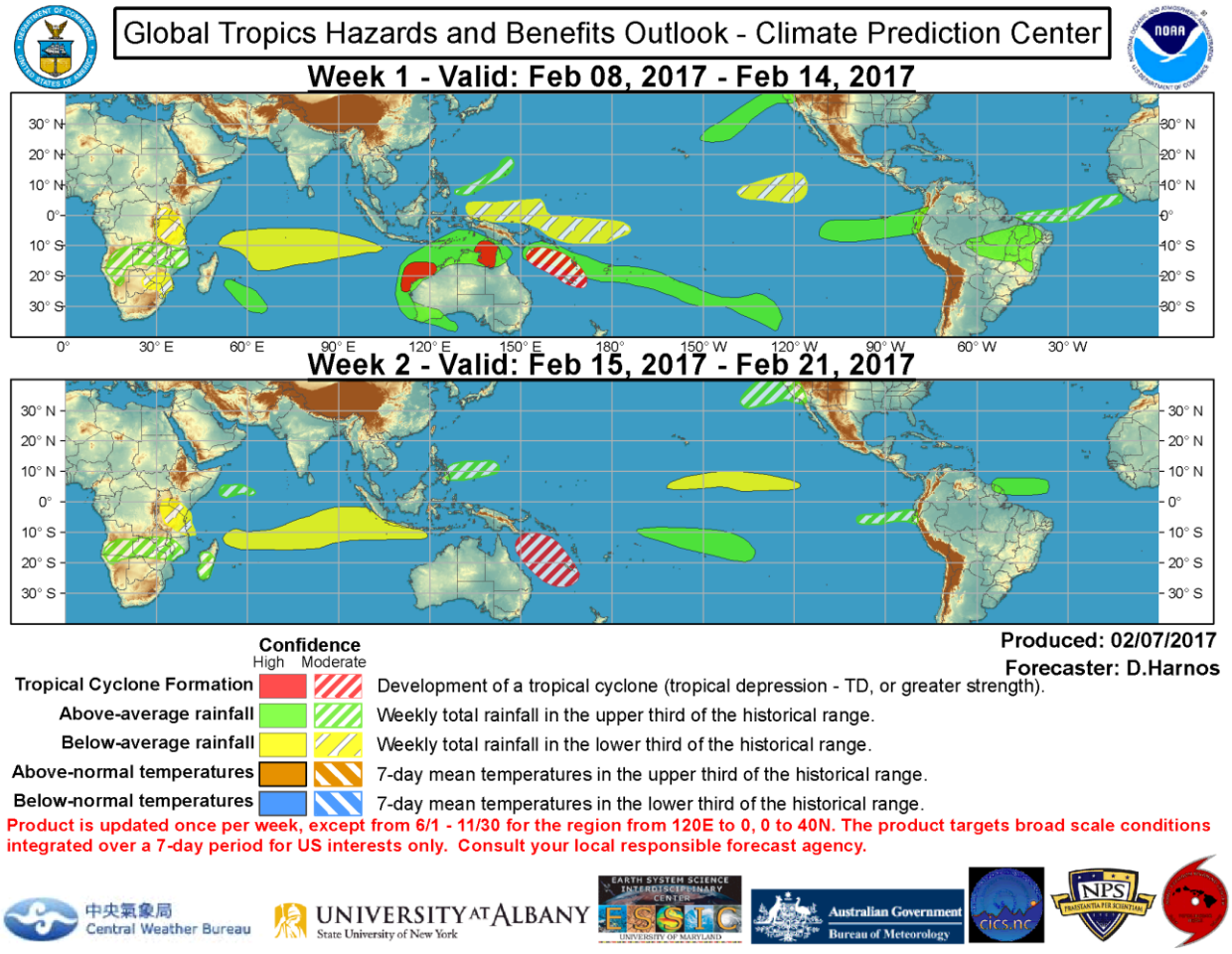

A continuation of active Madden-Julian Oscillation (MJO) conditions was observed over the past week, with eastward propagation observed across the Maritime Continent and into the West Pacific by both CPC and RMM indices. In recent days the intraseasonal signal has been constructively interfering with the low frequency background state, with enhanced (suppressed) convection over the Maritime Continent (Indian Ocean and Central Pacific), which is reinforced by the pronounced global wave-1 field observed in recent 200-hPa velocity potential anomalies. Dynamical model ensemble guidance generally predicts the MJO envelope to continue propagating eastward over the next two weeks, which would introduce destructive interference of the intraseasonal and base states over the Central Pacific during Week-1. During Week-1, the MJO in RMM phases 6 and 7 (over the West Pacific) is favored, with phase 8 favored during Week-2 with some considerations to impacts from phases 7 and 1 (broadly over the Western Hemisphere). The GEFS is an outlier among dynamical model guidance, as it forecasts decaying of the intraseasonal signal late in Week-2, which may be the model overemphasizing anticipated co-located Rossby Wave activity at these times.

Over the past week Tropical Storm Carlos formed to the east of Madagascar on 4 February. As of 00 UTC on 7 February, Carlos has observed winds of 45 kt, with the Joint Typhoon Warning Center (JTWC)

forecasting strengthening into a Category 1 cyclone over the next 48 hours while tracking to the southwest before turning southeast. Elsewhere, JTWC gives a medium chance of tropical cyclogenesis to a disturbance off the Kimberley Coast of Australia in the next 24 hours, which translates to a high probability here. JTWC is also monitoring a system to the east of the Phillipines with a low chance of development in the next 24 hours; however, strong vertical wind shear and dry air being entrained into the system limit a hazard forecast in this outlook. While not indicated by JTWC, high confidence is given to a tropical cyclone forming in the Gulf of Carpentaria during Week-1 that is anticipated to track westward. A moderate risk of tropical cyclogenesis is also forecast for the Coral Sea during Week-1, where ensemble guidance shows broad troughing. In Week-2 the Coral Sea is targeted yet again for possible tropical cyclogenesis, with moderate confidence prescribed once more. The presence of the MJO in phase 7 would support enhanced cyclogenesis odds in the Coral Sea.

During Week-1 high confidence in above- or below-median precipitation is prescribed to regions where dynamical model guidance is consistent with MJO composites in phases 6 and 7. This includes above-median precipitation in the South Pacific and portions of South America, and below-median precipitation in the Indian Ocean. High confidence in above-median precipitation also exists associated with Tropical Storm Carlos, the potential tropical cyclones in the vicinity of Australia, over the East Pacific into Ecuador and Peru where the Nino 1+2 region sea surface temperature anomalies are between +1.5 to +2 C over the past 3 weeks, and the North Pacific into California associated with a surge of Pacific moisture. Remaining regions are prescribed due to dynamical model consistency, but fail to conform closely to MJO expectations.

The Week-2 outlook is shaped by anticipation of the MJO in phase 8, with lesser influence from phases 7 and 1. With this idea in mind, high confidence of above-median precipitation is favored for the South Pacific and portions of the tropical Atlantic, with high confidence in below-median precipitation for much of the Indian Ocean and parts of the Central Pacific between approximately 120-160W and 5-10N. Consistency among dynamical model ensemble guidance supports the remaining moderate confidence shapes in Week-2, with the exception of the above-median rainfall area south of the Galapagos. The aforementioned regional hazard is supported by the GEFS and ECMWF, while the CFS keeps this region remarkably dry relative to recent observations. Due to the recent anomalously warm sea surface temperatures and antecedent heavy rainfall in portions of Peru and Ecuador, the above-median rainfall shape is continued for the region with moderate confidence.

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