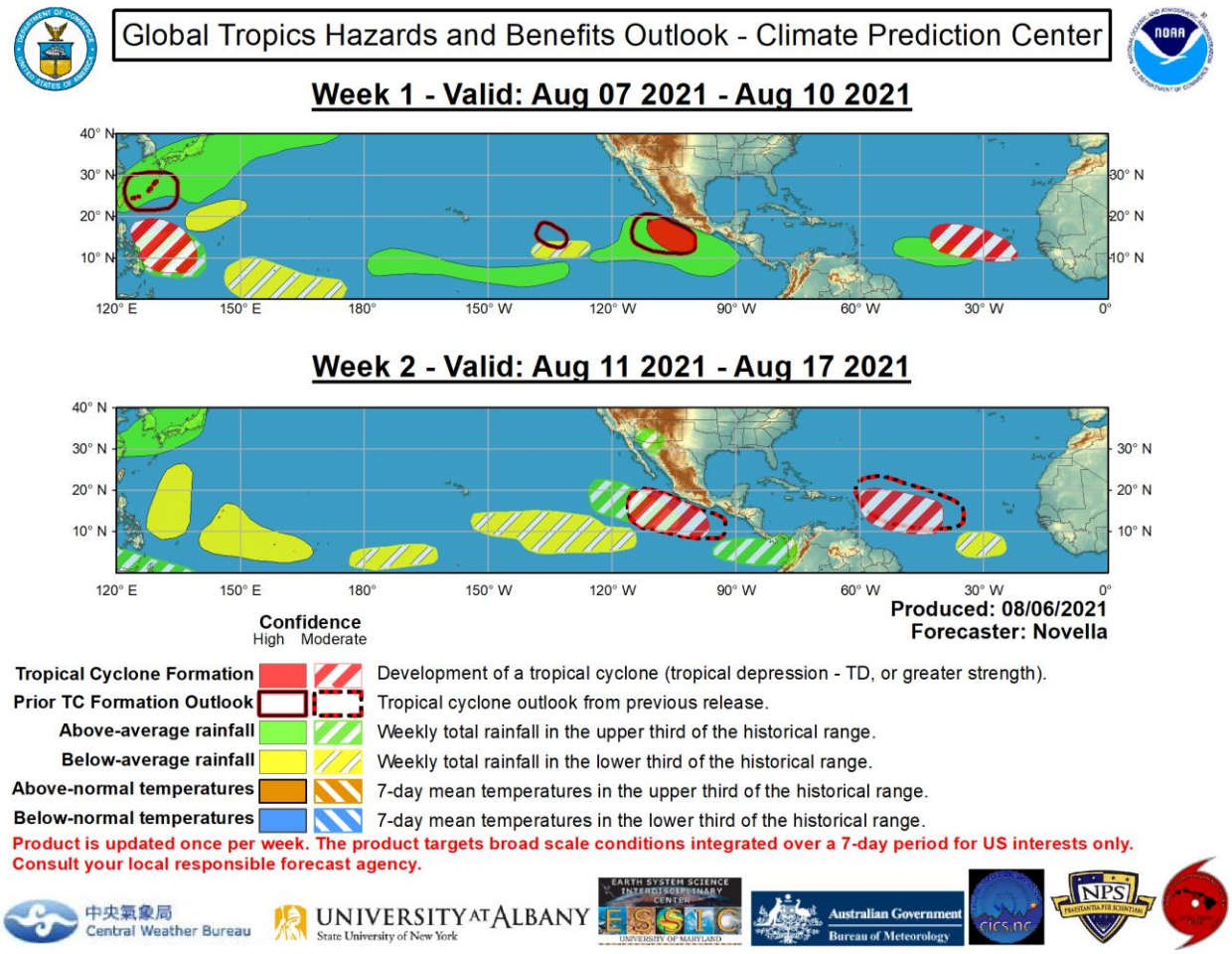

ï»¿As previously forecast, the Madden Julian Oscillation (MJO) propagated eastward across the Western Pacific while decreasing in amplitude over phase 8 during the past several days as it recently entered the unit circle in RMM space. There is little change in regards to the predicted evolution of MJO among the dynamical models, which continue to favor its eastward propagation through the Western Hemisphere and into the Indian Ocean by the middle of August. However, RMM forecasts have trended more towards the development of a stronger intraseasonal event since earlier this week with several ensemble members favoring a higher amplitude signal over Africa and the Indian Ocean by early next week. Consequently, tropical cyclone (TC) development remains favored across the East Pacific and the Atlantic basin, with decreasing chances for additional tropical cyclogenesis over the West Pacific later in August.

