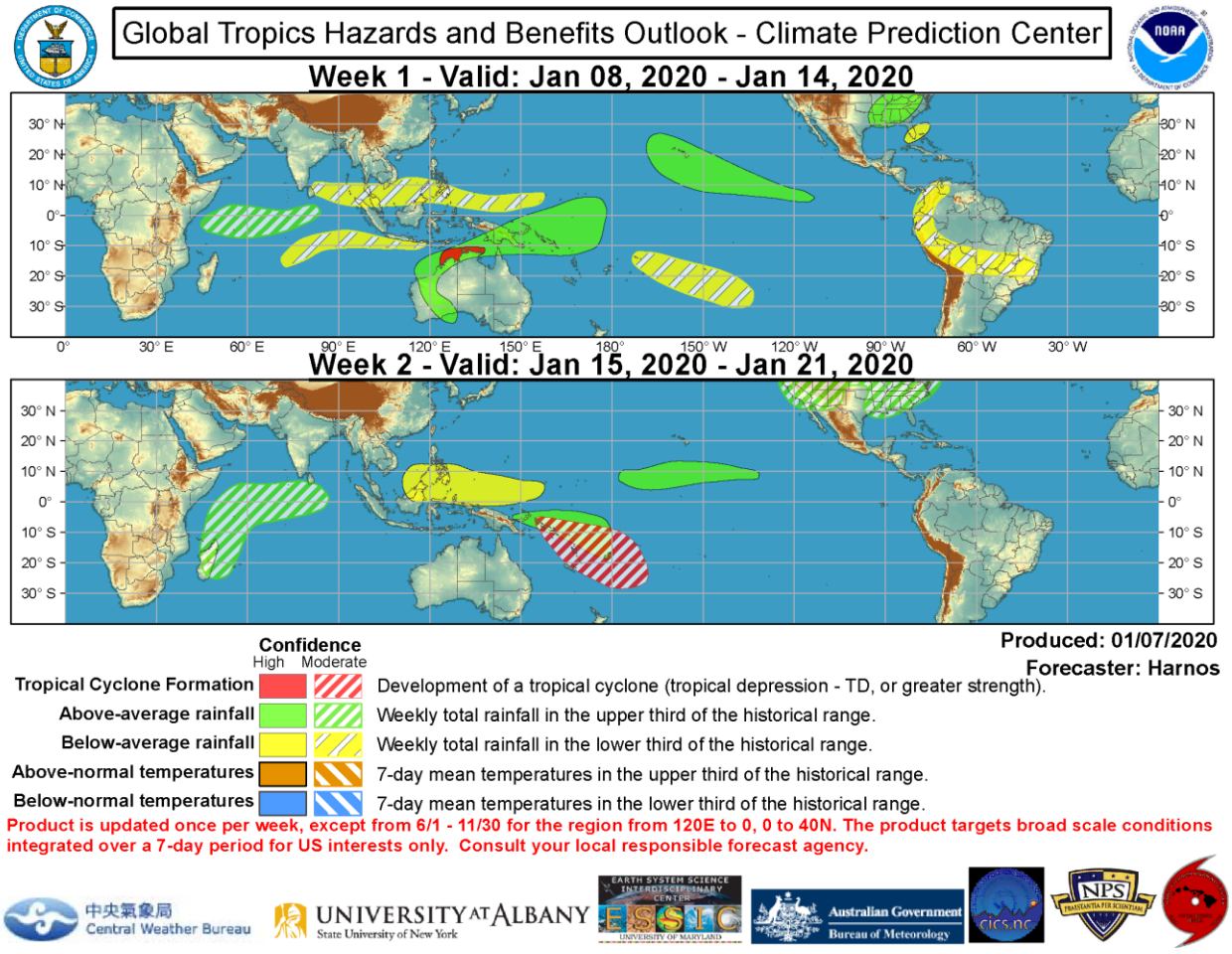

The present outlook is released amidst a complicated backdrop of competing tropical modes of variability. At the low-frequency end of the spectrum, anomalously warm sea surface temperatures (SSTs) in the West and Central Pacific are within striking distance of a weak El Nino being declared, while the positive phase of the Indian Ocean Dipole (IOD) returns to a neutral state. The decay of the IOD appears largely tied to shortwave radiation surpluses over the eastern Indian Ocean due to the associated circulation driving subsidence across this area, thus limiting cloud cover. The net result has been weakening SST gradients across the Indian Ocean, with SSTs northwest of Australia reaching 31-32 degrees C, ripe for convection to be triggered when the circulation permits. Wavenumber/frequency analysis shows the presence of both fast (Kelvin wave) and slow moving (Madden-Julian Oscillation; MJO) easterly modes making their way through this region during the past week, helping to trigger convection over these warm waters. In addition, a westward moving equatorial Rossby wave tracked from 150 to 120E in recent days, associated with the development of Tropical Cyclone Blake off the Kimberley Coast of Australia. Moving forward, the primary concern during the forecast period is likely to be the strengthening MJO event propagating across the Maritime Continent during Week-1 (RMM Phases 4/5) and entering the West Pacific during Week-2 (RMM Phases 5/6). While this event does appear robust, it may be overdone in an RMM-sense due to the decay of the IOD since October being aliased into the long-term mean removal, resulting in the RMM being biased toward Phases 4/5.

Tropical Cyclone Blake formed near 16S/121E on the 5th of January, tied to the aforementioned equatorial Rossby presence. By the time this forecast begins, the Joint Typhoon Warning Center (JTWC) forecasts Blake to have made landfall over Western Australia as a weak tropical storm. JTWC is also monitoring a system near 11S/138E (as of 6 UTC on 7 January) for tropical cyclogenesis potential. This disturbance is forecast to skirt the Northern Territory and Western Australia coastlines while tracking west-southwestward over the next several days. JTWC gives the system a medium chance of formation prior the beginning of this outlook, but high confidence is forecast here given the longer time horizon for the system to form and the broadly favorable environment across the region. By Week-2, the South Pacific appears to be the hotspot for subsequent tropical cyclone activity. Multiple tropical cyclones may form in a region stretching southeastward from just east of New Guinea through east of the Date Line approaching 30S. Moderate confidence for tropical cyclogenesis is given for this area during Week-2. While not on the forecast graphic, GFS guidance has been hinting at the possibility of something developing between 3-10N and 150-170E in the West Pacific during Week-2, but there is not enough support for moderate confidence of such a hazard.

The Week-1 and Week-2 outlooks predominantly key in on an active MJO propagating across the Maritime Continent during Week-1 and into the West Pacific during Week-2. Enhanced (suppressed) rainfall is forecast in association with the (wake of the) active portion of the MJO envelope. Enhanced rainfall is also forecast across much of the western Indian Ocean, despite the typical expectation for suppressed convection behind the MJO, due to the lingering warm SSTs across the region and model guidance hinting at the possibility of another eastward moving feature in the vicinity. High confidence for above normal rains also extends into the North-Central Pacific during both weeks, in association with MJO expectations and a pronounced mid-latitude trough. A tropical moisture feed is likely to drive enhanced precipitation into the eastern U.S. during Week-1 (high confidence), and to some extent during Week-2 (moderate confidence). There may also be a tropical moisture feed supporting anomalous precipitation for the western U.S. during Week-2 (moderate confidence). Remaining precipitation forecasts are a result of model consensus. Also noteworthy this week is the forecast lack of temperature hazards for Australia, given the demise of the IOD and potential for some moisture to make it across the continent tied to the anticipated tropical cyclone activity in its vicinity.

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