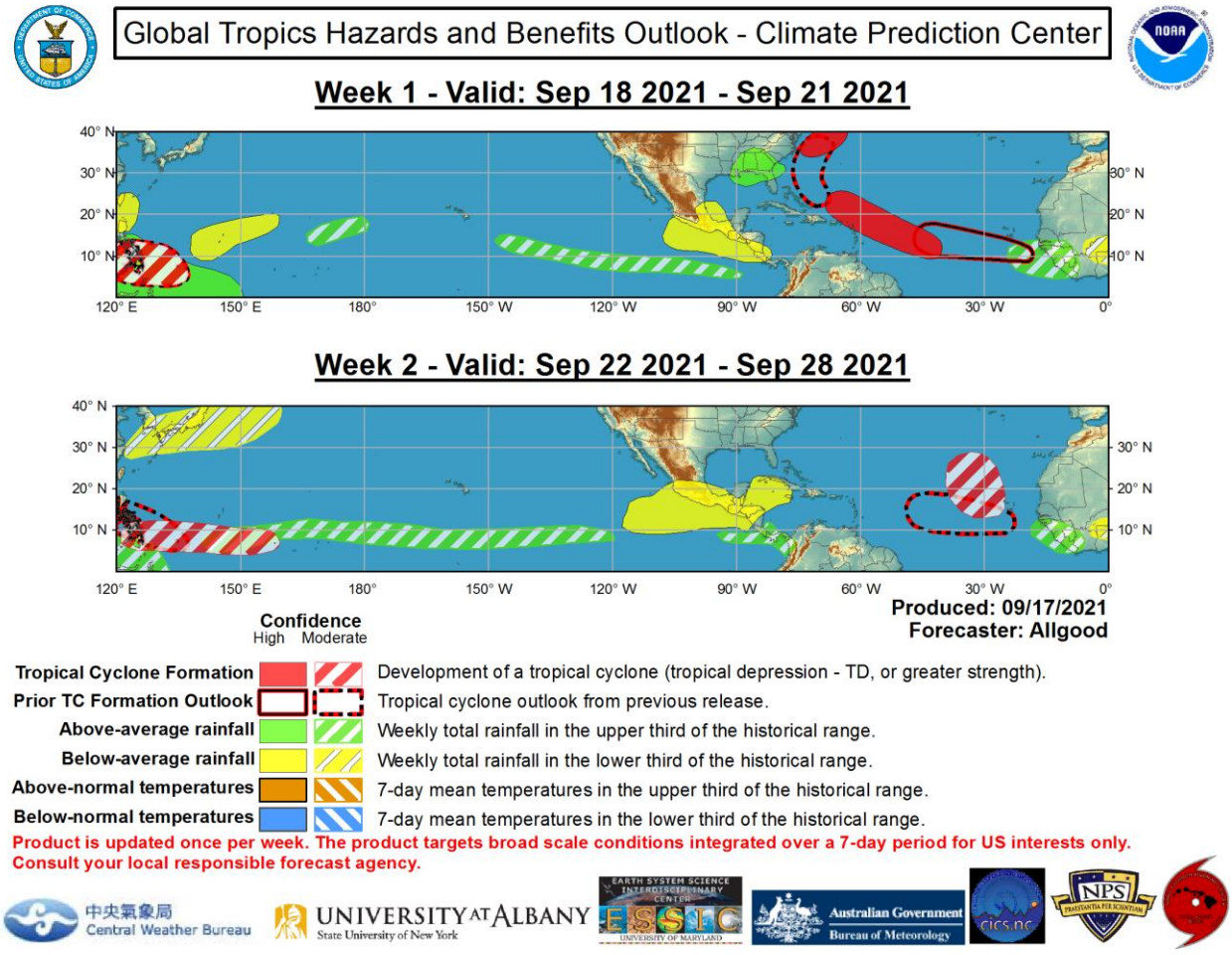

The CPC velocity potential and RMM-based MJO indices continue to indicate a fairly stationary pattern favoring enhanced (suppressed) convection over the eastern Indian Ocean and Maritime Continent (Pacific and Americas). Dynamical model MJO index forecasts are fairly consistent with their runs earlier in the week, favoring a slow evolution across the Maritime Continent by Week-2; however, the spread among the ensemble members has increased, reflecting even greater uncertainty. The ECMWF ensemble mean precipitation forecast depicts a more active North Pacific ITCZ than earlier in the week, suggesting the potential for a more progressive pattern. A low frequency state favoring enhanced convection over the Maritime Continent and suppressed convection across the Central Pacific will continue to strongly influence the overall pattern.

