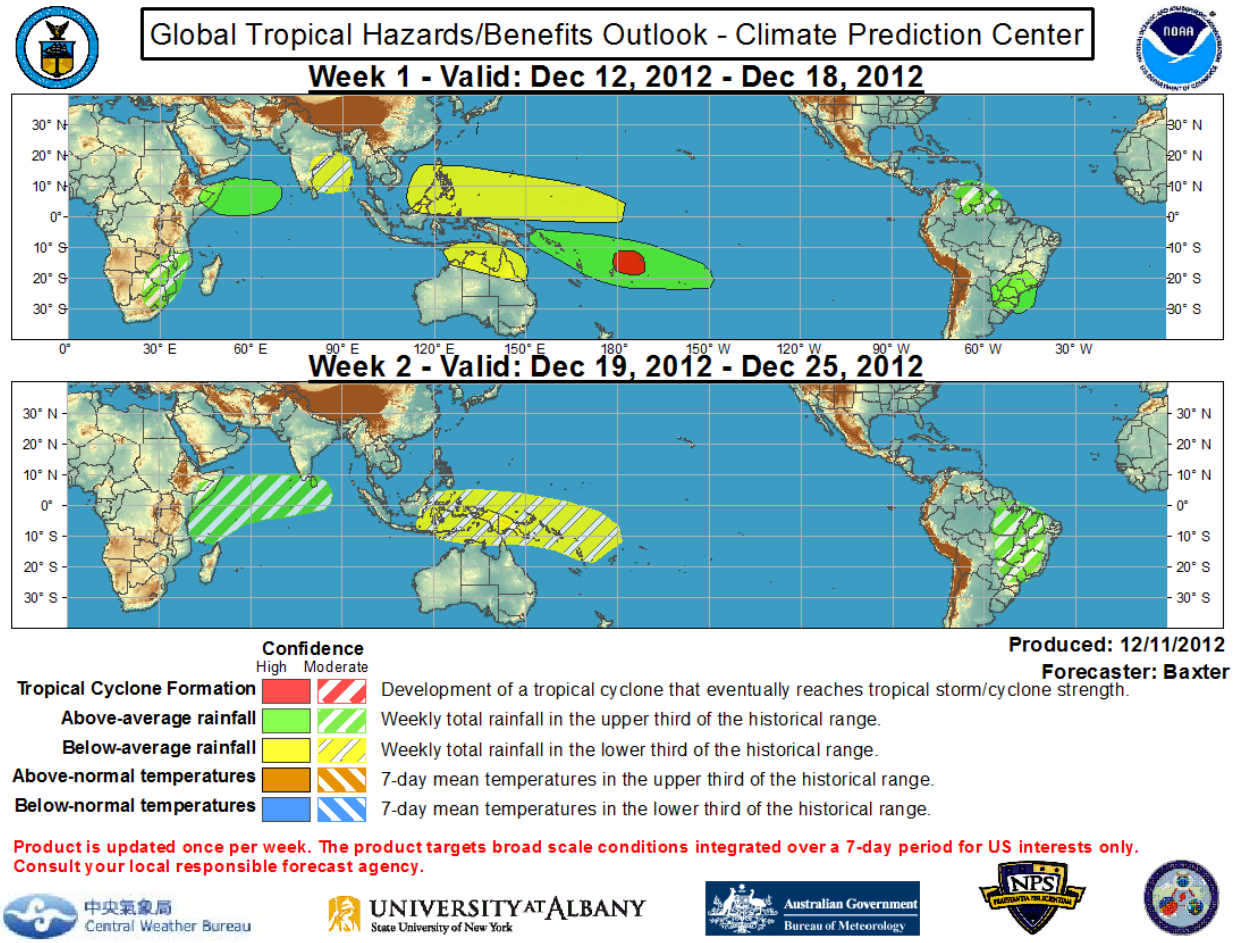

The MJO remained weak over the past several days while other subseasonal modes became less coherent as well. The westward-propagating equatorial Rossby wave signal is still visible in the observed OLR pattern, but is not as robust as it has been over the past couple of weeks. Some observational tools (velocity potential and low-level zonal winds) are slowly showing signs of more organization. The MJO forecast is becoming more clear, though uncertainty remains somewhat high. Both the GFS and ECMWF ensembles are in reasonably good agreement that the Wheeler and Hendon MJO index is poised to emerge weakly in phase 1 late in Week-1 and propagate eastward through the period. This scenario is consistent with our assessment over the past two weeks.

The Week-1 forecast is based on a weak, but present, MJO signal, the equatorial Rossby wave, dynamical model rainfall forecasts, and statistical forecasts of the evolution of subseasonal tropical modes. The east-west dipole forecast across the northern Indian Ocean is consistent with both a weak equatorial Rossby wave and a slowly emerging MJO signal. Confidence is higher over the western part of the Basin. Above median rainfall is favored for parts of southeastern Africa, consistent with model forecasts and any MJO signal. Below median rainfall is more likely across a wide swath of the western Pacific basin, firmly in line with the equatorial Rossby wave and dynamical tools. The drier than average

area over northern Australia is a result of good agreement between the GFS and CFS. There is a large swath of wetter than average conditions expected in the tropical southwestern Pacific, coincident with an awakening of the South Pacific Convergence Zone (SPCZ). Within this region, tropical cyclone formation is likely at the very beginning of the period.

In South America, signals are less clear, though some tendency for above median rainafll is favored over the northern part of the continent and southern Brazil. Excellent model agreement increases confidence in the latter.

The Week-2 outlook is based on a weak MJO signal (enhanced convective phase RMM Phase 2), with considerable uncertainty. This scenario favors above median rainfall extending from far eastern Africa into the central Indian Ocean, with below median rainfall favored from the far eastern Maritime Continent toward the Date Line. Lingering SPCZ-related convection could easily complicate things in this region. The MJO composites favor wetter than average conditions over much of interior Brazil, a solution supported by the CFS, but not by the latest GFS forecasts.

With the potential for reinvigorated MJO activity in the coming weeks, it is important to discuss any potential extratropical impacts. Should the enhanced convective phase of the MJO emerge over the Indian ocean late in Week-2 and propagate eastward through Week-3, it can be expected to influence the extratropics via Rossby wave dispersion. More specifically, a large scale convective dipole with enhanced convection near 80E and subsidence in the West Pacific would favor a retraction of the East Asian jet stream and downstream energy dispersion with above normal upper-level heights near the Aleutians and eastern North America by the second week of January.