Global Tropics Hazards And Benefits Outlook
01/01/2019

Kyle MacRitchie

Outline

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

**ENSO:** (December 13, 2018 Update)
- ENSO Alert System Status: **El Niño Watch**

- El Niño is expected to form and continue through the Northern Hemisphere winter 2018-19 (~90% chance) and through spring (~60% chance).

**MJO and other subseasonal tropical variability:**
- The MJO is over the West Pacific and expected to propagate eastward during the next two weeks.

- Strong equatorial Rossby wave activity has slowed the MJO’s progression and its projection onto the RMM index has created an unusually strong signal.

- Dynamical models suggest that, broadly speaking, the large-scale tropical flow over the next two weeks will be in-line with what is expected from an MJO in RMM Phases 6 and 7.

**Extratropics:**
- MJO in Phase 6-7 would favor warmth over the eastern CONUS and slight cold over the western CONUS.
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

Week 1 - Valid: Jan 02, 2019 - Jan 08, 2019

Week 2 - Valid: Jan 09, 2019 - Jan 15, 2019

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: 01/01/2019
Forecaster: MacRitchie

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.
By mid-December, the upper-level field became increasingly consistent with canonical MJO anomalies.

The upper-level field remains organized, with a Wave-1 pattern indicative of continued MJO activity.

Enhanced convection associated with the SPCZ is functioning as an anchor for the upper-level point.
GEFS – High amplitude MJO that stalls in the Western Pacific during Week-2.

ECMWF – Lower amplitude MJO that propagates quickly over the Western Pacific before dissipating late in Week-2.

JMA – Similar to GEFS, the MJO is forecast to stall and weaken over the Western Pacific.
Average Conditions when the MJO is present

CAVEAT: These panels are representative of robust MJO events.
Strong MJO enters the Pacific and stalls near the Dateline.

Equatorial Rossby wave is weak in OLR but stronger in wind field.
Strong MJO enters the Pacific and stalls near the Dateline.

Equatorial Rossby wave is weak in OLR but stronger in wind field.
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 (68 days) 18 storms
- Phase 7 (81 days) 11 storms
- Phase 8 (105 days) 16 storms
- Null (36+ days) 67 storms
Connections to U.S. Impacts
AO: Observed & ENSM forecasts

1000mb Z (Obs: 04Sep2018 - 01Jan2019)  AD index
mean=0.0010

1000mb Z (7day Forecast)  AD index
mean=-0.3015  cor(w/obs)=0.8622

1000mb Z (10day Forecast)  AD index
mean=-0.4673  cor(w/obs)=0.6443

1000mb Z (14day Forecast)  AD index
mean=-0.5266  cor(w/obs)=0.3581
Week 2 – Temperature and Precipitation

8-14 DAY OUTLOOK
TEMPERATURE PROBABILITY
MADE 31 DEC 2018
VALID JAN 08 - 14, 2019
DASHED BLACK LINES ARE CLIMATOLOGY
VALUES ABOVE 85% OR BELOW 15% ARE OUTLIER
GRAY AREAS ARE NEAR-NORMAL

8-14 DAY OUTLOOK
PRECIPITATION PROBABILITY
MADE 31 DEC 2018
VALID JAN 08 - 14, 2019
DASHED BLACK LINES ARE CLIMATOLOGY
VALUES ABOVE 85% OR BELOW 15% ARE OUTLIER
GRAY AREAS ARE NEAR-NORMAL

Color codes:
- 90% - 100% Probability of Below
- 33% - 40% Probability of Normal
- 50% - 60% Probability of Above
- 60% - 70% Probability of Normal
- 70% - 80% Probability of Above
- 80% - 90% Probability of Normal

Map legend:
- Green: Probability of Below
- Orange: Normal
- Red: Probability of Above

Map areas:
- A: Mostly above average
- B: Mostly below average
- N: Near normal
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

Week 1 - Valid: Jan 02, 2019 - Jan 08, 2019

Week 2 - Valid: Jan 09, 2019 - Jan 15, 2019

Confidence

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: 01/01/2019
Forecaster: MacRitchie

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.