No new tropical cyclones developed during the initial days of the Week-1 outlook. For Days 1-4, the National Hurricane Center (NHC) continues to monitor a tropical wave about midway between the Cape Verde Islands and the Lesser Antilles. This system failed to organize earlier in the week, but given an increasingly favorable environment, there remains high confidence for formation. A second tropical wave is forecast to emerge from the coast of Africa later in Week-1, and the NHC 5-day tropical weather outlook (TWO) depicts a low potential for formation. There is a moderate potential for this system to

develop into a tropical cyclone during Days 5-11 as it tracks generally to the northwest. Beyond this period, dynamical model ensemble members continue to show additional Atlantic MDR activity, but confidence is too low to depict a new area on this outlook. A fairly quiet pattern is favored across the East Pacific, western Caribbean, and Gulf of Mexico. Across the West Pacific, the area around the Philippines remains moderately favorable for tropical cyclogenesis. The potential formation area was expanded eastward in the Days 5-11 outlook due to an increase in convection favored by the ECMWF.

The original discussion released on 14 September 2021 follows.

The amplitude of both the CPC velocity potential based and RMM-based MJO (Madden-Julian Oscillation) indices have increased during the past week, and recent zonal wind observations were increasingly consistent with a Wave-1 pattern characteristic of an intraseasonal signal. Enhanced large-scale anomalous divergence (convergence) aloft extended from Africa through the Maritime Continent (Pacific through the central Atlantic), and widespread enhanced convection has been observed across the equatorial Maritime Continent extending northwestward to the monsoon regions of South and Southeast Asia. However, there has been little eastward propagation of these large-scale features, and time-longitude plots of various fields suggest the evolution of a low frequency state favoring enhanced (suppressed) convection over the Indian Ocean (central Pacific). Dynamical model MJO index forecasts generally favor a continuation of the stationary pattern during Week-1, followed by renewed eastward propagation of the signal across the Maritime Continent during Week-2. Individual ensemble members from both the GEFS and ECMWF model systems suggest a broad range of possibilities, with solutions ending up in completely opposite phases by the end of Week-2. Also, many GEFS ensemble members that depicted a strong Maritime Continent MJO event during yesterday's run display weaker amplitudes today. Therefore, convective anomalies similar to a MJO event over the eastern Indian Ocean or Maritime Continent are favored during Week-1, but uncertainty increases during Week-2. With renewed eastward propagation generally favored, this may help reduce tropical cyclone activity across the East Pacific and Atlantic basins, particularly in the vicinity of Central America. However, a September climatology and a lack of a substantial shear environment favors the potential for at least some tropical cyclone activity during the next two weeks, especially across the Main Development Region (MDR) in the Atlantic.

Three tropical cyclones developed during the past week. Tropical Storm Mindy formed in the Gulf of Mexico on September 8 and made a quick landfall on St. Vincent Island, FL with 45mph sustained winds. Hurricane Olaf also formed on September 8 south of Mexico, tracking northwestward towards Baja

California. The storm intensified rapidly, reaching Category-2 intensity on the Saffir-Simpson scale just prior to landfall near San Jose del Cabo. Hurricane Olaf dissipated quickly after re-emerging over the Pacific just west of the Baja California peninsula. On September 12, Hurricane Nicholas formed from a disturbance that moved into the Bay of Campeche. Strengthening steadily as it moved northward, Hurricane Nicholas made landfall near Sargent Beach, TX at Category-1 intensity. Although Nicholas has since weakened to tropical storm strength, the system is continuing to draw copious amounts of moisture from the Gulf of Mexico, and is expected to generate widespread severe flooding across northeastern Texas, Louisiana, and parts of the central Gulf Coast as it meanders slowly northeastward over the next few days.

During Week-1, a tropical wave emerging off the western coast of Africa has a 90 percent chance of development according to the latest tropical weather outlook from the National Hurricane Center (NHC). Additionally, low pressure is anticipated to form north of the Bahamas during Week-1, with a 60 percent chance of formation through the next five days. This potential system will most likely remain offshore, but may bring some impacts to the coastal Carolinas as it tracks generally northward. Late in Week-1 or early Week-2 period, a second tropical wave is forecast to emerge from Africa and has a moderate potential for development. Elsewhere, dynamical models show a general potential for tropical cyclone development over the West Pacific basin in the vicinity of the Philippines, but the Joint Typhoon Warning Center is not currently monitoring any specific invest areas.

The precipitation outlook during the next two weeks is based on a consensus of GEFS, CFS, and ECMWF guidance, anticipated TC tracks including long-lived Typhoon Chanthu which is forecast to pass near South Korea and western Japan as a tropical storm over the next few days, and precipitation composites of past Indian Ocean and Maritime Continent MJO events for Week-1. The strongest precipitation signals favor enhanced (suppressed) convection across the equatorial Maritime Continent (vicinity of Central America) during both Week-1 and Week-2. Model solutions for precipitation diverge considerably during Week-2. For hazardous weather concerns during the next 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 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.