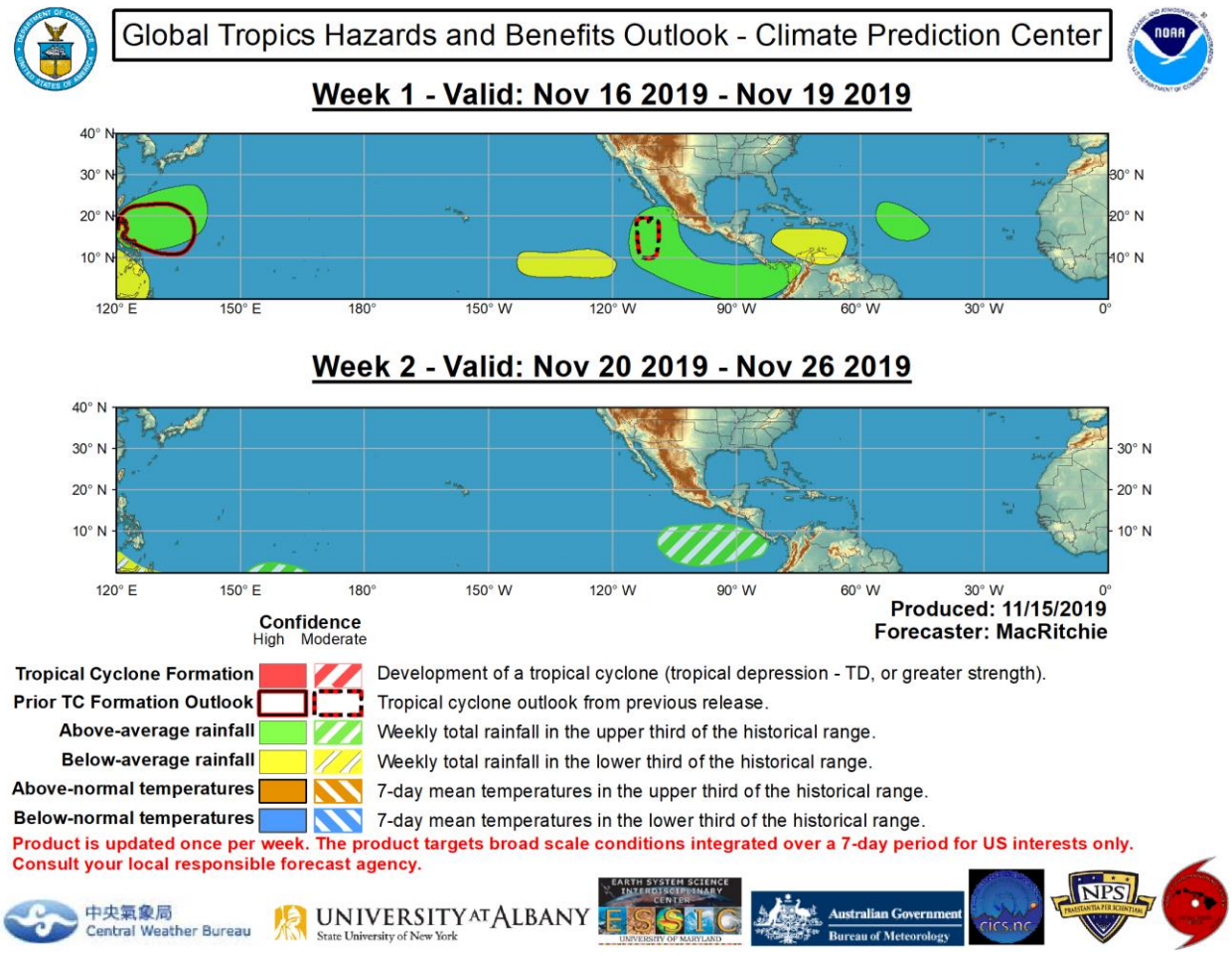

The MJO is now in RMM Phase 8. The ECMWF and GEFS forecast the MJO to weaken during the next week, but the CFS continues to forecast the MJO to propagate to the Indian Ocean with significant amplitude during the next two weeks. As stated in the original discussion Tuesday, it's likely that the CFS is influenced by the positive IOD event projecting on to the RMM Phase 1 structure and its MJO signal is therefore not real.

