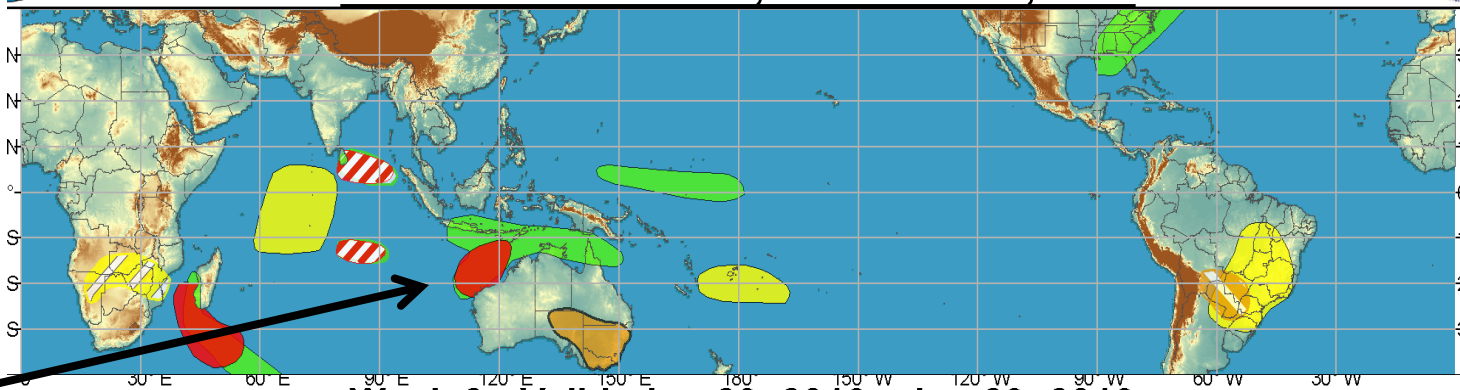# Global Tropics Hazards And Benefits Outlook
1/29/2019

Kyle MacRitchie

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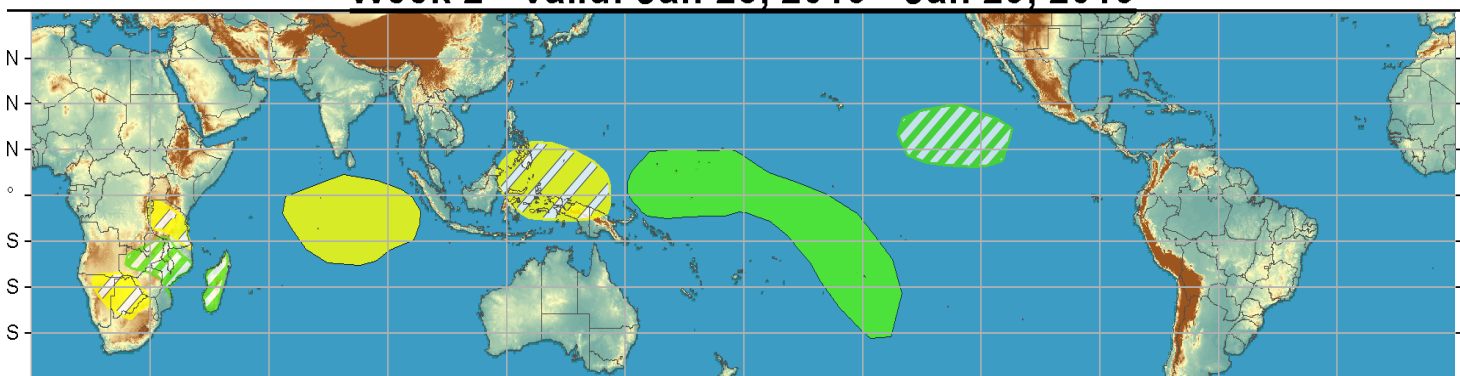
1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts

Outlook Review

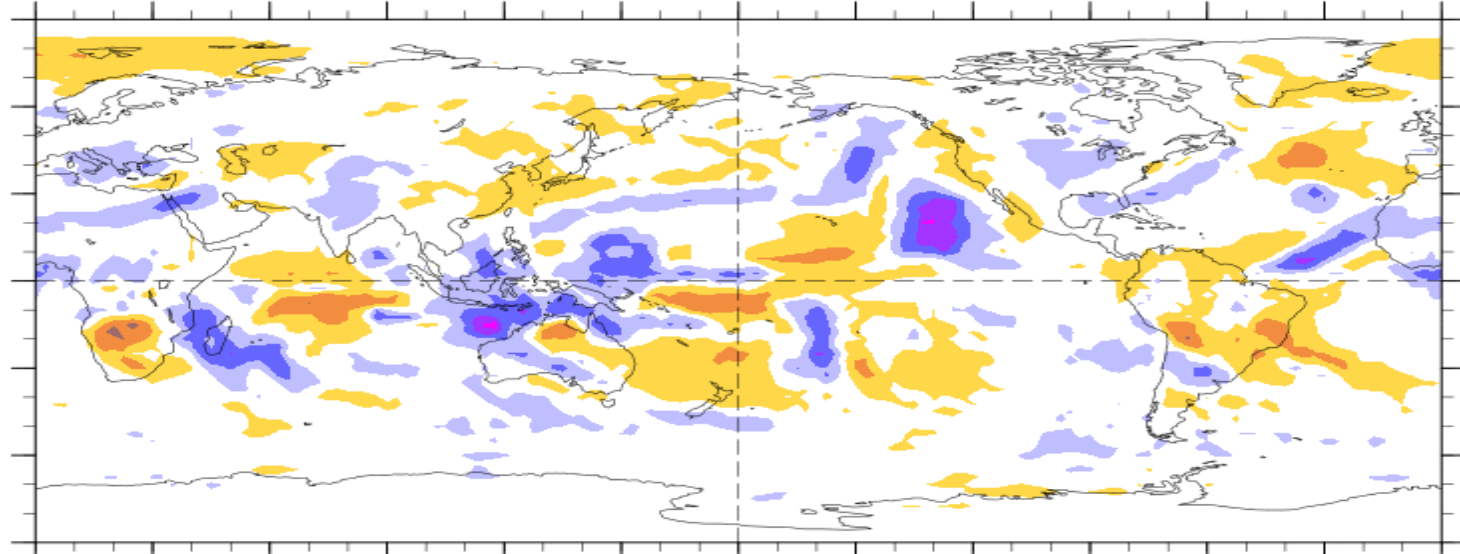## Week 1 - Valid: Jan 23, 2019 - Jan 29, 2019

TC Riley

Week 2 - Valid: Jan 23, 2019 - Jan 29, 2019

7-Day Average OLR Anomaly   2019/01/21 - 2019/01/27

Cool shading
More clouds/rain

Warm shading
Less clouds/rain

Synopsis of Climate Modes

ENSO: (10 January 2019 Update)
- ENSO Alert System Status: <u>El Niño Watch</u>

- El Niño is expected to form and continue through the Northern Hemisphere spring 2019 (~65% chance).

- Given the timing and that a weak event is favored, significant global impacts are not anticipated during the remainder of winter, even if conditions were to form.

MJO and other subseasonal tropical variability:
• The MJO is in RMM Phase 6 – Western Pacific

