



The Asian-Australian Monsoon System: Recent Evolution, Current Status and Prediction

**Update prepared by
Climate Prediction Center / NCEP
May 15, 2017**

For more information, visit:

http://www.cpc.ncep.noaa.gov/products/Global_Monsoons/Asian_Monsoons/Asian_Monsoons.shtml

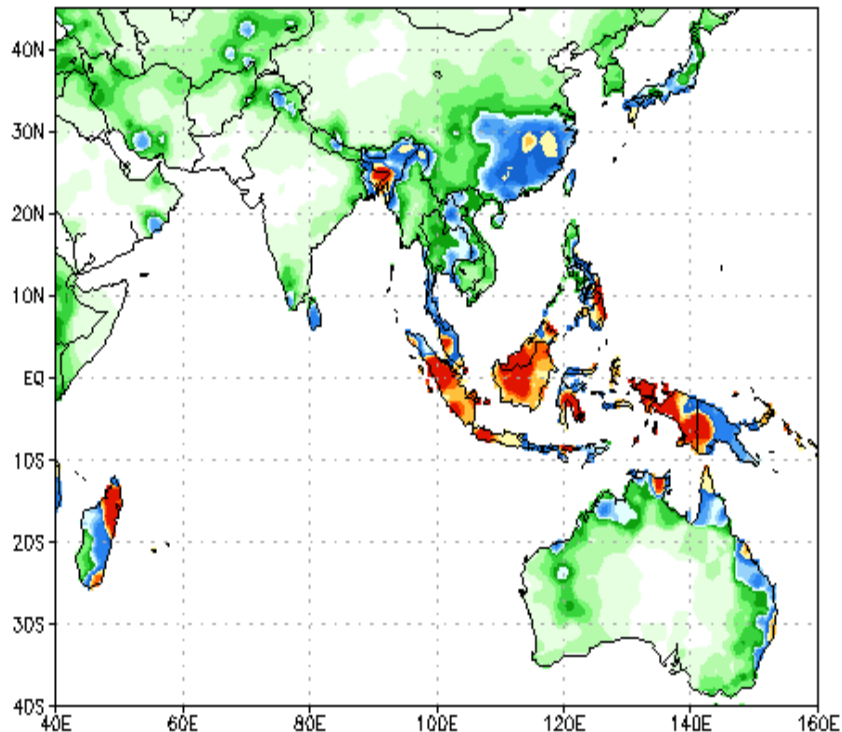


Outline

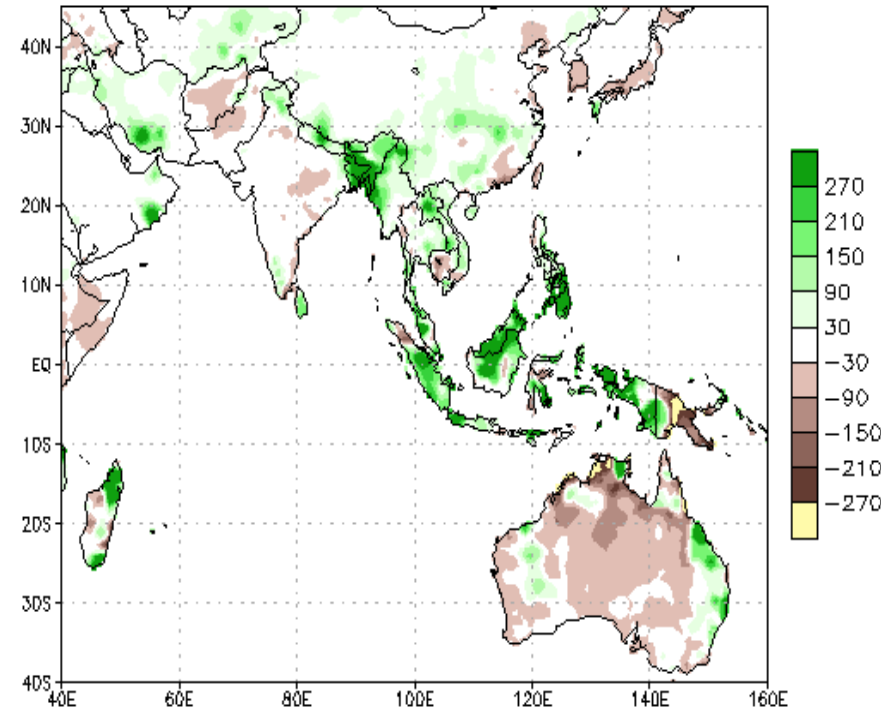
- Recent Rainfall and Current Conditions
- Monsoon Prediction
- Summary
- Climatology

