Global Tropics Hazards And Benefits Outlook

12/20/2016

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Outline

1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts
Outlook Review

Tropical Storm 2 northwest of Australia

Cool shading
More clouds/rain

Warm shading
Less clouds/rain
La Niña conditions are present, with a transition to ENSO-neutral favored during January-March, 2017.

**MJO and other subseasonal tropical variability:**
- Kelvin wave approaching the date line. Signal appears to be aliased into the RMM index, despite no apparent Madden-Julian Oscillation (MJO) event.
- Dynamical models support a brief amplification of the intraseasonal signal during Week-1 over the Maritime Continent or West Pacific, before decay during Week-2. Given the lack of characteristic eastward propagation or a consistent character, this signal appears tied to competing modes of variability instead of the MJO.

**Extratropics:**
- The extended range temperature and precipitation forecasts for the U.S. are unlikely to be impacted by the MJO.
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

Week 1 - Valid: Dec 21, 2016 - Dec 27, 2016

Week 2 - Valid: Dec 28, 2016 - Jan 03, 2017

Confidence
High               Moderate

Tropical Cyclone Formation: Development of a tropical cyclone (tropical depression - TD, or greater strength).
Above-average rainfall: Weekly total rainfall in the upper third of the historical range.
Below-average rainfall: Weekly total rainfall in the lower third of the historical range.
Above-normal temperatures: 7-day mean temperatures in the upper third of the historical range.
Below-normal temperatures: 7-day mean temperatures in the lower third of the historical range.

Produced: 12/20/2016
Forecaster: D.Harnos

Product is updated once per week, except from 6/1 - 11/30 for the region from 120E to 0, 0 to 40N. The product targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.
IR Satellite & 200-hpa Velocity Potential Anomalies

Green: Enhanced Divergence  Brown: Enhanced Convergence

Wave-2 pattern, enhancement over Africa and the Maritime Continent.

Breakdown of the signal into higher wavenumber modes.

Complicated pattern with general tendency for enhanced (suppressed) convection in the Western (Eastern) Hemisphere.
RMM-based analyses of model forecasts indicate a signal outside the unit circle at some point in Week-1 over the eastern Maritime Continent or West Pacific and uncharacteristic westward propagation.

GFS and European solutions support a return to eastward propagation, but decay during Week-2.
Everything against backdrop of low frequency state of La Niña.

**Kelvin wave** present near date line.

**Rossby wave** in eastern Atlantic.
Days 1-4

Day 5-8

Day 9-12

Day 13-15
TROPICAL CYCLONE 02S (TWO) WARNING 42

200602Z POSIT: NEAR 14.3S 114.0E

MOVING 990 DEGREES TRUE AT 10 KNOTS

MAXIMUM SUSTAINED WIND SPEED: 10 FEET

22/06Z, WINDS 035 KTS, GUSTS TO 045 KTS
23/06Z, WINDS 040 KTS, GUSTS TO 050 KTS
24/06Z, WINDS 045 KTS, GUSTS TO 055 KTS
25/06Z, WINDS 045 KTS, GUSTS TO 055 KTS
26/06Z, WINDS 045 KTS, GUSTS TO 055 KTS
27/06Z, WINDS 045 KTS, GUSTS TO 055 KTS
28/06Z, WINDS 045 KTS, GUSTS TO 055 KTS
00/07Z, WINDS 045 KTS, GUSTS TO 055 KTS
01/07Z, WINDS 045 KTS, GUSTS TO 055 KTS

CPA TO:  MM  DTG
BROOME 98  25/06Z
PORT HEDLAND 152  25/06Z

- LESS THAN 34 KNOTS
- 34-45 KNOTS
- MORE THAN 45 KNOTS

PAST 6 HOURLY CYCLONE POSITS IN BLACK
FORECAST CYCLONE POSITS IN COLOR
Ensemble-based Probability (%) of TC genesis using these global ensembles: NCEP CMC ECMWF.

For forecasts during the 00–120h period from initial time = 2016122000.

Ensemble-based Probability (%) of TC genesis using these global ensembles: NCEP CMC ECMWF for forecasts during the 120–240h period from initial time = 2016122000.
Connections to U.S. Impacts
AO: Observed & ENSM forecasts

1000mb Z (Obs: 23Aug2016 - 20Dec2016)  AD index
mean=-0.1797

1000mb Z (7day Forecast)  AD index
mean=-0.3911  cor(w/obs)=0.8938

1000mb Z (10day Forecast)  AD index
mean=-0.6317  cor(w/obs)=0.7809

1000mb Z (14day Forecast)  AD index
mean=-0.9426  cor(w/obs)=0.4203
Week 2 – Temperature and Precipitation
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