• Model guidance suggests that the MJO will track into Phase 7 (eastward) during Week-1 before weakening significantly. It is possible that a weak MJO will emerge in Phase 1 during Week-2.
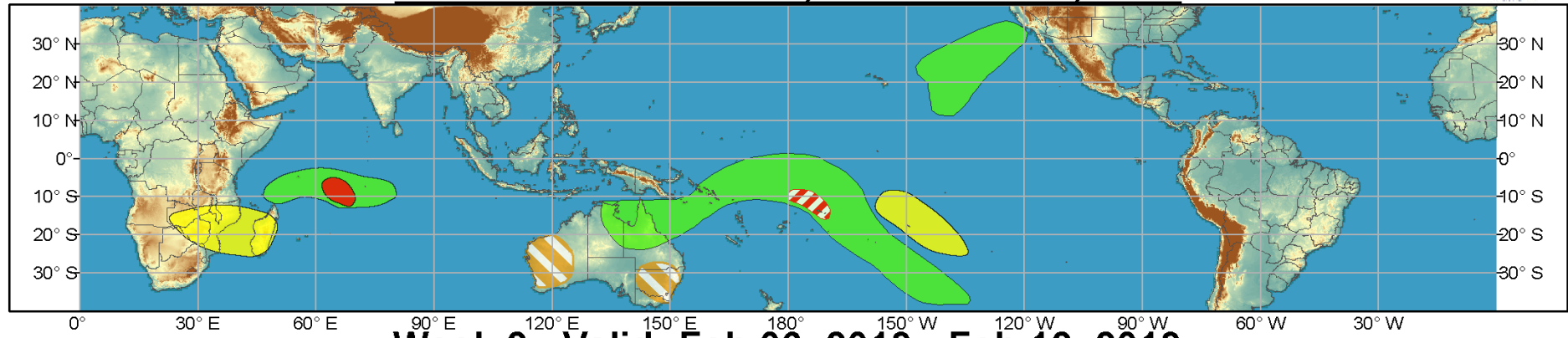
Extratropics:
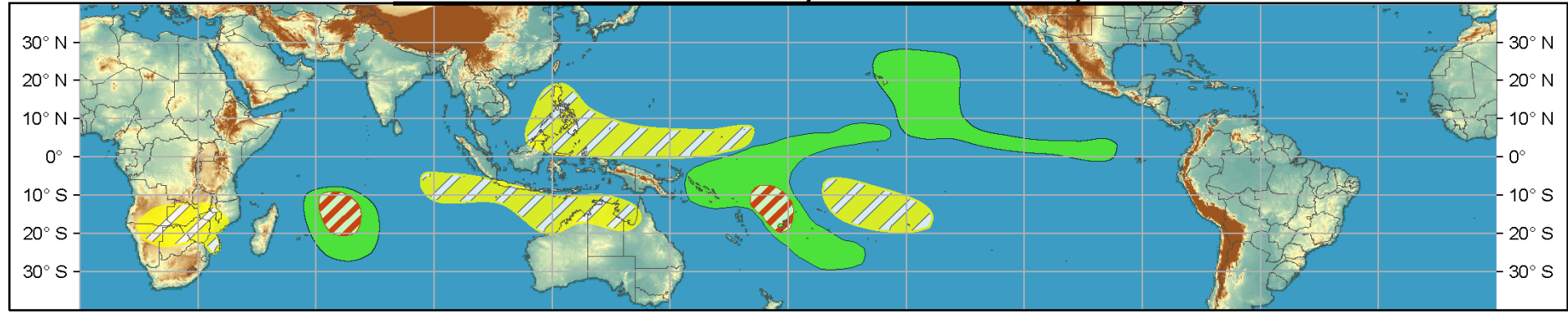• Negative AO pattern still dominates, not the MJO.

Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

Week 1 - Valid: Jan 30, 2019 - Feb 05, 2019

Week 2 - Valid: Feb 06, 2019 - Feb 12, 2019

Produced: 01/29/2019
Forecaster: MacRitchie

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.

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.
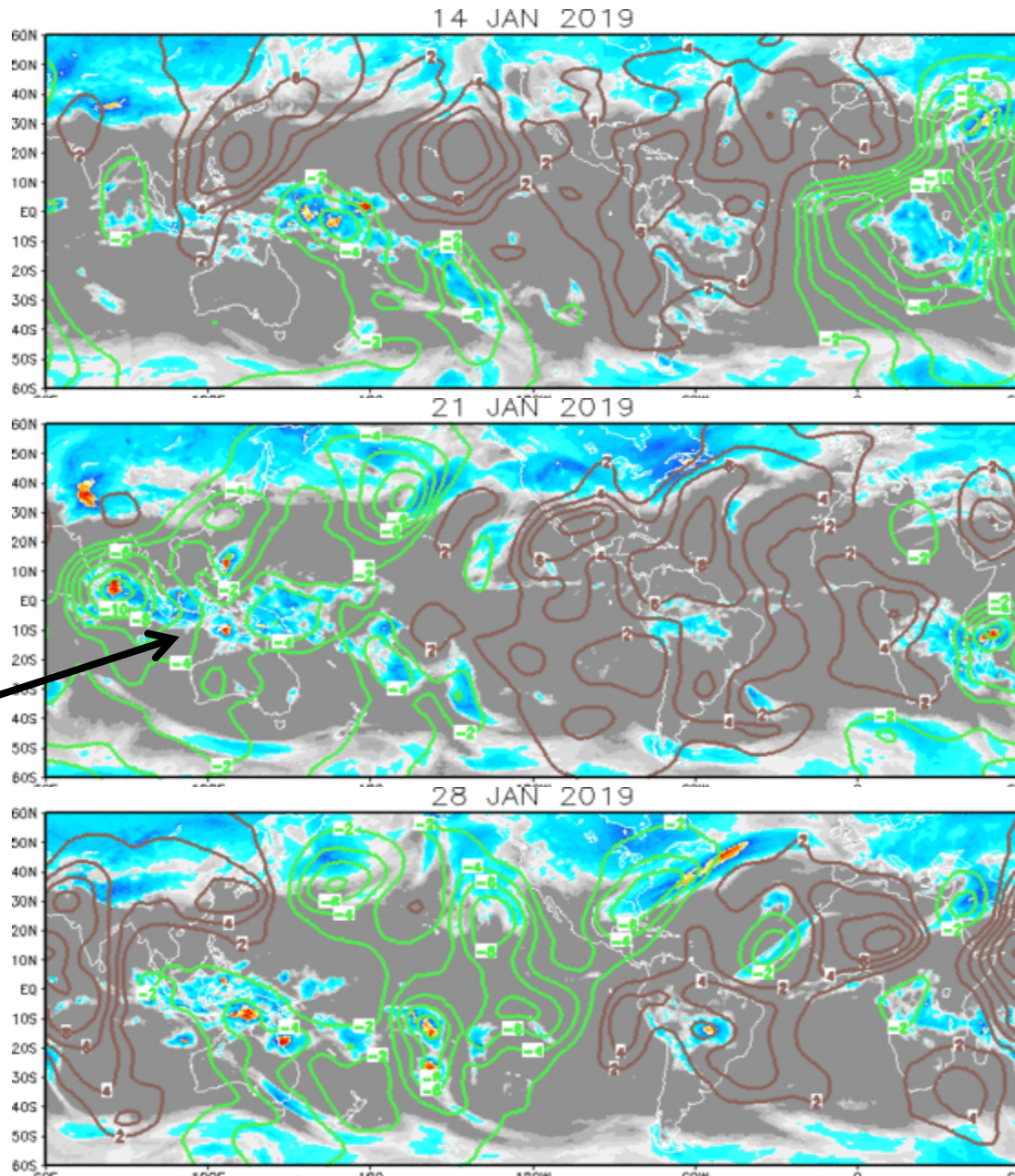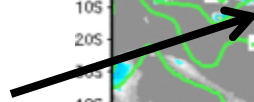
IR Satellite & 200-hpa Velocity Potential Anomalies