The Joint Typhoon Warning Center (JTWC) is currently monitoring four active TCs in the West Pacific, where two TCs, Tropical Storms Mirinae (14W) and Nida (15W), formed during the last few days. Miranae is currently located several hundred miles east of Okinawa (near 27N/133E) and is forecast to steadily intensify and absorb Tropical Depression 12W, while tracking northeast just offshore of Honshu, Japan. Heavy precipitation and high winds associated with this system are possible over Japan which

may adversely impact the Summer Olympic games this weekend. Since forming earlier this week in the South China Sea, Tropical Storm Lupit (13W) made landfall over eastern China bringing heavy rainfall over the Guangdong and Fujian provinces. The official forecast track from JTWC shows Tropical Storm Lupit tracking east across northern Taiwan during the next 24 hours, before accelerating and turning northeastward under the influence of an upper-level trough. By this time, increased vertical wind shear and dry air are expected to limit any strengthening, however high winds and enhanced precipitation amounts are possible over portions of Japan by early next week. Interests in Japan and Taiwan should monitor the latest forecasts from their local meteorological agency regarding these two systems. Farther east, Nida is currently located near 36N/151E and is forecast to strengthen during the next 24 hours before undergoing extratropical transition over open waters later this weekend. For days 1-4, there is growing support in the models, particularly in the GFS and GEFS which favor a closed low formation in the Philippine Sea, and a moderate confidence area for TC formation is added in the updated outlook. During the latter period, the GEFS and ECMWF ensembles continue to feature increased surface pressure prevailing across the northwestern Pacific tied to the suppressed phase of MJO, and no TC hazards are issued.

In the western Hemisphere, the Central Pacific Hurricane Center is eyeing a disturbance located approximately 1000 miles south-southwest of Hawaii with a 20% chance of formation during the next 5 days. No hazard is posted given the low chance for development, but this disturbance will continue to be monitored in subsequent outlooks as this low is expected to cross the Date Line next week. In the eastern Pacific, Tropical Storm Jimena developed on 8/4 near 15N/136 from a remnant low circulation (formerly TD 9E) resulting in the corresponding TC area being removed from the updated outlook. After peaking at Tropical Storm intensity, the National Hurricane Center (NHC) forecasts Jimena to gradually weaken and dissipate over open waters later this weekend. Farther east, the NHC continues to monitor an area of disturbed weather to the south of Mexico with high chances (70%) for TC formation by early next week and a high confidence region for TC formation is maintained in the days 1-4 period. For the latter period, probabilistic TC tools continue to depict elevated signals for additional TC formation to the south of Mexico and a moderate confidence area is also maintained. In the Atlantic, the NHC is monitoring a tropical wave near the Cape Verde islands with a 60% chance of development during the next 5 days and corresponding moderate confidence area is added to the updated outlook. A moderate confidence area also remains posted for the days 5-11 period in the event a TC doesn't form by early next week as guidance continues to favor an area of deepening low pressure in the Main Development Region associated with this wave. Another tropical wave located in the central tropical Atlantic is also being monitored by NHC for potential formation near the Lesser Antilles, however there is little support in the guidance for further development of this disturbance.

Forecasts for enhanced and suppressed precipitation are updated to reflect the latest dynamical models guidance and anticipated TC tracks.

------ Previous discussion from Aug 3, 2021 is below ------

The RMM index indicates the intraseasonal signal propagated eastward into the Western Hemisphere (phase 8) this past week with an acceleration of the signal appearing to fall more in-line with the Kelvin wave side of the wavenumber-frequency spectrum. This fast phase speed (sharp decrease in RMM1 values) may be attributed to the reversal of anomalous lower-level winds observed over the central and eastern equatorial Pacific that occurred at the end of July. The latest combined 200-hPa velocity potential anomaly and IR analyses depict a wave-2 pattern, with the main convective envelope centered east of the Date Line, and the leading edge over the eastern Pacific. The secondary area of anomalous divergence aloft is observed over the eastern Atlantic and Africa which is likely tied to a Kelvin wave that had separated from the main envelope last week. Despite some of these nuances, the zonal wind fields continue to reflect a coherent intraseasonal event particularly in the upper-levels where anomalous easterlies (westerlies) have shifted eastward into the Western Hemisphere (Africa and the western Indian Ocean). There is a general consensus in the dynamical models featuring the continued eastward propagation of the MJO over the Western Hemisphere while decreasing in amplitude early in week-1. Following this period of weakening in RMM space, which may be tied to interference with other modes of tropical variability, models have been trending towards the reemergence of the intraseasonal signal over phase 1 later in week-1, with continued eastward propagation of the signal at a moderate amplitude over the Indian Ocean later in week-2. Consequently, the large-scale environment is anticipated to be conducive for continued tropical cyclone (TC) activity over the East Pacific, with gradually increasing chances for formation in the tropical Atlantic towards the middle of August. Conversely, the suppressed phase of the MJO is likely to reduce chances of tropical cyclogenesis in the northwestern Pacific basin later in the outlook period.