Precip Patterns: Last 90 Days

Accumulated Prcp (mm) 14FEB2017-14MAY2017



Prcp Anomalies (mm) 14FEB2017-14MAY2017



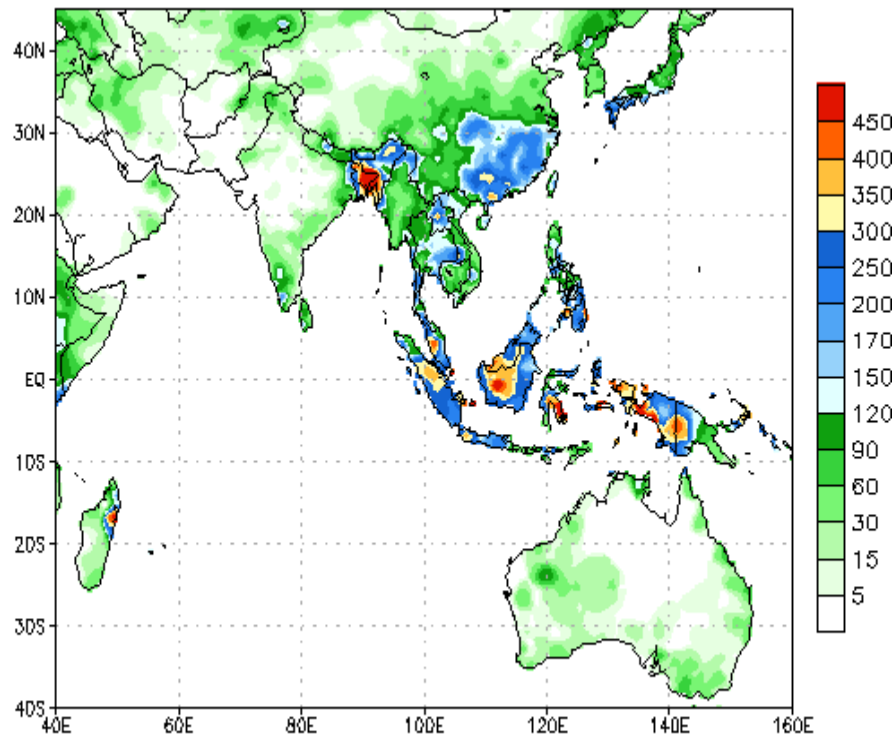
Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis Climatology (1981-2010)

leg resolution) Precipitation Analysis

For the past 90 days, normal to slightly below normal rainfall deficits remain in general over most parts of India, except over northeastern India and Bangladesh where the rainfall was excess. Large rainfall deficits are noted over large parts of Australia, except along its east coast. Elsewhere, the rainfall was generally near to above normal, except over Papa New Guinea where it was below.

