Please Note: Many additional NCEP model forecast graphics (in addition to what is included here) are available at the DYNAMO data catalog and span from hourly to Week-2.

Work supported by NOAA’s Climate Program Office

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CICS-NC – Carl Schreck
SUNY-Albany – Paul Roundy
Australia BOM – Matt Wheeler
Review of Conditions
During the Past Week
Summary of Recent Conditions

The MJO remained active and very strong during the past week with the enhanced phase crossing the Pacific Ocean and beginning to enter the western Hemisphere. Enhanced convection was observed over a large area which included the eastern Maritime continent (MC), western Pacific (WPAC) and northeast Australia. Wet conditions were also evident across many areas in South America. Strong suppressed convection affected the Indian Ocean (IO) and much of equatorial Africa over the past week.

Westerly low-level wind anomalies associated with the enhanced phase of the MJO increased in coverage and shifted eastward across much of the MC into the WPAC during the past week. At upper-levels, westerly anomalies have increased across the western and central IO while easterly anomalies are evident over the MC, indicative of the strong confluence and large-scale subsidence associated with the suppressed phase of the MJO that has shifted into this region. SSTs have dramatically decreased across areas in the southeast IO in recent weeks due to strong winds and heavy precipitation in the area.

The WH MJO index shifted into Phase 7 over the past week and the models did well in forecasting this propagation from forecasts of one and two weeks ago, although similar to last week, forecasts from two weeks ago indicated weaker amplitude than what was eventually observed. The DYNAMO outlook from the last two weeks correctly highlighted suppressed convection across the IO observed over the past week and wet conditions over many areas of the MC, Australia and the western Pacific, especially in Week-1. No tropical cyclones formed during the period.
Weekly Spatial OLR

Total field

Anomalies
OLR Time Longitude – Tropical Modes

Ovals are projections of leading modes: MJO (blue), KW (green), ER-1 (black)

Courtesy: Matt Wheeler - CAWCR
Zonal wind shaded, direction by vector
Westerly total/anomalies (red shades)
Easterly total/anomalies (blue shades)

Pentad averages for last 5 days (bottom) and 5 days previous (top)
Zonal wind shaded, direction by vector
Westerly total/anomalies (red shades)
Easterly total/anomalies (blue shades)

Daily averages for last 4 days

NOAA - Climate Prediction Center
Zonal wind shaded, direction by vector
Westerly total/anomalies (red shades)
Easterly total/anomalies (blue shades)

Pentad averages for last 5 days
(bottom) and 5 days previous (top)
Equatorial Cross Section

Pressure Longitude Cross-section -- 5N - 5S
Anomalous U-W (streamlines), Specific Humidity (shaded) (g/kg)
MAR 19 2012 -- MAR 25 2012
Velocity Potential
MJO Index

Last 60 Days of Observations: Mar. 26, 2012
MJO Index Validation

1 Week Ago
Forecasts from: 20120320

2 Weeks Ago
Forecasts from: 20120312
Verification

X ➔ Denotes TC development location
Outlook and Forecast Rationale

The current week is the final week of the DYNAMO campaign. Suppressed convection is forecast to continue across the entire IO the remainder of the week and campaign.

A quiet end to a very active MJO fall, winter and spring.
DYNAMO Forecast

Tropical Hazards/Benefits Outlook
Climate Prediction Center

Week 1 - Valid: Mar 28, 2012 - Apr 03, 2012

Week 2 - Valid: Apr 04, 2012 - Apr 10, 2012

Confidence
High
Moderate

Tropical Cyclone Formation
Development of a tropical cyclone that reaches tropical storm/cyclone strength.

Above-average rainfall
Weekly total rainfall in the upper tercile.

Below-average rainfall
Weekly total rainfall in the lower tercile.

× DG  + Gan  ○ Ship1  ○ Ship2  Produced: 03/27/2012
MJO Index Forecasts

MJO Index Forecast for 27Mar2012-10Apr2012

Western Pacific

RMM1

RMM2

Maritime Continent

West, Hem, and Africa

Indian Ocean

MJO Index Forecast for 27Mar2012-10Apr2012

Western Pacific

RMM1

RMM2

Maritime Continent

West, Hem, and Africa

Indian Ocean

MJO Index Forecast for 27Mar2012-10Apr2012

Western Pacific

RMM1

RMM2

Maritime Continent

West, Hem, and Africa

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MJO Index Forecast for 27Mar2012-10Apr2012

Western Pacific

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Maritime Continent

West, Hem, and Africa

Indian Ocean

MJO Index Forecast for 27Mar2012-10Apr2012

Western Pacific

RMM1

RMM2

Maritime Continent

West, Hem, and Africa

Indian Ocean
OLR/u850 Spatial Forecast Maps – Tropical Modes

Courtesy: Paul Roundy - SUNY

Daily snapshots
OLR Spatial Forecast Maps – Tropical Modes

Courtesy: Carl Schreck CICS-NC

Madden-Julian Oscillation in OLR

Kelvin Waves in OLR
OLR Spatial Forecast Maps – Tropical Modes

Equatorial Rossby Waves in OLR

Sum of MJO, Kelvin, ER

W/m^2

W/m^2

Courtesy: Carl Schreck CICS-NC
MJO Composites

Courtesy: CPC
GFS / CFS Forecasts – Week-1

GFS forecast Precip for week 1 from: 20120326all

GFS - CMORPH forecast Precip for week 1 from: 20120326all

16 Member Ensemble Mean Forecast from 26Mar2012
Week 1 Anomalies (mm/day)
27Mar2012 – 2Apr2012

REVH vs. A-Wind for week 1 from: 20120326all (850hPa)
Ensemble GFS Forecasts – Week-1

GEFS precip for week 1 from: 20120327

GEFS areprecip for week 1 from: 20120327

NOAA – Climate Prediction Center
GFS / CFS Forecasts – Week-2

GFS frct Precip for week 2 from: 20120326all

Week 2 Anomalies (mm/day) 3Apr2012–9Apr2012

GFS - CMORPH frct Precip for week 2 from: 20120326all

REVH vs. A-Wind for week 2 from: 20120326all (850hPa)
Ensemble GFS Forecasts – Week-2

GEFS precip for week 2 from: 20120403

GEFS aprecip for week 2 from: 20120403

NOAA – Climate Prediction Center
Comments, Suggestion and Questions?