean and lifting northward, and the

active monsoon trough may make the Bay of Campeche increasingly favorable for development. Additionally, new tropical cyclogenesis is possible over the East Pacific, closer to the coast of southern Mexico than the anticipated activity over the next 4 days.

Elsewhere, confidence decreased to low for new tropical cyclone development over the West Pacific.

The original discussion released on 1 June 2021 follows.

The Madden-Julian Oscillation (MJO) propagated from the Maritime Continent to the Pacific through the end of May. Recent observations show that other modes are interfering with the intraseasonal signal, including West Pacific Rossby wave activity and a strong Kelvin wave now propagating over the Western Hemisphere. The CPC velocity potential-based MJO index shows a weak signal crossing the Pacific, but spatial analyses of upper-level velocity potential anomalies shows a Wave-2 asymmetry, with a weak and zonally narrow enhanced phase over the West Pacific and a robust Kelvin wave response approaching Africa. Dynamical model MJO index forecasts show continued interference from West Pacific Rossby wave activity during the first part of Week-1, followed by a fairly fast eastward propagation of the intraseasonal signal across the Western Hemisphere during Week-2. It is possible that this propagation may be due to strong Kelvin wave activity.

After crossing the East Pacific, the Kelvin wave now approaching Africa contributed to the development of Tropical Storm Blanca, now well south of the Baja California peninsula. Forecasts from the National Hurricane Center (NHC) depict this system taking a generally westward course with gradual weakening over the next several days. Over the West Pacific, Tropical Storm Choi-Wan developed on 30 May, and is currently weakening while moving through the northern Philippines.

Consistent with Rossby wave activity moving from the West Pacific to the Maritime Continent, additional tropical cyclogenesis is favored over the Northwest Pacific. A weak system has a low potential to develop as it approaches the Philippines over the next day or two, while dynamical models favor additional development in the vicinity of Guam later in Week-1. The Joint Typhoon Warning Center (JTWC) is also monitoring a disturbance (Invest 93S) over the southeastern Indian Ocean that has a moderate potential for development during Week-1. During Week-2, the forecast MJO or Kelvin wave activity supports additional tropical cyclogenesis over the East Pacific (moderate confidence).

Additionally, dynamical models including the ECMWF favor moderate confidence for potential tropical cyclone development over the western Caribbean Sea.

Favored areas for above- and below-normal precipitation are based largely on a consensus among the CFS, GEFS, and ECMWF dynamical models, with some consideration given to precipitation composites during canonical MJO events. Consistent with MJO activity, enhanced precipitation is favored to lift northward over the Monsoon regions of Southeast Asia during Week-2, while increased convection, including the potential tropical cyclone activity mentioned above, is favored in the vicinity of Central America. For hazardous weather concerns during the upcoming two weeks across the U.S. please refer to your local NWS Forecast Office, the Weather Prediction Center's Medium Range Hazards Forecast, and CPC's Week-2 U.S. 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.