Tropical cyclone Fengshen formed on November 12 and Kalmaegi on November 13 in the West Pacific. JTWC forecasts Fengshen to meander over the next few days and Kalmaegi to track westward just north of the Philippines. We have removed the TC cyclogenesis hazard from the West Pacific in Week-1 since these storms have already formed and no others are expected to form during the next five days.

Tropical Storm Raymond formed today in the East Pacific and NHC forecasts it to track due north towards Baja California. NHC is monitoring another disturbance in the East Pacific and currently gives it a 30% of formation in the next five days, which is slightly below our threshold for inclusion on our forecast map.

A few other minor tweaks were made to the precipitation hazards in Week-1 to match the latest model guidance. No changes were made to the Week-2 forecasts.

--- Original discussion from Tuesday, November 12 is below: ---

Note: This product was updated at approximately 1:50 pm EST on 11/12/2019 to reflect a moderate risk of tropical cyclone development in the East Pacific.

The MJO continues to be the dominant mode of tropical variability. It is currently in RMM Phase 7, with enhanced convection just approaching the Americas and suppressed convection over the Maritime Continent. Model guidance is split as to what the MJO will do next. Nearly every GFS and CFS ensemble member forecasts the MJO to maintain its strength as it moves into RMM Phase 1 next week, whereas about half of the ECMWF ensemble members forecast the MJO to weaken next week while in Phase 1. The situation is complicated by the strong positive Indian Ocean Dipole (IOD), which features enhanced convection over the western Indian Ocean that often projects onto the early phases of the RMM index, potentially leading to an artifically strong MJO signal.

One possible reason for this MJO's strength is that a substantial part of the equatorial Pacific features above normal SSTs. The Nino 3, 3.4, and 4 indices have all been positive since late September. The Nino 4 region, which stretches from 160E to 150W, has been anomalously warm for well over a year. The warm SSTs might help fuel the MJO, but they are unlikely to have significant extratropical impacts since there isn't a strong zonal temperature gradient, which is needed to drive an enhanced Walker Circulation that creates the tropical/midlatitude coupling. There is potential for a westerly wind burst over the western Pacific as the MJO pulls through phases 7, 8, and 1. Such an event could act to move warm water eastward and enhance the zonal SST gradient.

The warm SSTs have almost certainly aided tropical cyclone development throughout the West Pacific. Waters in the South China and Philippine Seas have been at least 1 deg C above normal during the past couple of weeks. We are monitoring a couple of areas of potential tropical cyclone (TC) development during the next two weeks. There is a high probability of TC formation just north of the Philippines during Week-1. The GFS and ECMWF ensembles forecast over a 60% chance of development during Days 1-3. There is a second area in the East Pacific that the National Hurricane Center is monitoring. They have a 40% chance of development over the next 5 days, which corresponds to a moderate risk.

There are also indications of possible TC development northeast of Puerto Rico late Week-1 or early Week-2. Ensemble probabilities are well below our moderate threshold right now but we will monitor the situation closely and update on Friday if necessary.

There is also potential for much above normal temperatures throughout most of Australia during the next two weeks. The abnormal heat is expected to begin in northern Western Australia and then move south and eastward during the two week period. By Week 2 most of interior Australia is forecast to be under extreme heat. Interested parties are encouraged to follow updates from local weather authorities.

Anomalous rainfall forecasts throughout the map are based mostly on expected MJO, IOD, and tropical cyclone activity. The largest features are below normal rainfall over much of the eastern Indian Ocean and Maritime Continent, and above normal rainfall over parts of the Pacific.

Forecasts over Africa were made in consultation with the CPC International Desks and may reflect local and regional weather impacts.