Green: Enhanced Divergence   Brown: Enhanced Convergence

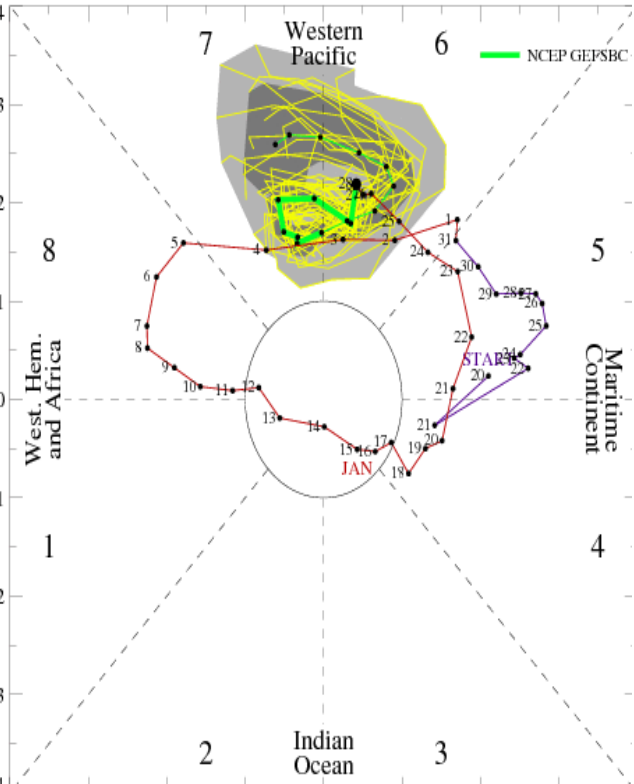Noisy Wave-1 pattern anchored by convection in the Pacific & Indian Ocean.
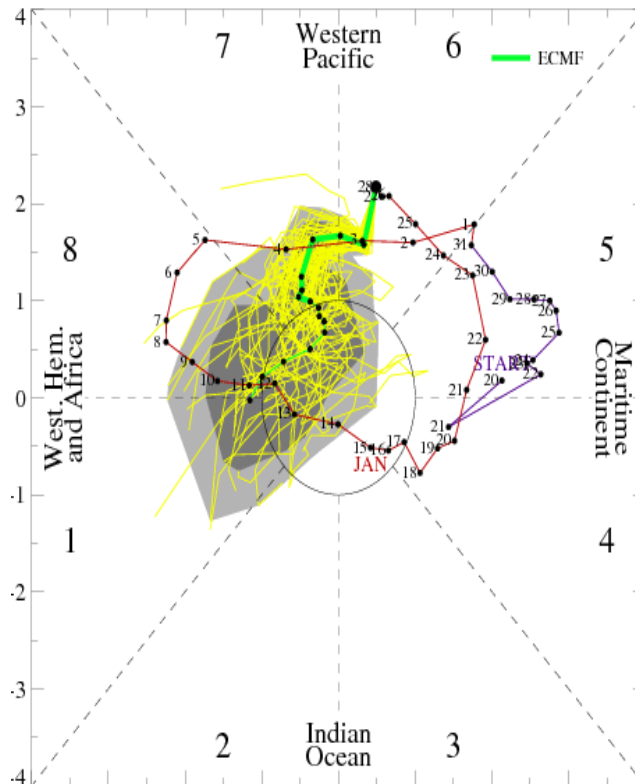
MJO Observation/Forecast
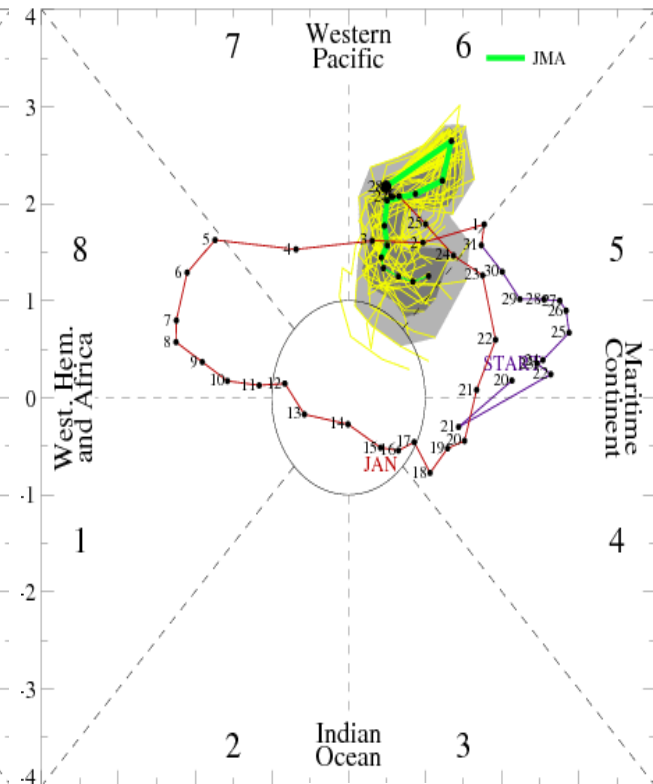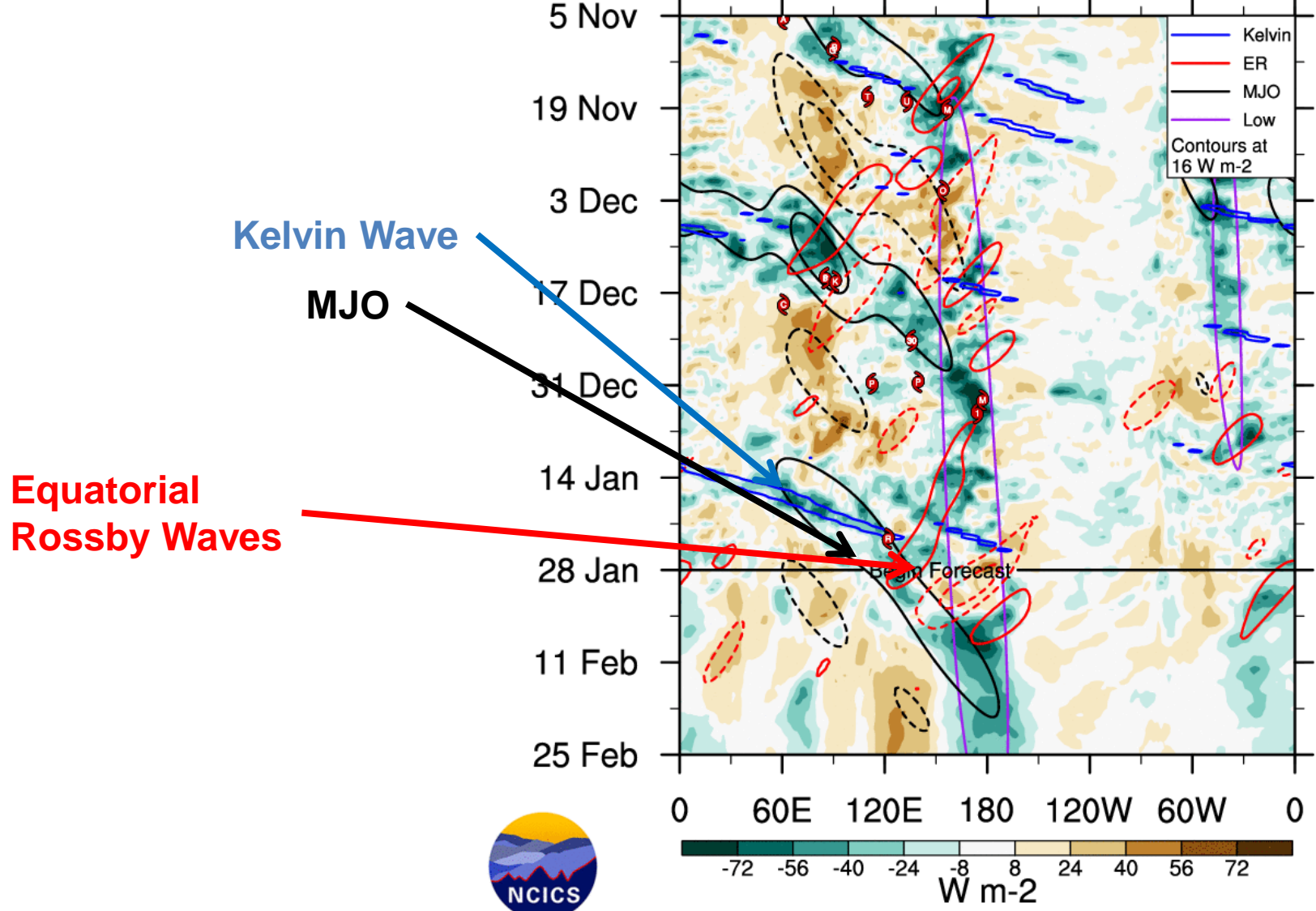

GEFS   ECMWF   CMC

Model guidance consistently brings the MJO into the West Pacific during Week-1, before stalling the signal there in Week-2.

GFS is much stronger than the other models. We hypothesize that this is because the GFS does not have a coupled ocean and therefore cannot properly cool the SSTs under the convection. The most physically probable solution is the ECMWF.

