Global Tropics Hazards And Benefits Outlook

5/17/2022

Thomas Collow

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

No tropical cyclone formations in the past week

Cool shading
More clouds/rain

Warm shading
Less clouds/rain
Synopsis of Climate Modes

**ENSO: (May 12, 2022 Update)  next update on Thursday, June 9th**

- ENSO Alert System Status: [La Niña Advisory](#)

- Though La Niña is favored to continue, the odds for La Niña decrease into the late Northern Hemisphere summer (58% chance in August-October 2022) before slightly increasing through the Northern Hemisphere fall and early winter 2022 (61% chance).

**MJO and other subseasonal tropical variability:**

- During the past week, the amplitude of the RMM-based Madden Julian Oscillation (MJO) index has increased across the Maritime Continent and Western Pacific.

- This is more likely attributed to constructive interference between a convectively coupled Kelvin Wave and enhanced Rossby Wave activity in the region, rather than a canonical MJO.

- This Kelvin Wave is forecast to quickly propagate eastward during the next week, increasing the potential for pre-season TC development in the East Pacific, Gulf of Mexico, or the far western Caribbean, although uncertainty remains fairly high.
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

**Week 1 - Valid: May 18, 2022 - May 24, 2022**

**Week 2 - Valid: May 25, 2022 - May 31, 2022**

Produced: 05/17/2022
Forecaster: Collow

<table>
<thead>
<tr>
<th>Confidence</th>
<th>Description</th>
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<tbody>
<tr>
<td>High</td>
<td>Development of a tropical cyclone (tropical depression - TD, or greater strength).</td>
</tr>
<tr>
<td>Moderate</td>
<td>Weekly total rainfall in the upper third of the historical range.</td>
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<tr>
<td>Below-average</td>
<td>Weekly total rainfall in the lower third of the historical range.</td>
</tr>
<tr>
<td>Above-normal</td>
<td>7-day mean temperatures in the upper third of the historical range.</td>
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</tbody>
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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.
Wave-1 asymmetry pattern observed in the upper-level spatial velocity potential field.

During early May, enhanced convection continued over the Indian Ocean and Maritime Continent, with suppressed convection downstream over much of the Pacific.

Convective envelope quickly propagates eastward, with enhanced convection shifting into the eastern and central Pacific.
The GEFS depicts a fast eastward circumnavigation of the enhanced RMM-based signal during the next 2 weeks, consistent with a convectively coupled Kelvin wave.

The ECMWF ensembles depict a meandering signal across the western Pacific, with limited eastward propagation likely due to destructive interference with La Niña.

The JMA depicts some initial eastward propagation, but weakens the signal by week-2.
Average Conditions when the MJO is present

CAVEAT: These panels are representative of robust MJO events.
Constructive interference between Kelvin and Rossby wave activity led to enhanced convection and subsequent negative OLR anomalies across the Indian Ocean and Maritime Continent in early May.

Low frequency contours depict La Niña conditions.
Using the upper-level velocity potential filtering, there is a large signal for a Kelvin Wave to circumnavigate the globe during the next 2 weeks.
May Tropical Storm Formation by MJO phase

- Phase 1 (85 days) - 7 storms
- Phase 2 (70 days) - 5 storms
- Phase 3 (73 days) - 9 storms
- Phase 4 (85 days) - 9 storms
- Phase 5 (66 days) - 9 storms
- Phase 6 (87 days) - 10 storms
- Phase 7 (111 days) - 15 storms
- Phase 8 (111 days) - 11 storms
- Null (349 days) - 33 storms
No new tropical cyclones are expected during the next five days.
Storm Track Density Distribution, IC=20220516
Week 1 Forecast: 0518–0524

TRACK DENSITY

CFS

30N

15N

GEFS

30N

15N

ECMWF

30N

15N

ECCC, IC=20220512

30N

15N

FILTERED

CFS, ENP=0.0 ATL=0.8

GEFS, ENP=0.1 ATL=0.6

ECMWF, ENP=0.2 ATL=0.3

ECCC, ENP=0.9 ATL=0.5

GEFS Mean MSLP (mb), Ensemble Member Pressure Centers (Lows: red | Highs: blue), & Normalized Spread (σ)

FSC Mean MSLP (mb), Ensemble Member Pressure Centers (Lows: red | Highs: blue), & Normalized Spread (σ)

056 May 17 2022 Forecast Hour: [150] valid at 1200 UTC, May 20 2022
Connections to U.S. Impacts
Since we are in an amplified, stable pattern today's outlooks are likely to be similar.
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