DYNAMO Weekly Briefing
January 31, 2012

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

NOAA/CPC – Jon Gottschalck, Matt Rosencrans, Michelle L’Heureux
ESSIC/CICS – Augustin Vintzileos
CICS-NC – Carl Schreck
SUNY-Albany – Paul Roundy
Australia BOM – Matt Wheeler
Review of Conditions
During the Past Week
La Nina continues to contribute substantially to wetter-than-average conditions over parts of the Maritime continent (MC). Consistently, stronger than average low level convergence dominated the MC. Anomalously strong westerly low level winds continue to affect the northern and central parts of the observational array. During the last 55 days the WH MJO index continued meandering in the northeast quadrant of the RMM phase-space in-and-out the one standard deviation circle. However, we must underline a persistent eastward propagation of a strong signal since January 21st. Stronger than averaged convection was observed in the Southern Indian Ocean along an axis centered at 7.5°S (affecting the southern part of the observational array). This enhanced convective activity co-occurred with a longitudinal band of lower than averaged SST just to its north.

Outlooks verified well over the MC for both Week-1 and Week-2. Further, the band of enhanced convection traversing the Southern Indian Ocean was correctly forecasted for both forecast lead weeks albeit more discontinuously than observations.
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

CDAS 850 mb Vector Wind Anomalies -- 29JAN2012

CDAS 850 mb Vector Wind Anomalies -- 27JAN2012

CDAS 850 mb Vector Wind Anomalies -- 28JAN2012

CDAS 850 mb Vector Wind Anomalies -- 26JAN2012
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)
JAN 22 2012 -- JAN 28 2012
MJO Index

Last 60 Days of Observations: Jan. 30, 2012
Verification

X ➔ Denotes TC development location

Observed 7-day mean OLR anom from day 20120123
Forecast Graphics
Outlook and Forecast Rationale

For the next 7 days there is agreement between most of the operational dynamical models for continuation of the eastward propagation of the WH index from phase 6 to phase 7 in parallel with a significant increase of its amplitude. After that, eastward propagation decelerates resulting to the signal remaining confined in phase 7 while its strength quickly drops.

This week’s DYNAMO outlook is based on a combination of the dynamical multi-model forecast, statistical forecasts, MJO composites and the background La Nina state. For Week-1 convection will be enhanced over the southern side of the Maritime Continent (MC) and northern coastal Australia extending to the SPCZ. Drier than normal conditions will prevail over the observational array with chances of cyclo-genesis just to the south. For Week-2 there will be an eastward shift of this pattern with dry conditions entering the MC.

Probability of at least moderate strength MJO (Outside WH unit circle with eastward propagation):
Week-1: 80%, Week-2: 60%, Week-3: 30%
MJO Index Forecasts

MJO Index Forecast for 31Jan2012-14Feb2012

MJO Index Forecast for 31Jan2012-14Feb2012
ECMWF MJO Index Forecast
OLR/u850 Spatial Forecast Maps – Tropical Modes

Daily snapshots

a. Summed OLR on 04-Feb-2012
b. Equatorial Rossby OLR Anomaly on 04-Feb-2012
c. MJO OLR Anomaly on 04-Feb-2012
d. 2-10 Day Westward OLR Anomaly on 04-Feb-2012
e. Seasonal to Interannual OLR Anomaly on 04-Feb-2012
f. Kelvin and Extratropical OLR Anomaly on 04-Feb-2012

a. Summed OLR on 11-Feb-2012
b. Equatorial Rossby OLR Anomaly on 11-Feb-2012
c. MJO OLR Anomaly on 11-Feb-2012
d. 2-10 Day Westward OLR Anomaly on 11-Feb-2012
e. Seasonal to Interannual OLR Anomaly on 11-Feb-2012
f. Kelvin and Extratropical OLR Anomaly on 11-Feb-2012
OLR Spatial Forecast Maps – Tropical Modes

Courtesy: Carl Schreck CICS-NC

Equatorial Rossby Waves in OLR

Sum of MJO, Kelvin, ER

W/m²
MJO Composites

Courtesy: CPC
ECMWF Forecasts

ECMWF Weekly Average of Ensemble Mean Forecast

Date: 01/30/2012 -- 02/05/2012 (Week 1)
U - V Wind(Vector, m/s), RH(Color, %) at 850hPa

Date: 02/06/2012 -- 02/12/2012 (Week 2)
U - V Wind(Vector, m/s), RH(Color, %) at 850hPa

Date: 01/30/2012 -- 02/05/2012 (Week 1)
U - V Wind(Vector, m/s) at 10m, Precip(Color, mm/day)

Date: 02/06/2012 -- 02/12/2012 (Week 2)
U - V Wind(Vector, m/s) at 10m, Precip(Color, mm/day)
GFS / CFS Forecasts – Week-1

GFS Precipitation Forecast for Week 1 from 20120130all

GFS - CMORPH Precipitation Forecast for Week 1 from 20120130all

16 Member Ensemble Mean Forecast from 29Jan2012
Week 1 Anomalies (mm/day) 30Jan2012-5Feb2012

REVH vs. Wind for Week 1 from 20120130all (850hPa)
Ensemble GFS Forecasts – Week-1

GEFS precip for week 1 from: 20120201

GEFS apricip for week 1 from: 20120201
GFS / CFS Forecasts – Week-2

GFS fcst Precip for week 2 from: 20120130all

GFS – CMORPH fcst Precip for week 2 from: 20120130all

Week 2 Anomalies (mm/day) 6Feb2012–12Feb2012

REVH vs. Wind for week 2 from: 20120130all (850hPa)
Ensemble GFS Forecasts – Week-2

GEFS precip for week 2 from: 20120208

GEFS apricip for week 2 from: 20120208
Operational GFS Precipitable Water and 10 m Anomalous Wind

GFS frcst A_PWAT vs. A_Wind 10m for week 1 from: 20120130all

GFS frcst A_PWAT vs. A_Wind 10m for week 2 from: 20120130all
Comments, Suggestion and Questions?