Phase 2

Phase 3

Phase 4

Phase 5

Phase 6

Phase 7 ← **Week 1**

Phase 8

Phase 1 ← **Week 2**

OLR with CFS forecasts · 5S – 5N

Kelvin Wave
MJO
Equatorial Rossby Waves

Begin Forecast

Kelvin
ER
MJO
Low

Contours at
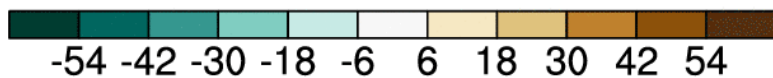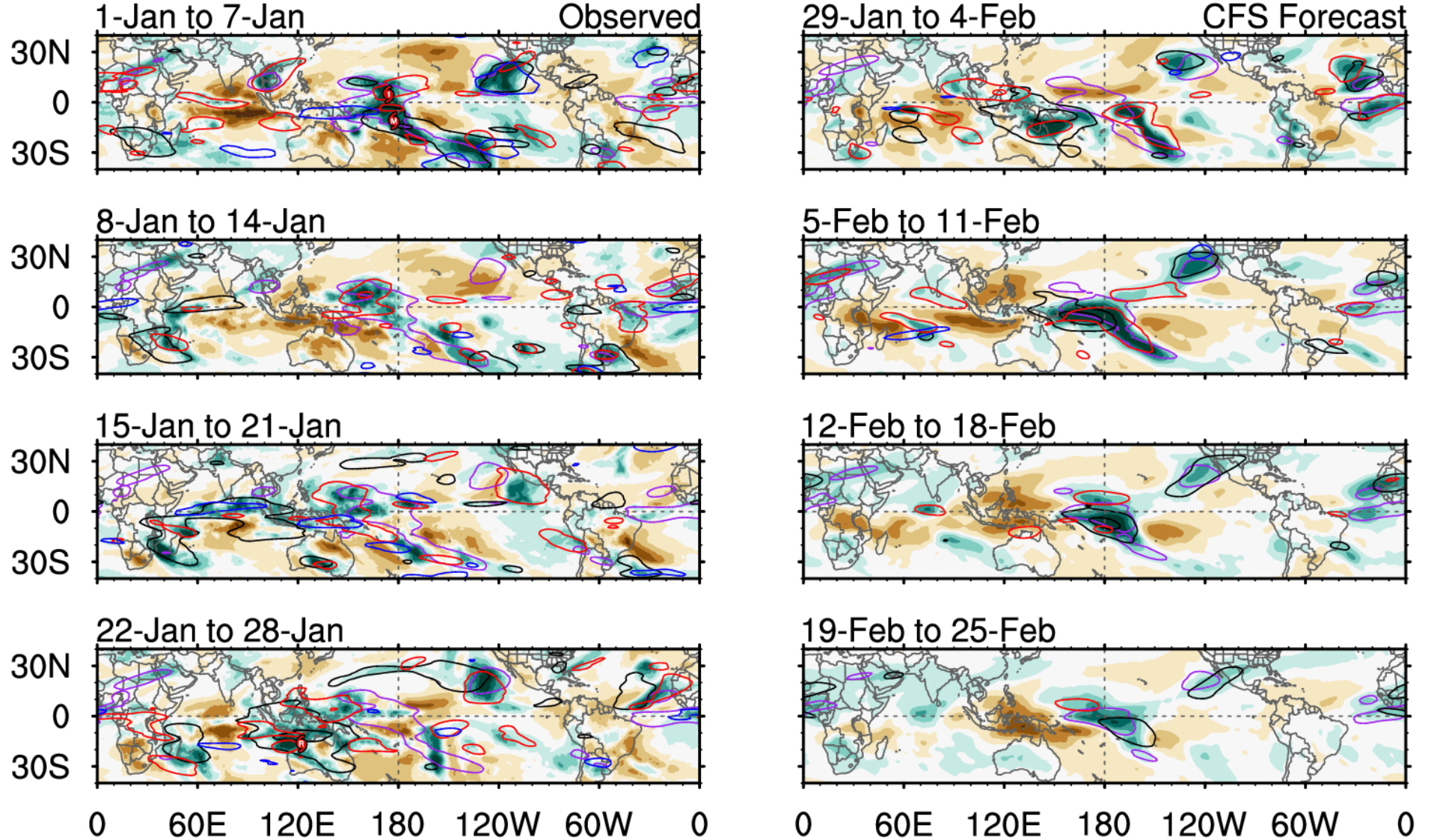16 W m-2

W m-2
-72 -56 -40 -24 -8   8   24   40   56   72

NCICS

ncics.org/mjo

Tue 2019-01-29 1626 UTC

Carl Schreck (cjschrec@ncsu.edu)

7-day OLR with CFS forecasts

ncics.org/mjo
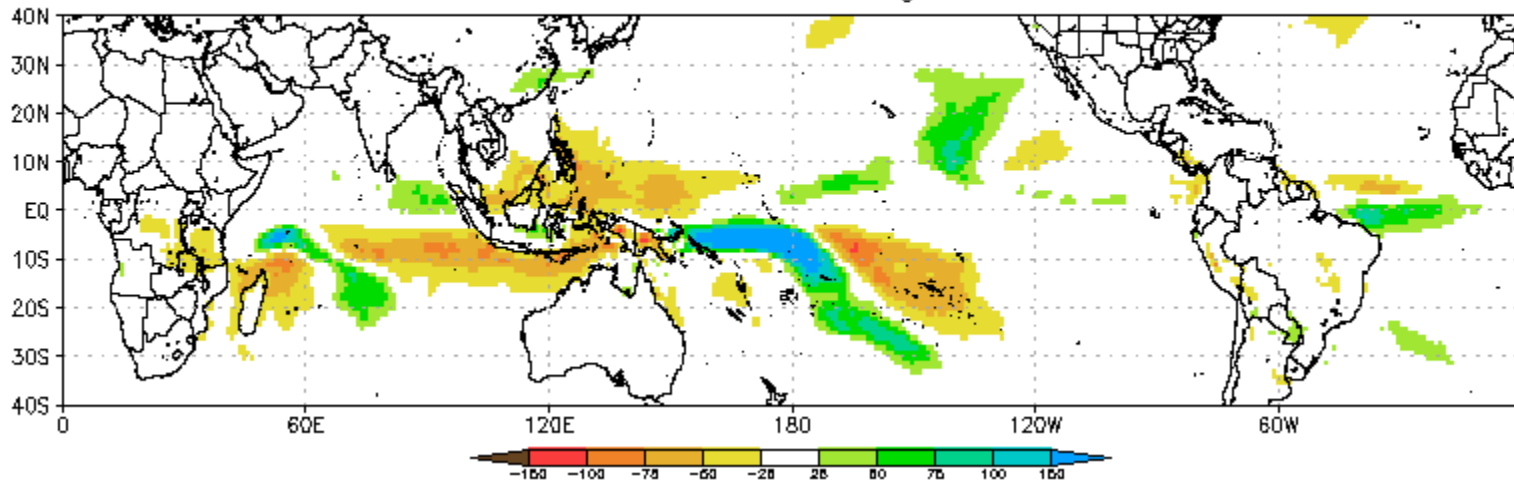
Tue 2019-01-29 1630 UTC

Carl Schreck (cjschrec@ncsu.edu)

