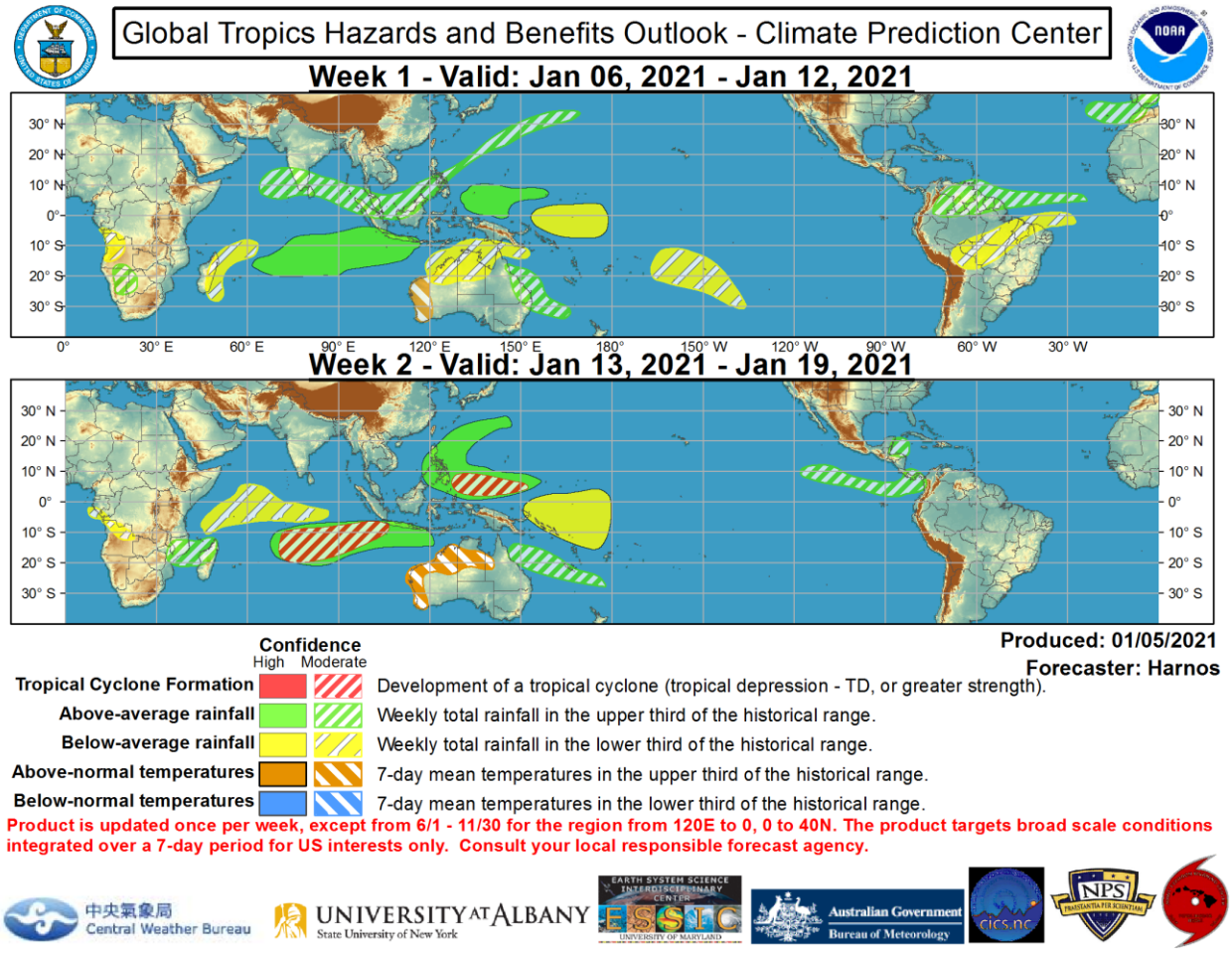

The global tropical circulation continues to be dominated by La Nina, with anomalous 200-hPa westerlies (easterlies) over the equatorial Pacific (Indian Ocean and Maritime Continent) with this pattern reversed in the trades over the respective regions. This has helped to drive persistent convection near 120E, while suppressing convection between roughly 150E and 150W. The Madden-Julian Oscillation (MJO) has been conspicuously absent from any obvious roles in driving the tropical circulation or convection, although time-longitude analyses place what remains of its presence over the Western Indian Ocean. These time-longitude perspectives reveal atypical eastward propagating convection with a higher wavenumber (roughly wave-6) that is spatially confined (~20 degrees) and has a phase speed which is uncharacteristically slow for the MJO (on the order of only a few m/s). These features may result from Kelvin waves being forced to slow down over the Eastern Hemisphere given the anomalous tropical circulation from La Nina enhancing the background state (i.e. 200-hPa easterlies being amplified by the anomalous easterlies over the Indian Ocean, with the background and anomalies reversed over the Western Hemisphere). This in essence causes the easternmost half of a Kelvin wave to decelerate before its western half catches up to it, thereby shrinking its spatial extent. The anomalous easterlies, coupled with the background state, then decreases the overall phase speed over the Eastern Hemisphere prior to a rapid acceleration once reaching the climatological and anomalous westerlies over the Pacific. These Kelvin waves may be aliased into the MJO forecasts during the next several

weeks, resulting in a need to take them cautiously. The RMM index places the MJO as near the unit circle over the Eastern Indian Ocean at present. Model forecasts of the RMM index diverge in either favoring westerly propagation (emphasizing Rossby wave activity) or rapid eastward progression (emphasizing the aforementioned spatially confined Kelvin wave activity) over the next two weeks. The ECMWF model is a bit slower than the GEFS in terms of solutions having an eastward progression, and would be more in line with a canonical MJO event.

Tropical Cyclone (TC) Danilo formed on New Year's Day over the southern Indian Ocean near 11S/72E. This system has drifted southeast since developing, and is forecast to curve westward toward Mauritius over the coming days. Short-lived TC Imogen formed over the Coral Sea on the 3rd of January, tracking to the east-southeast before dissipating on the 5th. Despite its modest intensity and short lifetime, Imogen brought widespread flash flooding to portions of eastern Australia. No tropical cyclogenesis appears likely globally during Week-1. During Week-2, one or two TCs could form in a band between 5-20S and 75-105E (moderate confidence). Moderate confidence for TC formation also exists between 5-10N and 130-155E during Week-2 tied to multiple disturbances tracking westward through the region.

Precipitation forecasts the next two weeks closely follow contributions from La Nina (high confidence for suppressed rainfall near the Date Line) and the intraseasonal variability noted in the first paragraph (high confidence for enhanced rainfall over the eastern Indian Ocean). High confidence for above-median rains during Week-2 also are posted along the areas being highlighted for TC formation. Very warm sea surface temperatures north of New Guinea in the Pacific warm pool also result in high confidence for persistent above-median rainfall during each of the next two weeks. Remaining forecast areas are generally a result of consensus among the CFS/GFS/ECMWF ensemble means.

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. Moderate confidence for above-normal temperatures are forecast across portions of Australia during Week-1 and Week-2. For those with Australian interests can reference the Heatwave Service from Australia's Bureau of Meteorology for more information. Forecasts over Africa are made in consultation with the CPC International Desk, and can represent local-scale conditions in addition to global-scale variability.