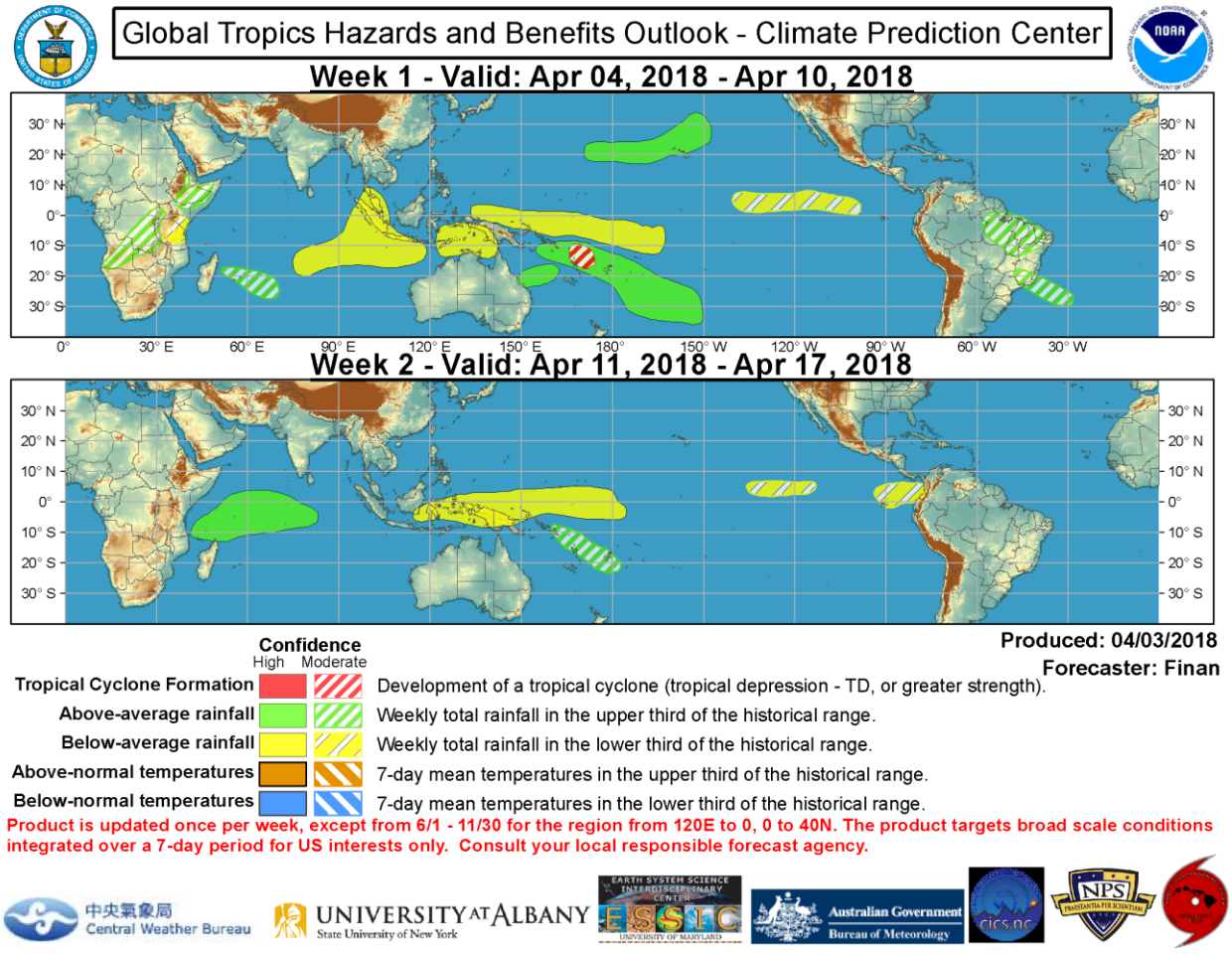

The Madden-Julian Oscillation (MJO) signal has re-emerged over the western Pacific after drastically weakening earlier this month. During early to mid-March, the MJO index had fallen inside the unit circle on the RMM phase space in phase 3, and amplified and moved outside the circle into phase 6/7 during late March. MJO-filtered OLR fields also show a convective signal intensifying over the Maritime Continent and beginning to propagate eastward, supporting the renewed strength in the RMM phase space. Dynamical model guidance for this MJO signal over the next two weeks is varied, leading to some uncertainty in the forecast. The GEFS and CFS support a much shorter MJO event, propagating through phase 8 in Week-1 and rapidly declining in Week-2, falling back inside the unit circle by the middle of Week-2. ECMWF solutions show a much longer lived signal, moving through phase 8/1 in Week-1 and phase 1/2 in Week-2, with a possible decay toward the end of Week-2. The ECMWF solution for the MJO signal is more plausible given the unlikely rapid decay from the other models. Rossby wave activity is expected to destructively interact with the MJO signal during Week-1, slowing the eastward propagation and weakening the MJO signal, but it is unlikely that this will reduce the signal strength as dramatically as the CFS and GEFS suggest. The La Nina base state continues in the central and eastern Pacific Ocean, though the signal has weakened in past weeks, with a transition to neutral conditions likely during the spring season.

Over the past few weeks the western and southern Pacific basins have been active, with several tropical cyclones forming during the month of March. The Joint Typhon Warning Center is currently monitoring tropical cyclone Josie and Iris in the southwestern Pacific basin. There is high confidence for above-average rainfall in the south Pacific and off the east coast of Australia in association with these ongoing cyclones. There is also a moderate confidence that this basin will remain active in Week-1, with an additional tropical cyclone formation in the south Pacific basin likely mid-week. There are no tropical cyclone formations in the outlook for Week-2; however, there is a possibility for activity in the Indian Ocean, but confidence remains low at this time.

The outlook for Week-1 is mostly attributed to the renewed strength of the MJO signal and the expectation that it will remain fairly strong through the week. Areas of suppressed convection are expected from the MJO over the Maritime Continent and into the western Pacific for Week-1, leading to high confidence in below-average rainfall for these regions. Model guidance widely supports this dry signal. Below-average rainfall is also expected for the eastern Pacific, consistent with model guidance and effects of La Nina. The area of the positive rainfall anomaly in the eastern Pacific is smaller than previous weeks, as La Nina is likely to weaken over the next few weeks. There is high confidence in a region of above-average rainfall over the north Pacific, near Hawaii, due to persistent low pressure over the north Pacific. Brazil is likely to experience above-average rainfall through Week-1, consistent with MJO composites. Model guidance was varied on this signal, with the CFS showing a much weaker rainfall signal than the ECMWF solution, so confidence in this forecast is moderate. The forecast for above-average rainfall off the coast of Madagascar also remains moderate, as model guidance is mixed on the re-emergence of the MJO signal in the Indian Ocean.

Model guidance for Week-2 shows little agreement for the forecast, likely due to the drastic differences in solutions for the MJO signal. A general region of suppressed convection remains during Week-2, though it has moved further east into the western Pacific. Confidence is high for below-average rainfall in this area due to likely continued effects of the MJO supressed envelope. The eastern Pacific is expected to remain dry during Week-2 with below-average rainfall near the equator, but confidence is moderate as it is likely attributable to the weakening La Nina. There is also moderate confidence for below-average rainfall off the western coast of South America, consistent with a rare area of agreement in model guidance for this Week-2 period. As the MJO signal re-emerges in the Indian Ocean, consistent with phase 1/2 of the MJO, there is high confidence for above-average rainfall in the western Indian Ocean. There is moderate confidence in the south Pacific for above-average rainfall, due to expected tropical cyclone activity.

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