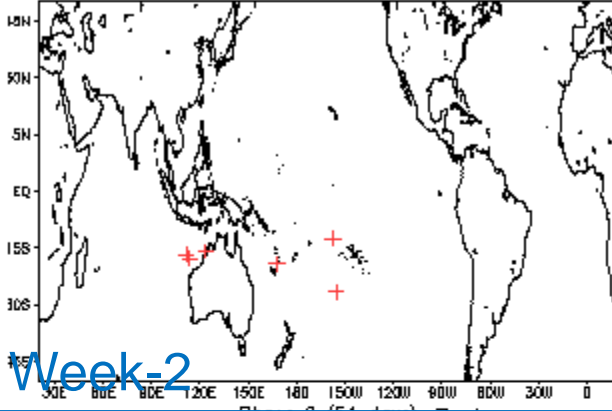CFS Precipitation Anomalies (mm) Issued 28Jan2019
Week−1 Forecast Ending 05Feb2019
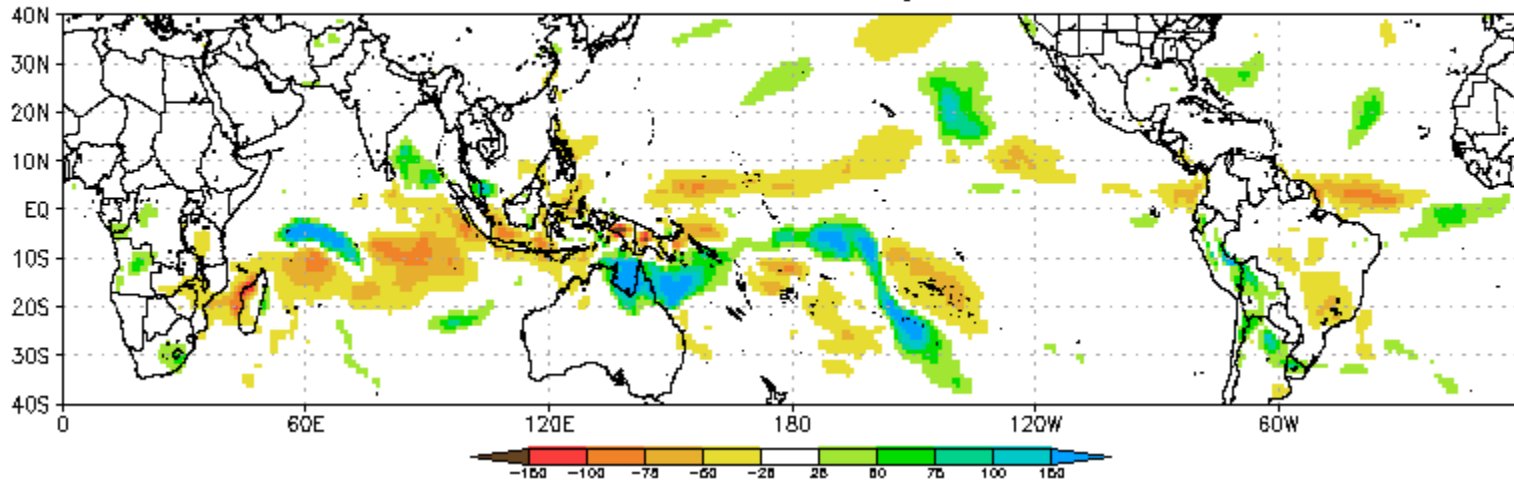
CFS Precipitation Anomalies (mm) Issued 28Jan2019
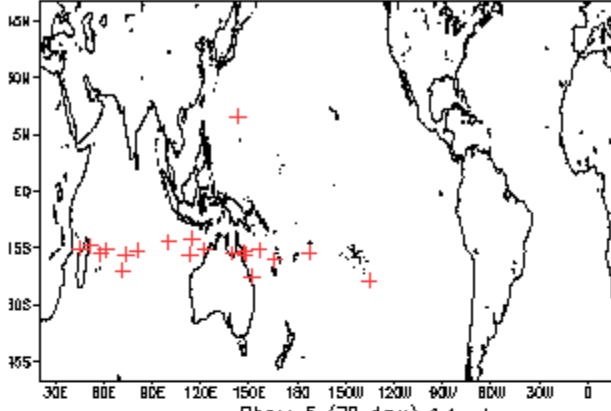Week−2 Forecast Ending 12Feb2019
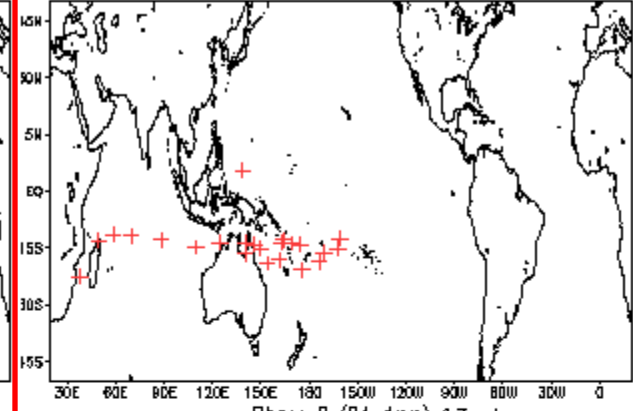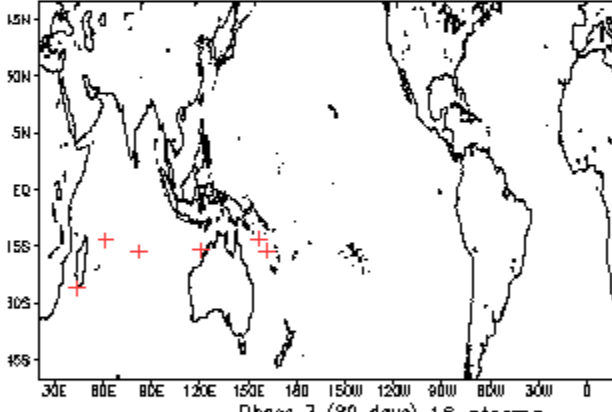
February Tropical Storm Formation by MJO phase

CWB TC Tracker for NCEP GEFS (Fuzzy_AllCriteria)

