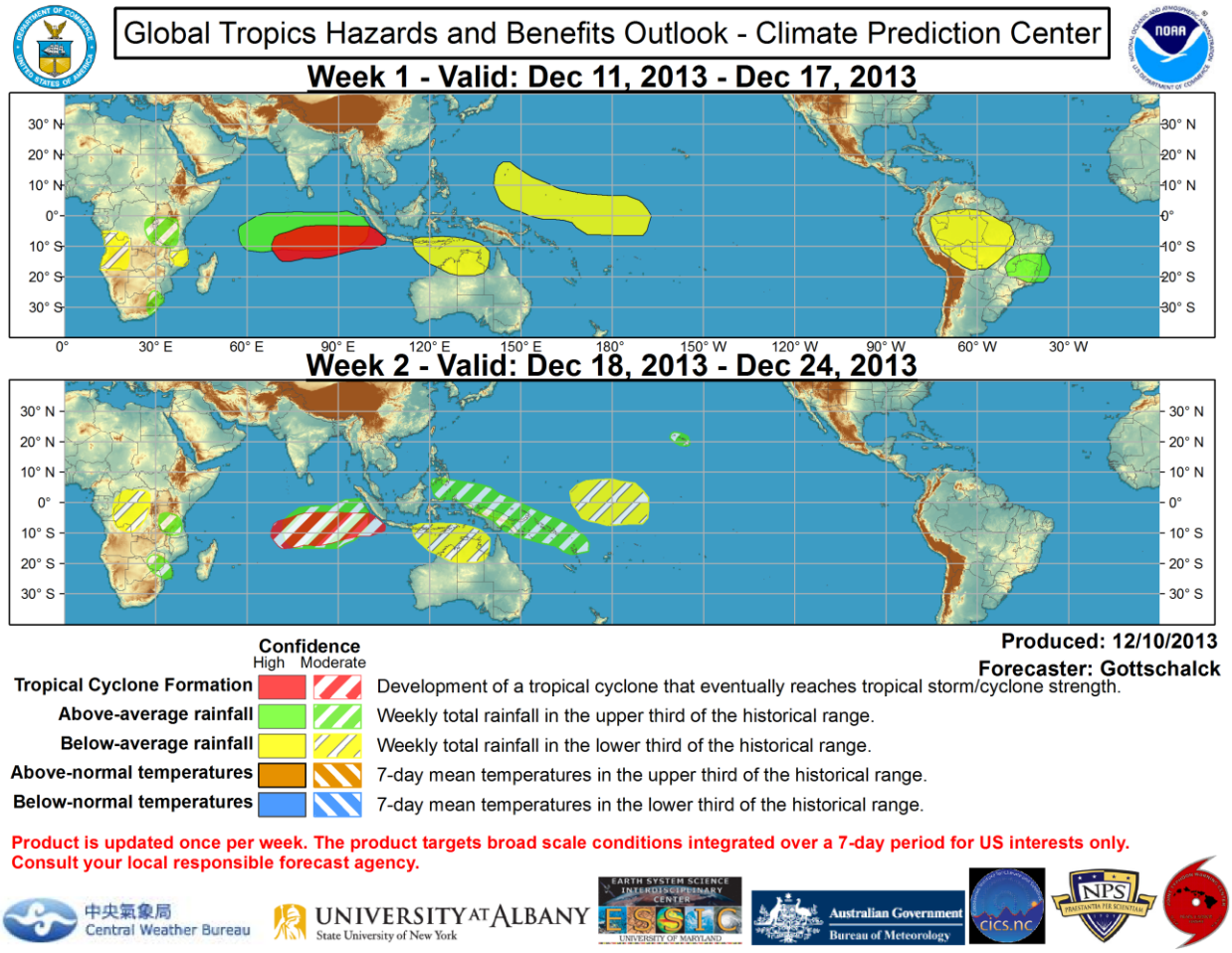

The MJO remained weak during the previous week, although the RMM index has slightly increased its amplitude in recent days. Time-longitude diagrams of 200-hPa velocity potential and OLR, however, show little eastward propagation over the last 1-2 weeks on the canonical MJO time scale. Atmospheric Kelvin wave (KW) activity has been strong during November and early December and eastward propagation of these waves is quite apparent. One KW is crossing the Indian Ocean at the current time and is in part responsible for some eastward movement of the RMM index during the past week.

The main large areas of enhanced convection observed over the past week were located across the equatorial Indian Ocean and the Bay of Bengal where yet another tropical cyclone (Madi) developed, the third cyclone over the last three weeks. Anomalously dry conditions were observed across most of the Philippines, central Pacific Ocean and north central South America.

Model forecasts of the RMM index are quite diverse, not unusual given the current nondescript MJO signal and influences from other types of subseasonal tropical variability, namely ongoing KW activity. Most models agree with a weak signal persisting in RMM Phase 3 during Week-1. Models diverge at this

point with the GFS solutions shifting the signal to the west somewhat while the UK Metoffice, ECMWF and others showing some eastward propagation at various speeds to or across the Maritime continent. But all indicate weak amplitude. Based on the most recent observations and both statistical and dynamical guidance, the MJO is forecast to remain generally weak but may marginally contribute to enhanced convection over parts of the eastern Indian Ocean and the Maritime continent over the period.

The outlook for Week-1 favors above-median precipitation for much of the equatorial Indian Ocean primarily south of the equator with the primary drivers for the forecast being any weak MJO signal, KW activity and the evolution of potential tropical cyclone activity. Raw precipitation guidance also supports this area as well as elevated odds for tropical cyclone development across parts of the southern Indian Ocean. Early in the period,Tropical cyclone Madi likely will impact parts of Southeast India and Sri Lanka with periods of heavy rainfall. Model guidance favors drier-than-average conditions for portions of northern Australia, the southern Maritime continent and areas of the western Pacific. The latter signal is consistent with any weak MJO signal as is favored below-median precipitation across northern South America. Persistent and enhanced frontal activity favors wetter-than-average conditions for areas of eastern Brazil.

Confidence is quite low during Week-2. We favor two separate areas of enhanced rainfall across the Eastern Hemisphere, one across the eastern Indian Ocean south of the equator and another over the northeast Maritime continent and western Pacific. These are supported by model guidance but also are consistent with any slow evolution of a weak MJO signal. The former area may be a residual associated with potential tropical cyclone activity, which remains elevated during Week-2. Below median rainfall is favored to persist near the equatorial Date Line and across northern Australia. Low pressure to the west of Hawaii identified in model guidance favors above median rainfall for areas across and in close proximity to Hawaii.

Favored above- and below-median rainfall areas across Africa for both Week-1 and Week-2 are primarily based on more regional scale features and consistent with outlooks from the CPC African Desk.