Several TCs formed during the past week in both hemispheres. In the West Pacific, Tropical Depression 13W formed on 8/2 over the South China Sea, and it is forecast to intensify to Tropical Storm strength while tracking northwestward, bringing potentially heavy precipitation amounts and elevated winds along portions of the Chinese Coast and Taiwan over the next several days. Farther east, Tropical Depression (TD) 12W formed on 8/2 near 23N/154E and continues to remain rather unimpressive in satellite imagery under an unfavorable shear environment. The Joint Typhoon Warning Center (JTWC) forecasts this system to continue tracking to the northwest and dissipate during the next day or so over open waters. In the Western Hemisphere, three TCs formed over the East Pacific, TD 9E (7/30), Hilda (7/30) and Ignacio (8/1). Although TD 9E quickly weakened and became a remnant low this past weekend near 11N/127W , Hilda and Ignacio strengthened and peaked as a category 1 Hurricane and Tropical Storm respectively over the past few days over open waters. Currently at Tropical Storm strength, the National Hurricane Center (NHC) forecasts Hilda to continue weakening while tracking

northwestward into cooler waters and dissipate later this week. Similarly, Ignacio has since weakened into a tropical depression and is forecast to dissipate in the next day or so.

The JTWC is monitoring a disturbance (Invest 97W) located to the east of Taiwan where there is good model support for formation over the next few days, prompting a high confidence area in the week-1 outlook. With favorable environmental conditions anticipated for further strengthening of this disturbance this week, interests in Japan and Taiwan should monitor the latest forecasts from their local meteorological agencies. By week-2, the GEFS and ECMWF ensembles favor increased surface pressure prevailing across the northwestern Pacific, which is likely to inhibit development and place an end to an active TC period across the basin since mid-July. Given this forecast and the aforementioned suppressed phase of the MJO expected over the region, no corresponding TC areas are posted for week-2.

In the eastern Pacific, shower activity associated with the remnants of TD 9E as referenced above have shown better signs of organization over the past few days where the NHC gives this disturbance at least an 80% chance of formation over the next two days. Thus, a high confidence area for TC formation is posted for week-1 as this system is forecast to regenerate into a tropical depression before encountering cooler waters later in the week. Farther east, a high confidence TC hazard is posted to the south of Mexico where there is good continuity in both the models and probabilistic tools for TC formation later in week-1. By early week-2, probabilistic tools indicate a secondary area to the south of Mexico with elevated chances for TC development and a corresponding moderate confidence area is added to the week-2 outlook. Should these potential tropical disturbances near the mouth of the Gulf of California as depicted in 0z and 6z GFS deterministic solutions, this would help to initiate a gulf surge event and promote the enhancement of precipitation across the Desert Southwest.

The Atlantic looks to wake up from its TC slumber as guidance has begun to show increasing potential for TC formation across the Main Development Region (MDR). While the NHC is currently monitoring a weak disturbance near the Cape Verde islands with a limited chance of formation during the next 5 days, today's ensembles depict another easterly wave moving off of West Africa later this week. Deterministic and ensemble guidance from the ECMWF are supportive of a deepening area of low pressure over the MDR by early week-2, whereas the GEFS and GFS have been relatively weaker with this development. Despite these differences, a moderate confidence of TC formation is posted for week-2 given the approaching enhanced phase of the MJO, and this increased TC potential is anticipated to extend into the week-3 timeframe coinciding with the climatological rise in tropical cyclogenesis over the MDR later in August.

The precipitation outlook during the next two weeks is based on a consensus of GEFS, CFS, and ECMWF guidance, with some consideration given to precipitation composites based on prior MJO events. 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.