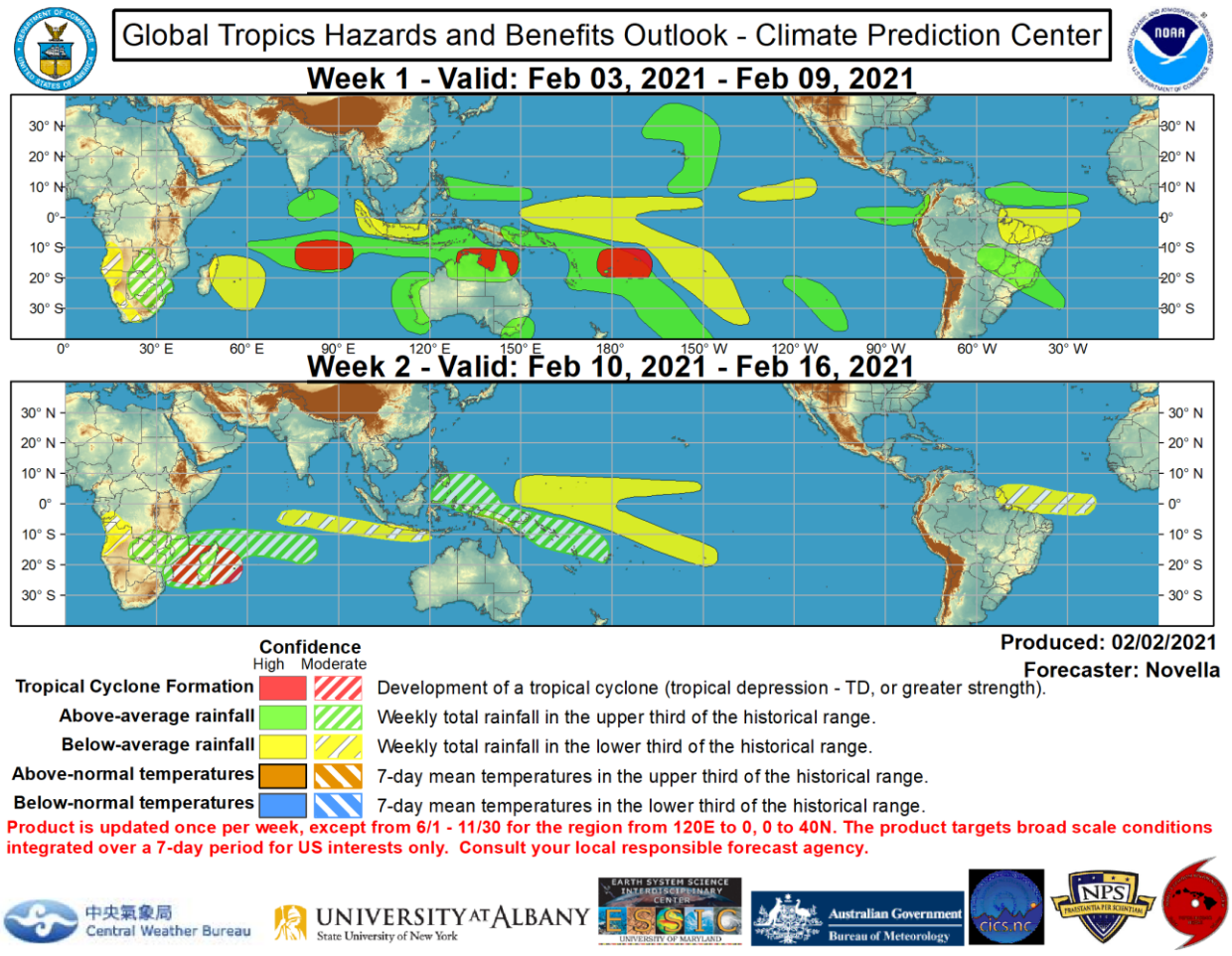

During late January, the tropical convection and wind patterns projected more strongly on the RMM index, indicating a considerable increase in amplitude of the intraseasonal signal over the western Pacific. The increase in amplitude corresponded to increasing convection across the region mainly south of the equator, as well as strengthening easterlies aloft over the Indian Ocean and Maritime Continent. However, there has been a westward shift of the intraseasonal signal in RMM space during the last several days, which is likely tied to continued Rossby wave and tropical cyclone (TC) activity over the South Pacific. The upper-level velocity potential anomaly pattern has become more stationary compared to last week and recent trends observed in equatorial zonal wind fields appear less aligned for a coherent Madden-Julian Oscillation (MJO) event. Despite this, RMM forecasts continue to favor an eastward propagating signal of moderate amplitude across the western Pacific (phase 6 to 7) during early week-1. By late week-1 and week-2, however, there are differences in the models relative to the strength and evolution of the MJO with increased spread in the ensemble members compared to previous guidance. Given this, as well as the ongoing destructive interference with the La Nina base state conditions, there continues to be much uncertainty in the MJO outlook. However, its current state and potential propagation promotes increased chances for below-normal temperatures across parts of the central and eastern CONUS heading into the mid-February.

Four TCs formed in the southern Hemisphere during the last week. Tropical Depression 18S formed inland over Western Australia on 1/31 and is currently located southeast of Learmonth, Australia. The Joint Typhoon Warning Center (JTWC) forecasts 18S to continue to track to the west and enter the Southern Indian Ocean. With anomalously warm SSTs (>+2.0 degrees C) in place, 18S is favored to gradually strengthen and track southward under the influence of a subtropical ridge along the western coast of Australia during week-1. By late week-1, the deterministic GFS favors a more westerly solution keeping the low center offshore, however, the ECMWF depicts the low further inland over Perth by late week-1. Regardless of solution spread at this lead, enhanced precipitation amounts and elevated winds are likely along the southwestern coast of Australia. Over the Coral Sea, TC Lucas formed on 1/31 near 13.5S/152E. Currently at tropical storm strength, Lucas is forecast to turn south toward Noumea, New Caledonia and slowly weaken during early week-1. Interested parties