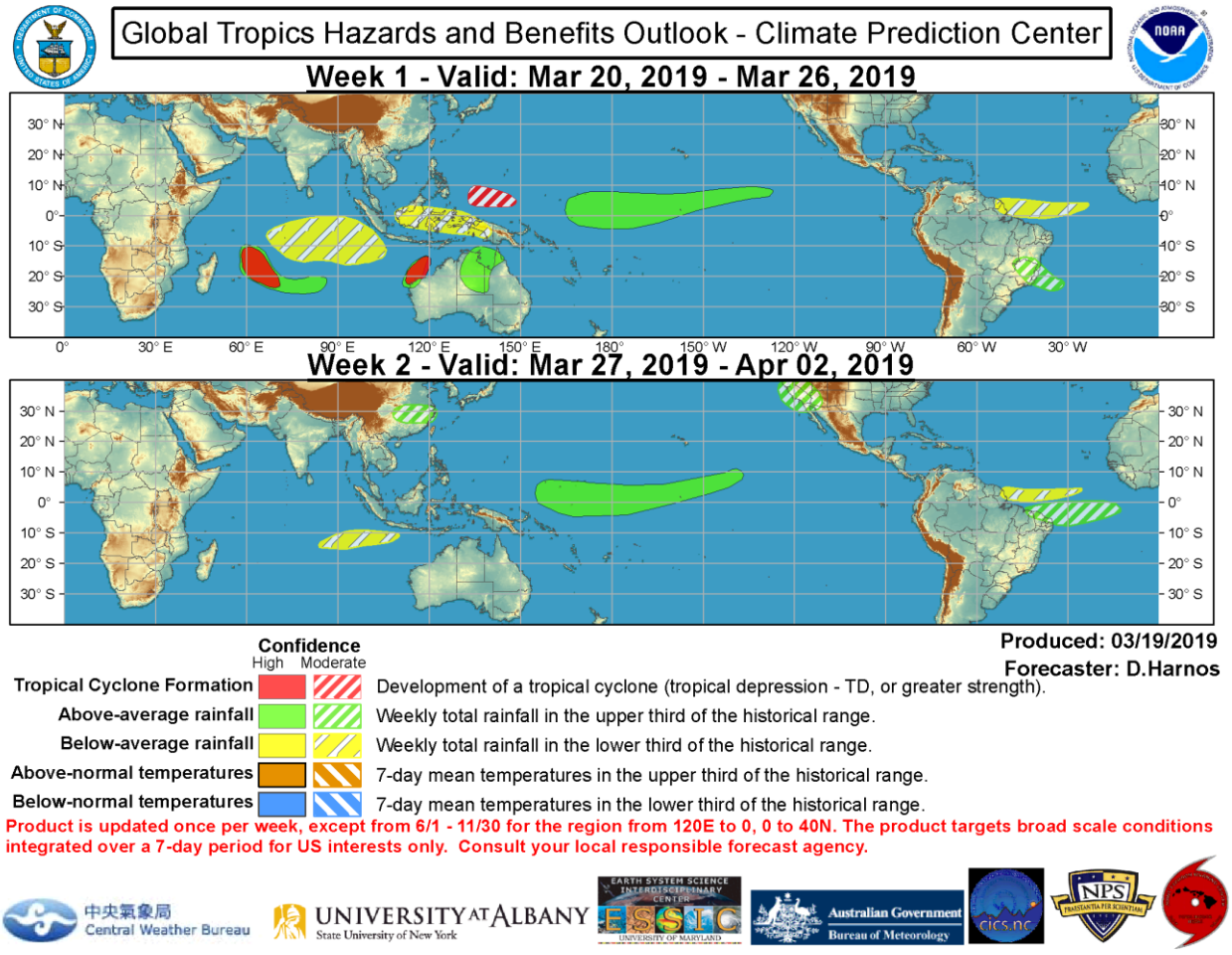

Over the past seven days the Madden-Julian Oscillation (MJO) remained over the Maritime Continent. The CPC velocity potential-based index depicts a fairly robust event, which is also supported by the emergence of negative outgoing longwave radiation anomalies over the Maritime Continent in opposition to the low-frequency signal we would expect given the ongoing El Nino. Counterintuitively, the RMM index shows the MJO weakening substantially, with the signal near-zero in the latest observations. The reasons for the failure of the RMM index to track the MJO appear twofold. First, a Kelvin wave is currently across the Western Hemisphere and is serving to divide the signal between two competing centers of action that are roughly 180 degrees out of phase. Second, the increasing atmospheric response to the anomalously warm sea-surface temperatures near the Date Line with the ongoing El Nino is causing the long-term mean signal to favor Phases 7/8 (shifting away from Phases 3/4), to the point that it has become difficult for the intraseasonal signal to manifest itself. Despite this, there appears to be little reason to doubt the MJO's progression to the West Pacific some point next week given the MJO's resiliency as it passes through the low frequency suppressed convective signal over the Maritime Continent. Phase 5 conditions are largely favored in Week-1, with the MJO entering the West Pacific (Phase 6) during late in Week-1 or early in Week-2. The Phase 6 conditions could be interesting given the superposition of the enhanced phase of the MJO with the El Nino convection, and potentially supporting a robust extension of the subtropical jet across the Pacific.

Two tropical cyclones (TCs) formed over the past week in the Southern Hemisphere. The first of these was TC Savannah, which developed near 12S/96E on the 14th. Savannah reached peak intensity on the 17th, with 100 knot winds, but the system has remained well-removed from any landmasses during its time as a TC. TC Trevor formed in the Coral Sea near 13S/146E on the 17th and quickly intensified to possess 100 knot winds by the 19th. Trevor is forecast to track west across Queensland and enter the Gulf of Carpentaria early in the forecast period, with the system anticipated to reintensify before a second landfall in the Northern Territory