TC Track(0−384 hr)   2019012900   NCEP GEFS

Track Count (0−96 hr)   NCEP GEFS

Days 1-4

Track Count (102−192 hr)   NCEP GEFS

Day 5-8

Track Count (198−288 hr)   NCEP GEFS

Day 9-12

Track Count (294−384 hr)   NCEP GEFS
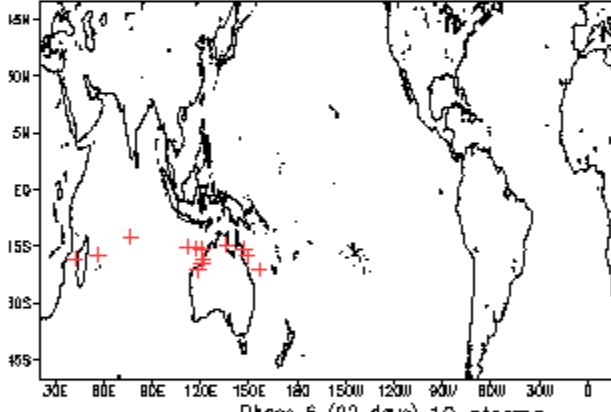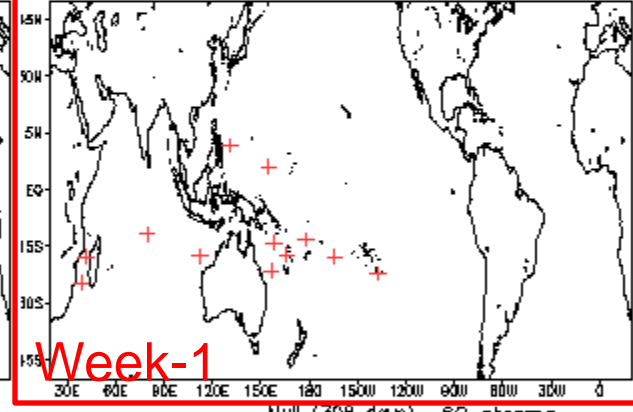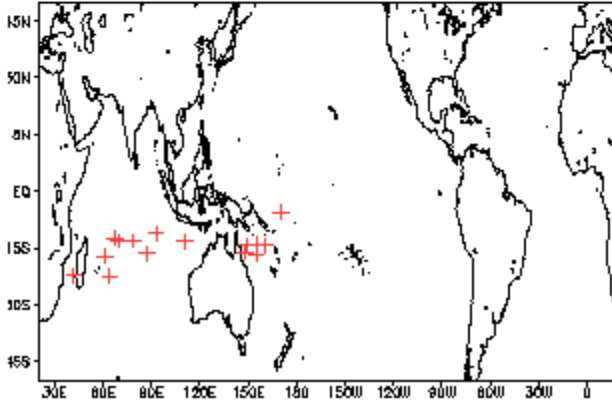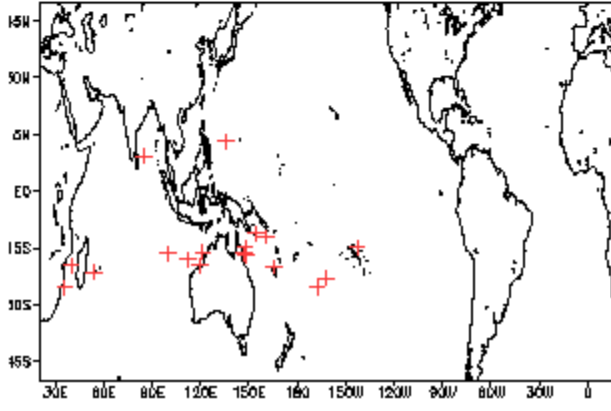