should refer to the JTWC for further updates on these two active systems. Farther east, a pair of TCs, Bina and Ana, formed in the South Pacific on 1/30. TC Bina was a short-lived system that eventually merged with TC Ana near Fiji. The combination of these two systems brought heavy rains and high winds triggering flooding and widespread damages to infrastructure over the Fijian islands during the past few days. TC Ana has since dissipated with its remnants currently over open waters in the South Pacific.

For week-1, high confidence regions for TC formation are highlighted over the southern central Indian Ocean, off of northern Australia, and along the Date Line between 10-20S. These areas are targeted due to continued support in the probabilistic TC tools and good run-to-run continuity in the models depicting continued Rossby wave activity and developing areas of low pressure by the latter portion of week-1. In the northwest Pacific, Rossby wave activity is favored in both the CFS and ECMWF during late week-1 and into week-2 across the Phillipine Sea. Although enhanced precipitation amounts and a deepening area of low pressure are favored by the GEFS, the ECMWF ensemble and probabilistic TC tools remain less supportive of TC development in the region and there is not enough confidence to issue a TC formation area at this time. Over the southwestern Indian Ocean, there is consensus between the GEFS and ECMWF ensemble guidance featuring a broad area of low pressure developing over the Mozambique Channel and Madagascar. With anomalously warm SSTs in place and good continuity in probabilistic TC tools indicating elevated probabilities for TC development, a moderate confidence region is posted over the region for week-2.

The precipitation outlook during the next two weeks is based on the consensus among the CFS, GEFS and ECMWF ensemble means, the low frequency state, MJO composites, and anticipated TC tracks. There is a high confidence for below-normal precipitation to persist across the central equatorial Pacific associated with the ongoing La Nina. In the tropical southern Hemisphere, an elongated band of above-normal precipitation is favored from the central Indian to the South Pacific associated with anticipated TC and Rossby wave activity. Farther east, mid-level troughing favored during week-1 is likely to bring enhanced precipitation over the north-central Pacific and parts of the Hawaiian Islands. Over parts of South America, Kelvin wave activity interacting with the South Atlantic Convergence Zone is anticipated

to bring heavy precipitation to many portions of southern Brazil. 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.