around the 23rd. Elsewhere, the Joint Typhoon Warning Center (JTWC) gives a high chance of development to a disturbance near 14S/121E (as of 3Z on 19 March), with model guidance suggesting the system will parallel the Kimberly Coast before a possible landfall near Exmouth late in Week-1. JTWC also is monitoring a disturbance near 13S/63E (as of 3Z on 19 March), with a low potential for undergoing tropical cyclogenesis in the next 24 hours. Conditions are more favorable for the system to form later during Week-1, with high confidence of this occurring. Lastly, a moderate confidence for TC formation exists in Week-1 tied to a Rossby wave forecast to track between 145-130E and 5-10N. Confidence is insufficient to forecast any TC development during Week-2 at this time.

During Week-1, confidence for above-median precipitation is high along the anticipated tracks of each of the four ongoing or forecast TCs in the Southern Hemisphere, in addition to the current El Nino footprint in the Tropical Pacific. Confidence is lower for below-median precipitation potential across the southeastern Indian Ocean and over the Maritime Continent, tied to destructive interference of El Nino and the MJO. Remaining above- and below-median precipitation areas with moderate confidence across South America and the Atlantic are a result of GFS and ECMWF model consensus.

Confidence on the whole during Week-2 is substantially lower for most areas, given the uncertainty of how quickly the MJO will make it into the Pacific and lack of substantive tropical forcing outside of El Nino. High confidence for above-median precipitation exists across a similar portion of the Tropical Pacific in Week-2 in association with the low frequency state. There is some potential for the subtropical jet to be extended across the Pacific, leading to moderate confidence for above-median precipitation across parts of California and the Southwest. Moderate confidence for below-median precipitation exists across the southeastern Indian Ocean in Week-2 in association with the suppressed phase of the MJO anticipated to be across the region. Remaining areas of moderate confidence for above- and below-median precipitation in Week-2 across eastern China and the tropical Atlantic are once more tied to dynamical model consenus.

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