Global Tropics Hazards And Benefits Outlook

1/17/2017

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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

Cool shading
More clouds/rain

Warm shading
Less clouds/rain
Synopsis of Climate Modes

ENSO:
• **La Niña Advisory**

La Niña conditions are present, with a transition to ENSO-neutral expected by February. ENSO-neutral conditions favored through the first half of 2017.

MJO and other subseasonal tropical variability:
• MJO present over Western Hemisphere. RMM index has had difficulty tracking the signal, but CPC velocity potential-based index has a continuous signal throughout January.

• Dynamical models indicate a strong MJO event in Phase 8/1 (over the Western Hemisphere and Africa) during Week-1, shifting into Phase 2 (western Indian Ocean) early in Week-2. Whether the signal can shift into Phase 3 (eastern Indian Ocean) late in Week-2 is more uncertain.

• Low frequency footprint currently being destructively interfered with by the MJO presence, but expected to re-emerge during Week-1 and Week-2.

Extratropics:
• The MJO in Phase 2 (as anticipated during Week-2) tends to induce a slight tilt towards below-normal temperatures for the Four Corners region. Limited influence of the MJO is otherwise anticipated on the extended U.S. outlooks for temperature or precipitation.
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

Week 1 - Valid: Jan 18, 2017 - Jan 24, 2017

Week 2 - Valid: Jan 25, 2017 - Jan 31, 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: 01/17/2017
Forecaster: D.Harnos

Product is updated once per week, except from 6/1 - 11/30 for the region from 120E to 00 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

Higher frequency pattern, with enhancement over Africa and the eastern Indian Ocean/Maritime Continent.

Somewhat of a wave-1 pattern with enhanced convection over the Maritime Continent and West Pacific.

General wave-1 pattern with enhanced divergence over the East Pacific, Atlantic, and Africa.
Wheeler-Hendon based analyses of model forecasts indicate a building signal over the Western Hemisphere during Week-1, becoming a strong MJO event.

Moderation of the signal is favored in Week-2, as the signal propagates into the western Indian Ocean.

Continued propagation to the eastern Indian Ocean late in Week-2 not supported by ensemble means, but appears tied to different phase speeds among the ensemble members. Robust MJO signal may continue in Phase 3 despite the ensemble mean forecasts of weakening.
CAVEAT: These panels are representative of robust MJO events.

Week-1 associated with above-average rains in South Pacific, Brazil, and Africa. Below-average rains for Maritime Continent and West Pacific.

Week-2 associated with enhanced rainfall for Indian Ocean and western Maritime Continent. Suppressed rains favored east of New Guinea and the Philippines.

Average Conditions when the MJO is present
MJO presence across Western Hemisphere, with suppressed phase destructively interfering with low frequency convection over Maritime Continent.
January Tropical Storm Formation by MJO phase

Phase 1 (67 days) 14 storms
Phase 2 (101 days) 15 storms
Phase 3 (112 days) 20 storms
Phase 4 (69 days) 11 storms
Phase 5 (67 days) 8 storms
Phase 6 (66 days) 18 storms
Phase 7 (81 days) 11 storms
Phase 8 (105 days) 16 storms
Null (36+ days) 67 storms

Week-1
Week-2
Week-2?
Connections to U.S. Impacts
AO: Observed & ENSM forecasts

1000mb Z (Obs: 20Sep2016 - 17Jan2017) AD index
mean=0.0255

1000mb Z (7day Forecast) AD index
mean=-0.1835 cor(w/obs)=0.9256

1000mb Z (10day Forecast) AD index
mean=-0.5822 cor(w/obs)=0.7838

1000mb Z (14day Forecast) AD index
mean=-0.9483 cor(w/obs)=0.4029
Week 2 – Temperature and Precipitation

• Warmer over AK today.
• Cooler along Gulf?
• Transition in SW towards dry from the wet 6-10 day period.
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