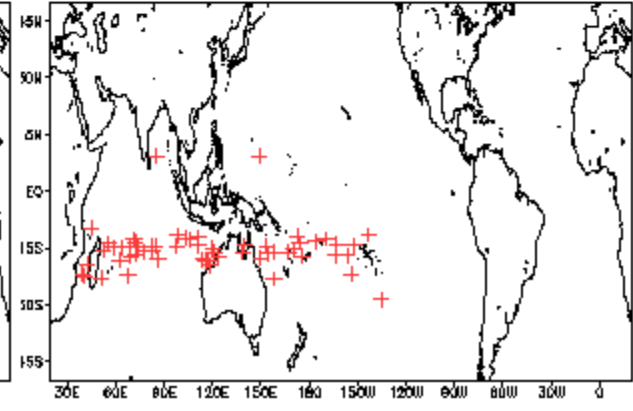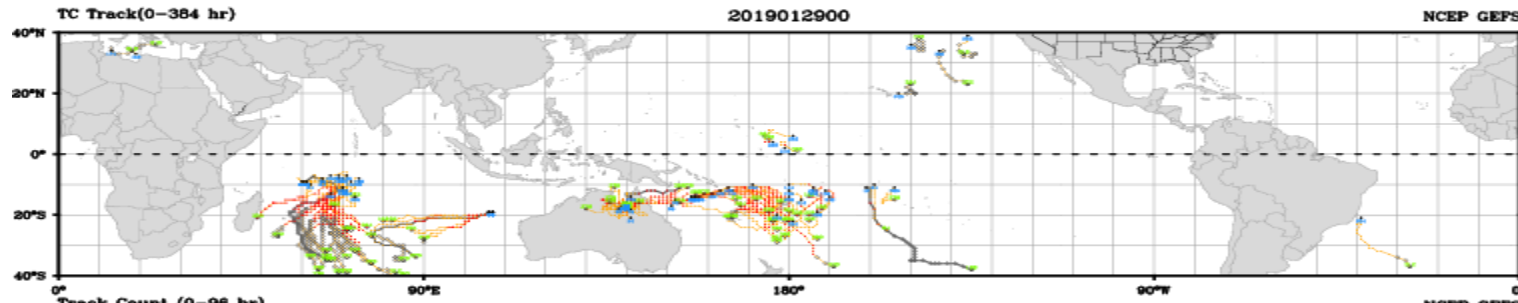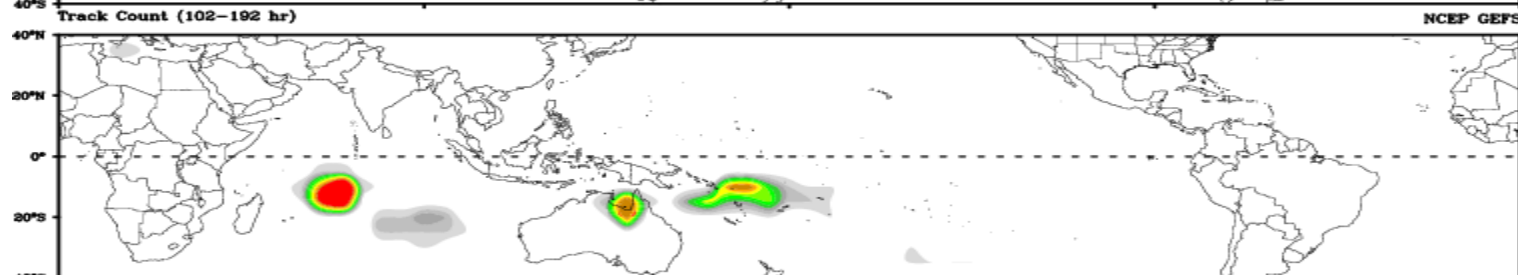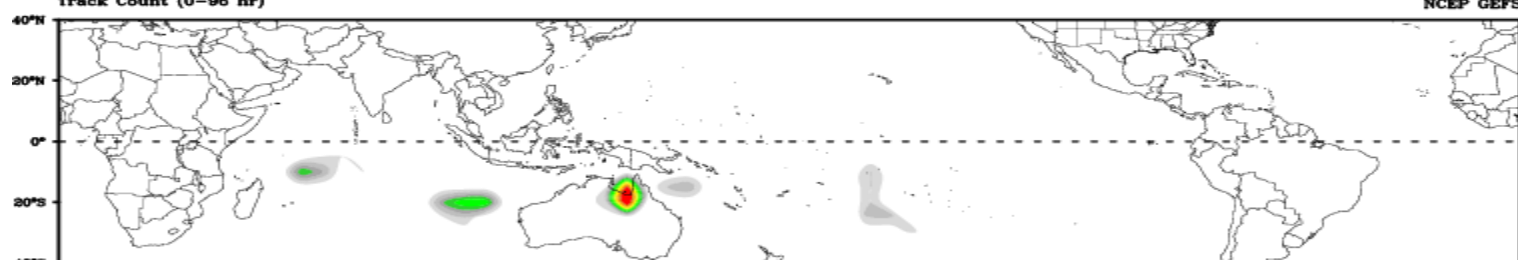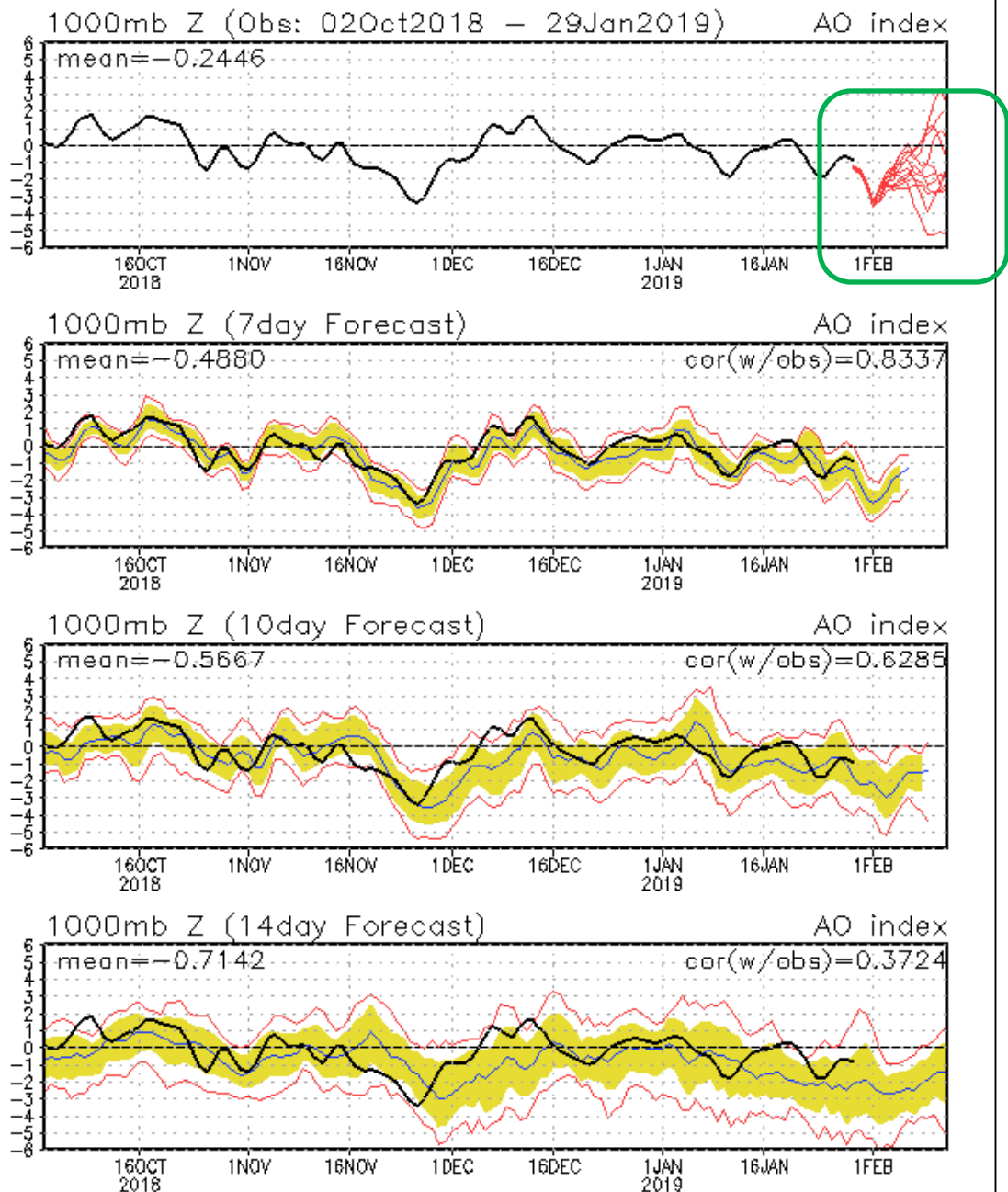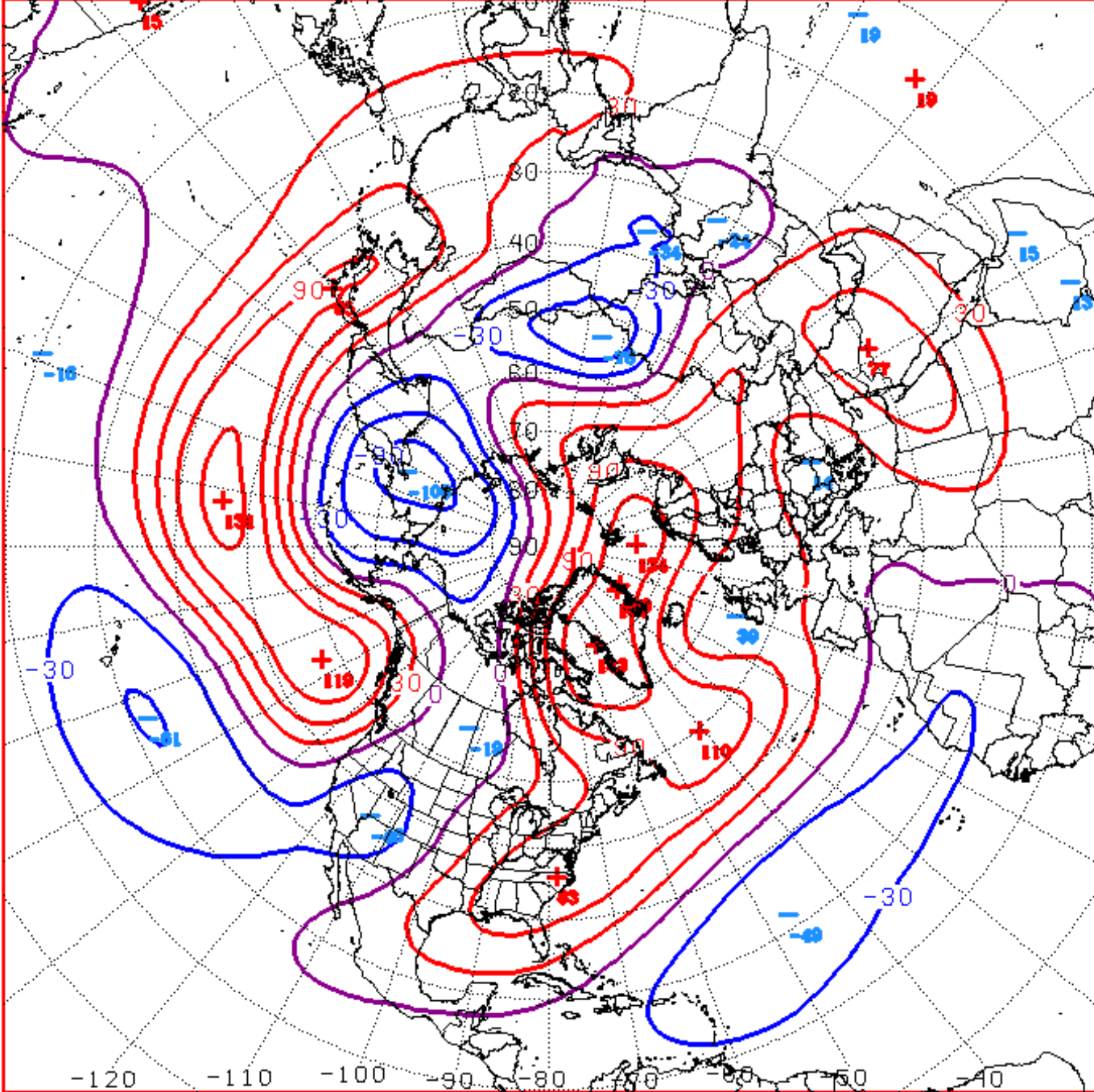
Day 13-15
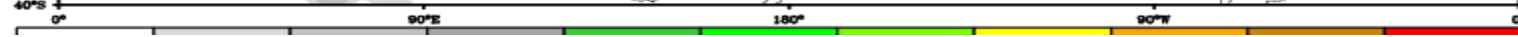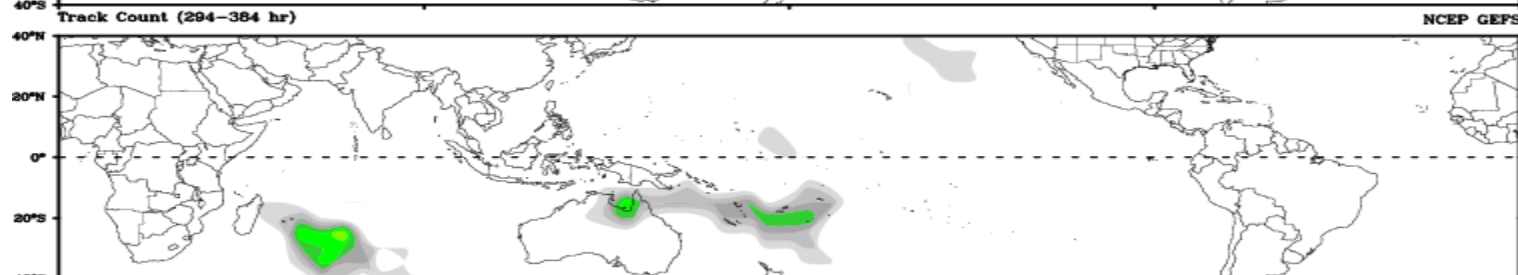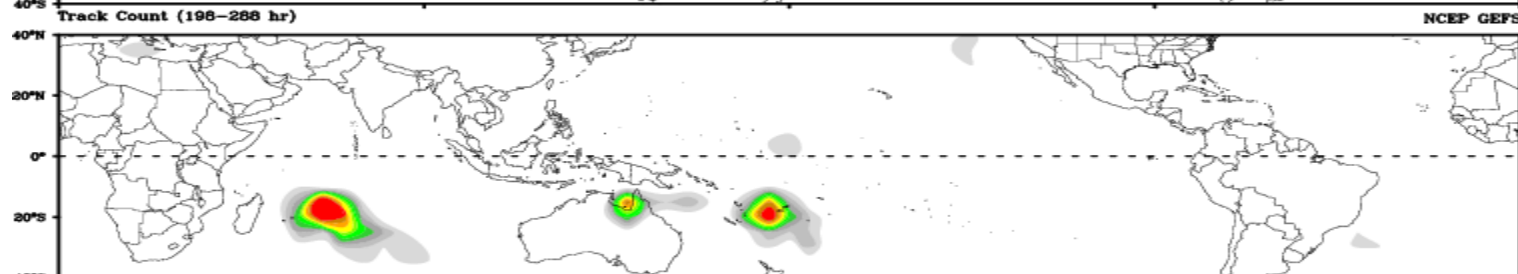
Connections to U.S. Impacts

