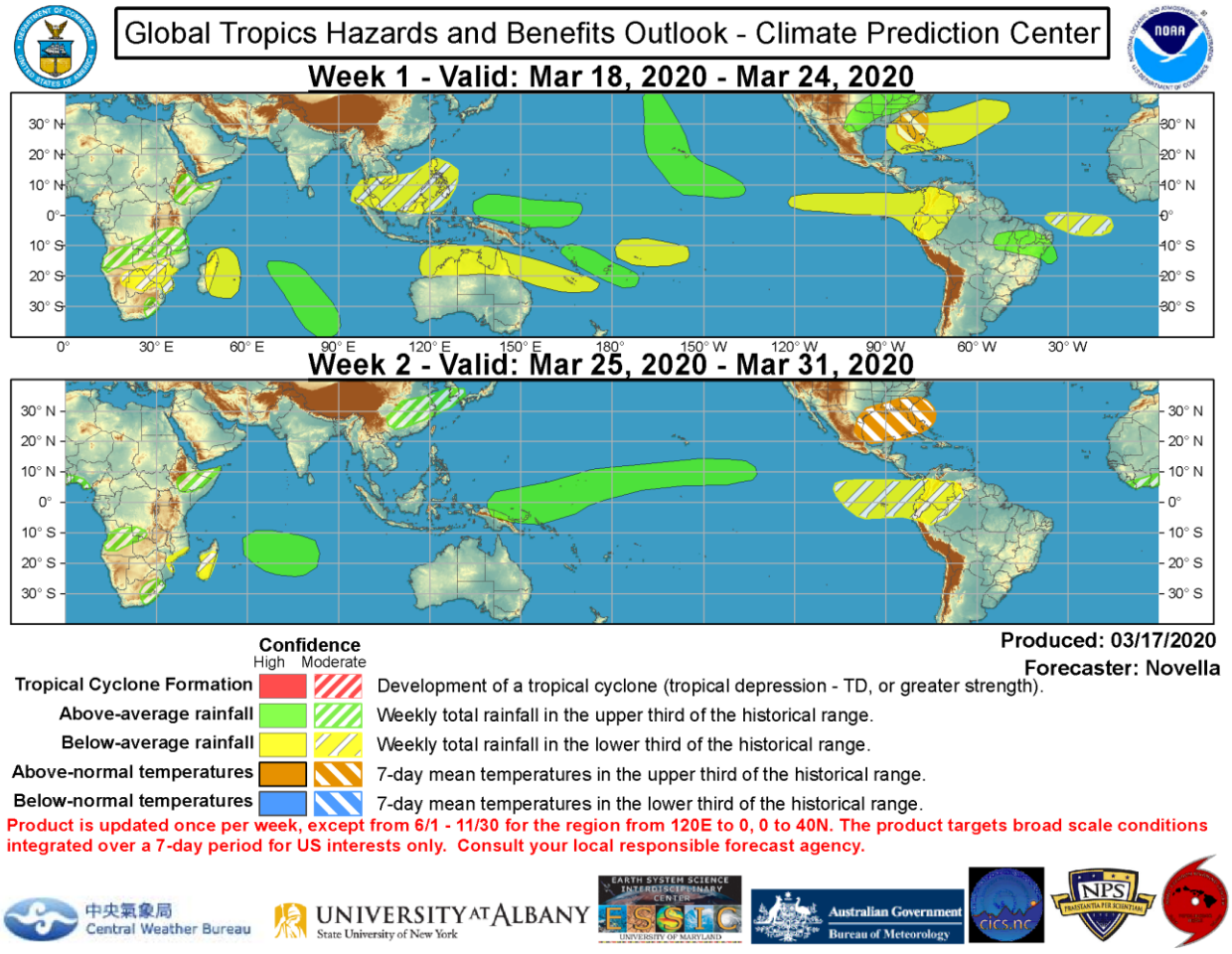

During early March, the Madden-Julian Oscillation (MJO) became more organized as it propagated eastward across the eastern Indian Ocean and Maritime Continent. However, the RMM index indicates that the MJO weakened as it traversed the western Pacific during the past week. Analysis of upper-level velocity potential anomalies supports a weaker MJO, with enhanced (suppressed) convection remaining stationary across the western Pacific (Indian Ocean) during the past few days. Enhanced convection associated with a low frequency signal continues around the Date Line, as well as over equatorial Africa associated with recent equatorial Kevin/Rossby wave activity. Dynamical models are in good agreement with the MJO reemerging over the Western Hemisphere/Africa during Week-1 and propagating eastward over the Indian Ocean. By Week-2, model solutions diverge, as some ensemble members suggest that the MJO again weakens over the Indian Ocean, while other members suggest the MJO continues to propagate eastward over the Maritime Continent with moderate amplitude in RMM space.

The tropics have been active during the first half of March in the Eastern Hemisphere but are forecast to become much quieter for the latter half of March. During the past week, a short-lived tropical cyclone (TC) Twenty-One formed on 3/11 to the west of Australia, and TC Herold formed on 3/13 to the east of Madagascar and intensified to Category 3 strength while tracking westward to the north of Mauritius.

The Joint Typhoon Warning Center (JTWC) forecasts Herold to gradually weaken in open waters over the next few days. Over the South Pacific, TC Gretel formed on 3/14 and reached a peak intensity of 55kts before dissipating to the southeast of Vanuatu. For the Week-1 and Week-2 outlook, the latest model guidance indicates little to no signal for tropical cyclogenesis.

The precipitation outlook during the next two weeks is based on dynamical model consensus and predicted influence from the weak MJO or Kelvin/Rossby waves crossing the global tropics. In the Eastern Hemisphere, enhanced rainfall associated with the passage of TC Herold over the southern Indian Ocean is forecast, while suppressed precipitation is favored over Madagascar, and over parts of southeastern Africa during Week-1. Below-average rainfall associated with the quasi-stationary suppressed phase of the MJO is forecast for portions of the Maritime Continent and northern Australia for Week-1. Enhanced rainfall for areas at and to the west of the Date Line are also favored for both Week-1 and Week-2 tied to the low frequency signal in the region.

In the western Hemisphere, enhanced precipitation is forecast over the central Pacific associated with the passage of a Kona Low near Hawaii. Probabilistic model guidance indicates at least a 90% chance weekly precipitation amounts exceed the upper tenth of the climatological distribution which elevates the risk of flooding, particularly for the northwestern Hawaiian Islands during early Week-1. For Week-2, models favor the potential for enhanced precipitation to shift south over the equatorial Pacific. Over North America, enhanced precipitation is likely for Week-1 over the Great Plains and Mississippi Valley of the U.S. associated with upper-level troughing and surface low development in the region. Due to increased thermodynamic instability, severe thunderstorms and localized flooding are possible, particularly over parts of the Mississippi Valley and the Southeast due to saturated soils from antecedent rainfall this winter. Conversely, below-average precipitation is expected to continue over Florida and parts of the Caribbean associated with subtropical ridging forecast over the region. Suppressed rainfall and above-average high temperatures are likely to increase the risk of grassfires in Florida. By Week-2, models guidance suggests slightly wetter conditions; however, above-average temperatures are favored to persist over the region. Over the eastern equatorial Pacific and northern South America, suppressed rainfall is expected to continue through the end of the month.

Forecasts over Africa are made in consultation with CPCs international desk, and can represent local-scale conditions in addition to global-scale variability.