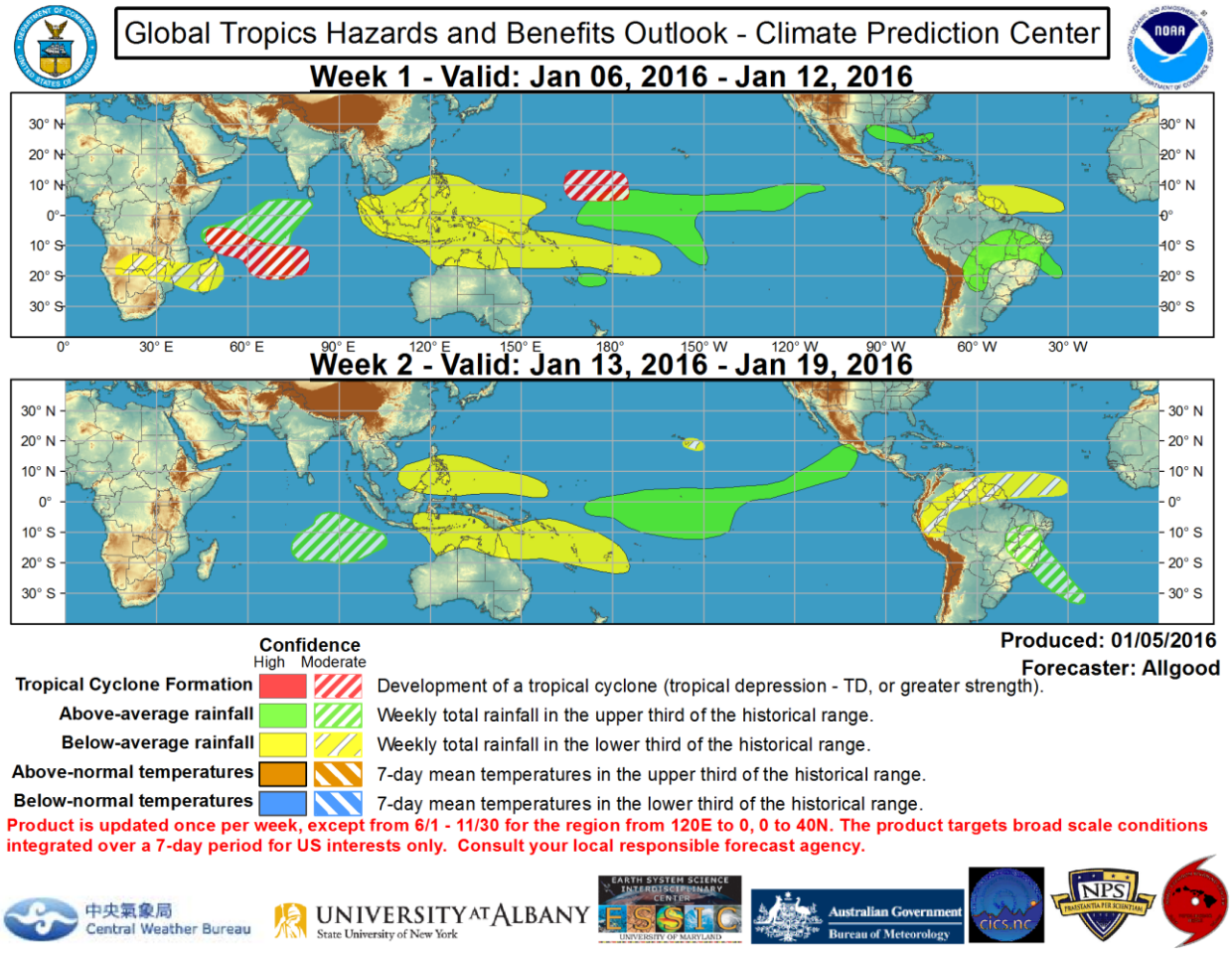

The MJO remained coherent during the past week as the enhanced phase propagated across the Pacific. Strong projections and sustained eastward propagation remain evident on both the Wheeler-Hendon RMM based and CPC velocity potential based MJO indices, and the spatial distribution of upper-level velocity potential anomalies exhibits an organized Wave-1 structure over the global tropics. A robust westward moving feature is evident near the Date Line in the OLR anomaly field, which may be associated either with an equatorial Rossby Wave, or aliasing between the MJO and ENSO background state.

A consensus of dynamical model MJO index forecasts maintains an eastward propagation of the MJO to the Western Hemisphere during Week-1. After that, model solutions diverge, with the GFS ensembles maintaining an RMM projection over the East Pacific, while the ECMWF depicts the emergence of the MJO into the Indian Ocean basin by the end of Week-2. Upper-level westerly wind anomalies currently over Africa would not appear to provide an environment with sufficient ventilation to promote a widespread canonical MJO convective footprint over the Indian Ocean, and indeed, while the ECMWF forecasts areas of convection over the Indian ocean, it is not very substantial. The GFS depicts an unusually large low-level westerly wind burst over the central Pacific, which may partly explain the

westward adjustment of its associated RMM index forecasts. Statistical tools generally support continued MJO propagation across the Western Hemisphere. Based on a consensus of the model guidance, the MJO is anticipated to remain active over the next two weeks, although climate anomalies associated with the ongoing strong El Nino will continue to play a large, and perhaps dominant role in the global tropical convective pattern.

Two tropical cyclones developed during the past week. Cyclone Ula formed southwest of the Date Line on 30 December, and attained Category-2 intensity on the Saffir-Simpson scale as it passed south of Fiji. Ula is forecast to weaken over the next several days as it moves generally westward. Tropical Depression Nine formed close to the equator just northeast of the Date Line and quickly dissipated. During the upcoming week, there is moderate confidence for potential tropical cyclone development over the southwestern Indian Ocean northeast of La Reunion and Mauritius. Several CFS ensemble members also depict a tropical cyclone developing north of Madagascar. There is also a moderate potential for new cyclogenesis over the north-central Pacific, near or just west of the Date Line. There are currently no areas strongly favored for new tropical cyclone formation during Week-2.

During Week-1, continued constructive interference between the MJO and ENSO strongly favors large regions of enhanced (suppressed) convection over the central and eastern Pacific (Maritime Continent and southwestern Pacific). Consistent with both a Western Hemisphere MJO event and dynamical model guidance, enhanced precipitation is forecast over central and eastern Brazil; however, suppressed convection is forecast to continue across parts of northern South America and the equatorial Atlantic, which is consistent with El Nino conditions. There is increased uncertainty over Africa and the Indian Ocean basin, but dynamical models favor enhanced (suppressed) convection across the western Indian Ocean (parts of southern Africa and Madagascar).

During Week-2, enhanced (suppressed) convection over the central and eastern Pacific (most of the Maritime Continent) associated with El Nino is anticipated to persist; however, if the MJO remains active and propagates to the Indian Ocean, destructive interference with the ENSO signal reduces the potential for suppressed convection across the equatorial Maritime Continent. This reduction in the suppressed signal along the equator is most apparent in the ECMWF solution, which has a more progressive MJO solution than the GFS and CFS. Both the CFS and ECMWF forecast an area of enhanced convection over the eastern Indian Ocean, as well as a continuation of enhanced (suppressed) convection across eastern Brazil (northern South America). Additionally, dynamical model guidance favors suppressed rainfall over the Big Island of Hawaii during Week-2.