AO: Observed & ENSM forecasts

1000mb Z (Obs: 02Oct2018 — 29Jan2019)   AO index
mean=−0.2446

1000mb Z (7day Forecast)   AO index
mean=−0.4880   cor(w/obs)=0.8337

1000mb Z (10day Forecast)   AO index
mean=−0.5667   cor(w/obs)=0.6285

1000mb Z (14day Forecast)   AO index
mean=−0.7142   cor(w/obs)=0.3724
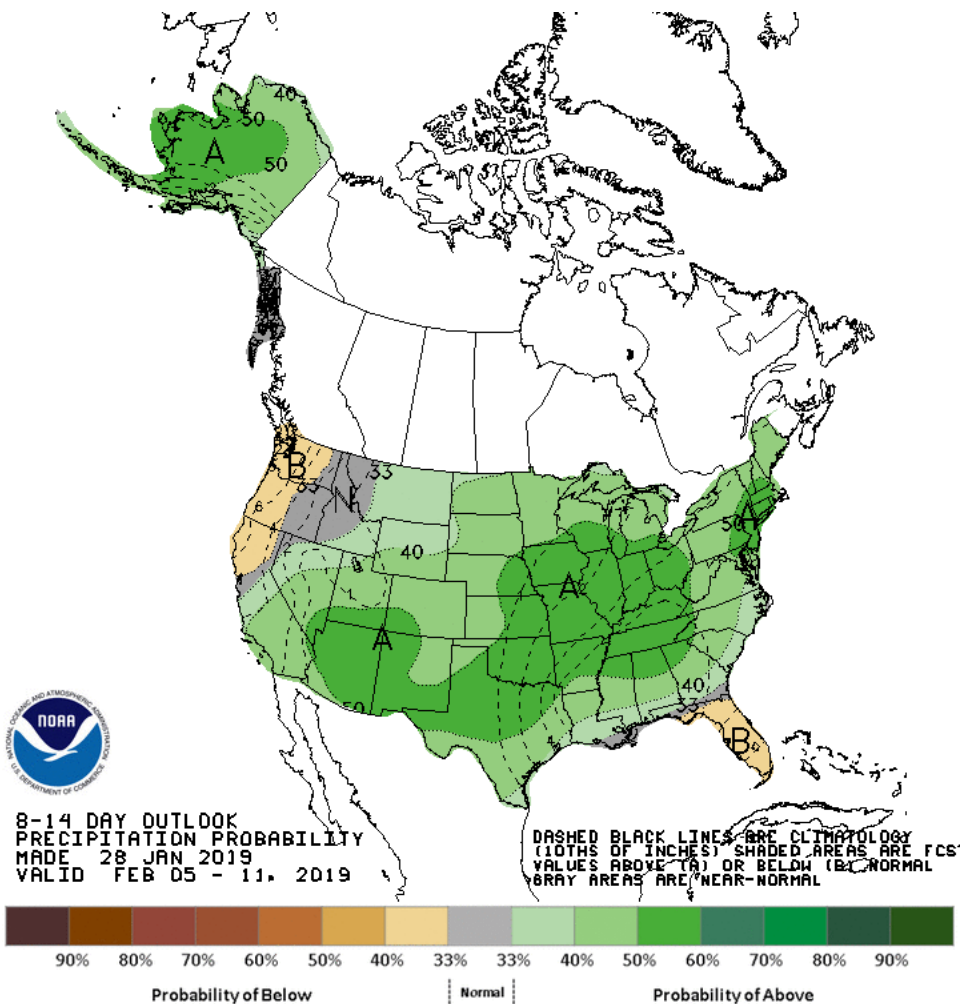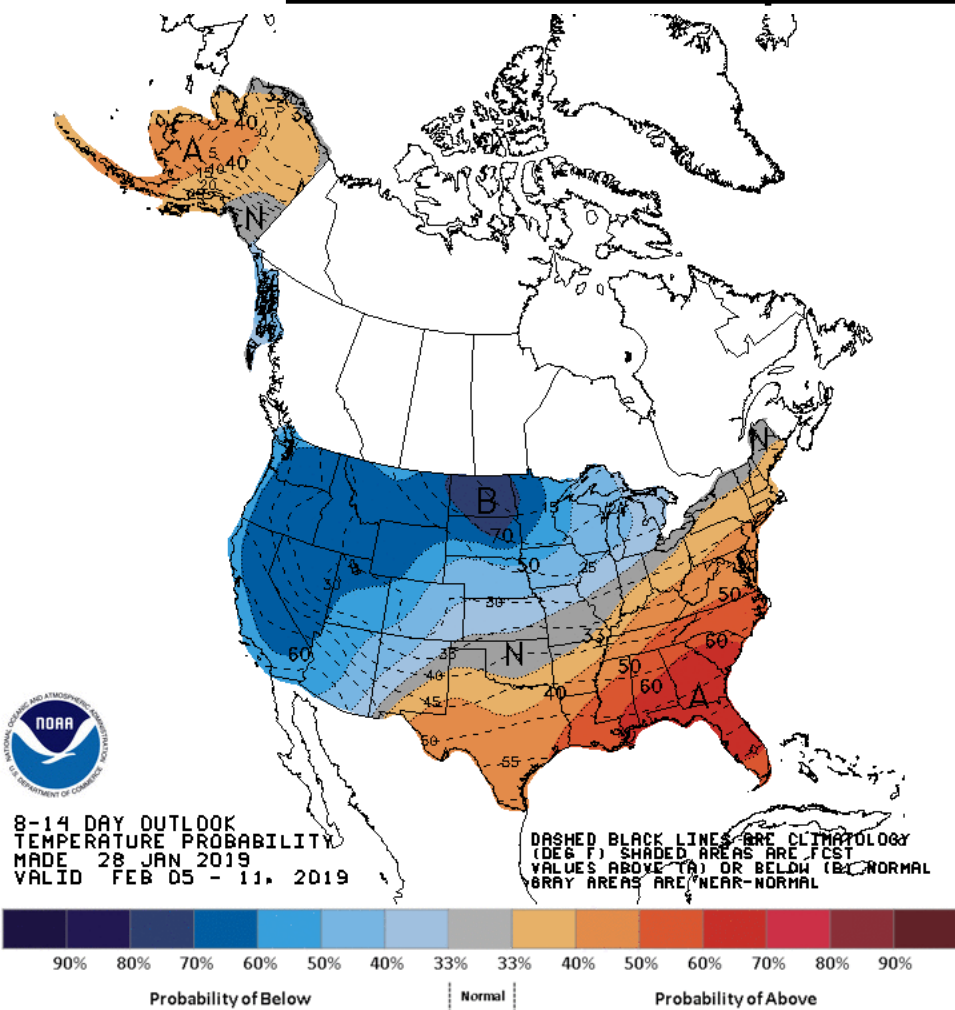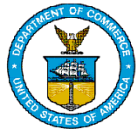
D+11 500 MB ANOMALIES FROM ALZ ENSM
CPC MAP MADE JAN 29 2019 1303 UTC CNTD FEB 09 2019

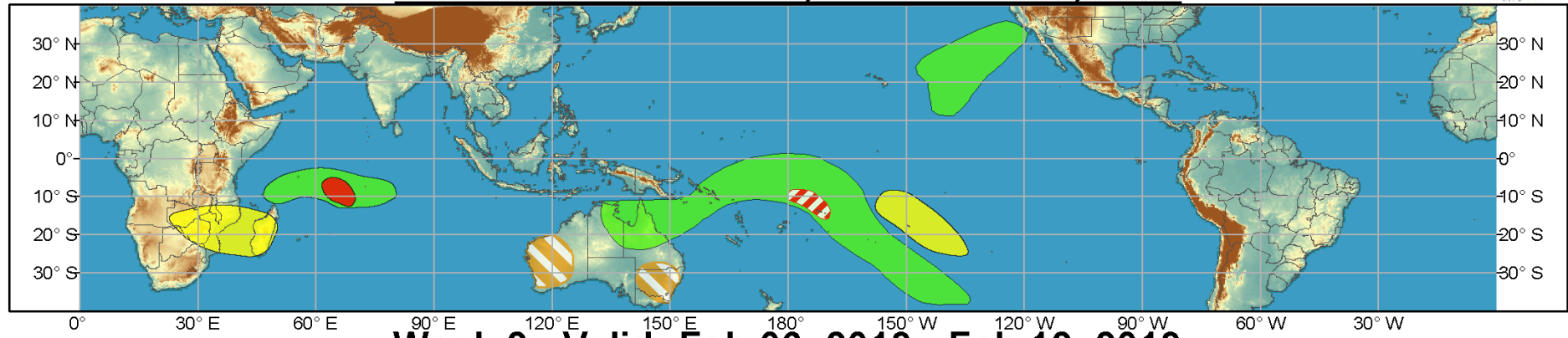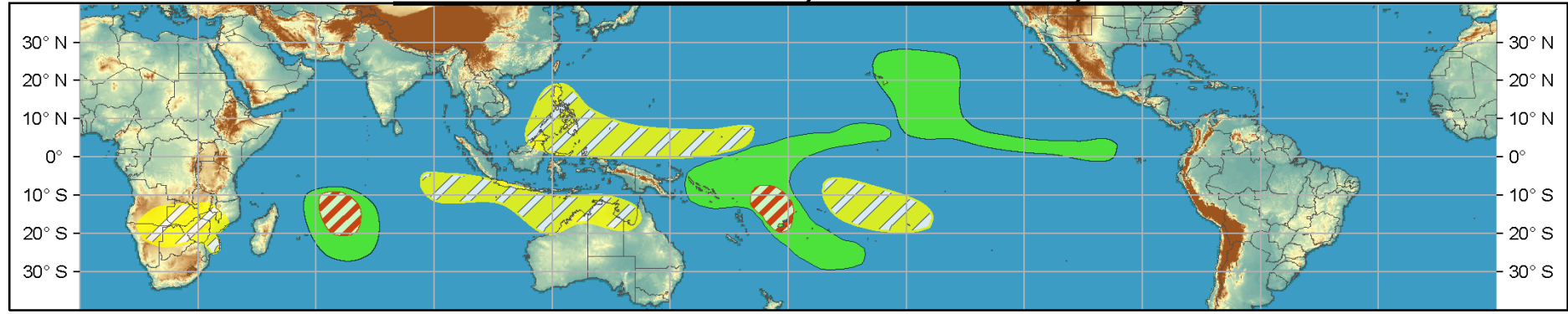# Week 2 – Temperature and Precipitation

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