Dynamo Intraseasonal State Summary

See commentary on pages 3 and 5.

January 12, 2012

Prepared by Paul E. Roundy
Unfiltered and Projected OLR Anomalies 7.5S to 7.5N

OLR, W/m^2

-80 -60 -40 -20 0 20 40 60 80

MJO
Equatorial Piwaski
Cosmic Kelvin
Equatorial Prizeby
Kakin
100-day Low pass
2-10 Day Westeast

Shading represents OLR anomalies (i.e., the seasonal cycle and its first 3 harmonics have been subtracted). Heavy blue contours represent 10-120 day band dynamic height on the equator from the TAO buoy array with missing values reconstructed from sea level gauge data. Other contours represent OLR anomalies projected onto a modified version of the time extended EOF modes of Roundy and Schneider (2000, C-J RSM). Equatorial dynamic height anomalies are plotted only on the diagonals for the 7.5N to 7.5S band.

Prepared by Paul Roundy, University at Albany.
Active convection in the MJO band continues across the south Pacific, with suppressed convection in the same band over the Indian basin, beginning to advance over the Maritime Continent. A convectively coupled Kelvin wave over the central and eastern Indian basin is reducing the present expression of the suppressed MJO. An equatorial Rossby wave is enhancing the net expression of the active MJO over the central Pacific basin. The combination of these signals over the Pacific is off setting some of the expression of La Nina there, with low level westerly wind anomalies present in some regions where La Nina has been producing easterly anomalies. This pattern will likely induce a downwelling oceanic Kelvin wave in the central Pacific ocean.

OLR projections suggest weak new active convection in the MJO band over the Indian basin beginning by January 18-21. The initial development might be offset by suppressed convection in a Kelvin wave, leading to a delay in enhancement of the net signal. The combination of the developing signal over the western hemisphere, Africa, and the western Indian basin while the active convection fades over the Pacific and a Kelvin wave crosses the Maritime continent might lead to some RMM expression in phases 3-4 around January 20. A loop back toward late phase 2, early phase 3 is possible after that time, unless the Kelvin wave presently over the Maritime Continent is able to generate convection over the South Pacific at the same time (an outcome that I think is unlikely given the background MJO state at the time.)
MJO active convection is located over the south Pacific, with the strongest signal well to the east of the dateline. Suppressed MJO band convection is located over the Indian basin, but its effects are being offset by convection in the Kelvin band. The combination of the MJO and an ER wave enhances the potential for westerly wind anomalies over the central Pacific basin over the next few days.