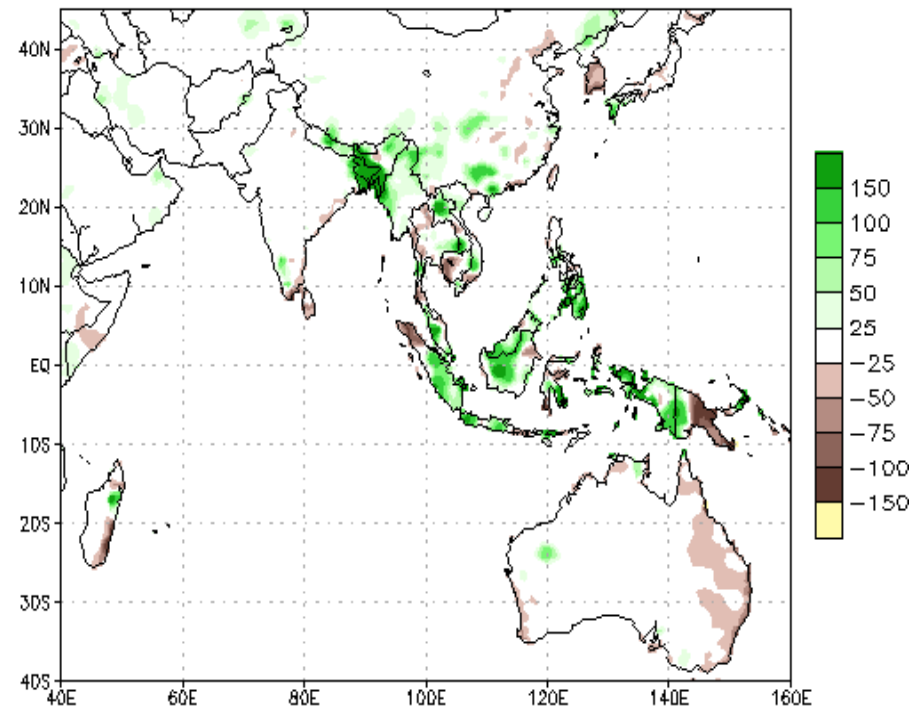
Precip Patterns: Last 30 Days

Accumulated Prcp (mm) 15APR2017-14MAY2017



Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis

Prp Anomalies (mm) 15APR2017-14MAY2017



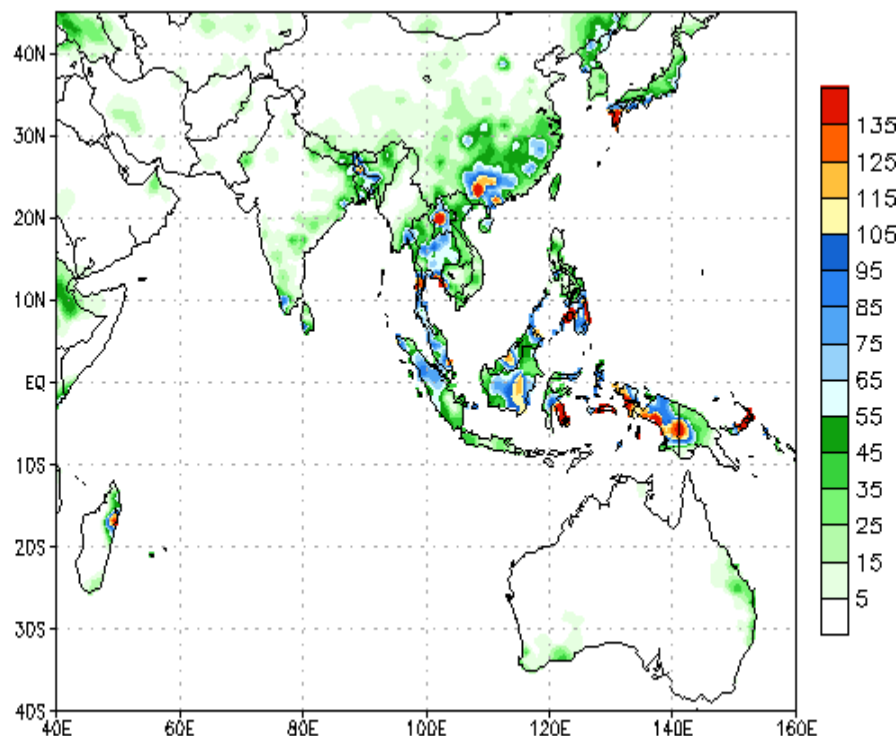
Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis
Climatology (1981-2010)

For the past 30 days rainfall deficits are found over Papa New Guinea and along the east coast of Australia. Small deficits are also noted along coastal southern India, South Korea and some parts of Japan. Large excess precipitation is noted over northeastern India. Elsewhere, the rainfall is generally above to near normal.

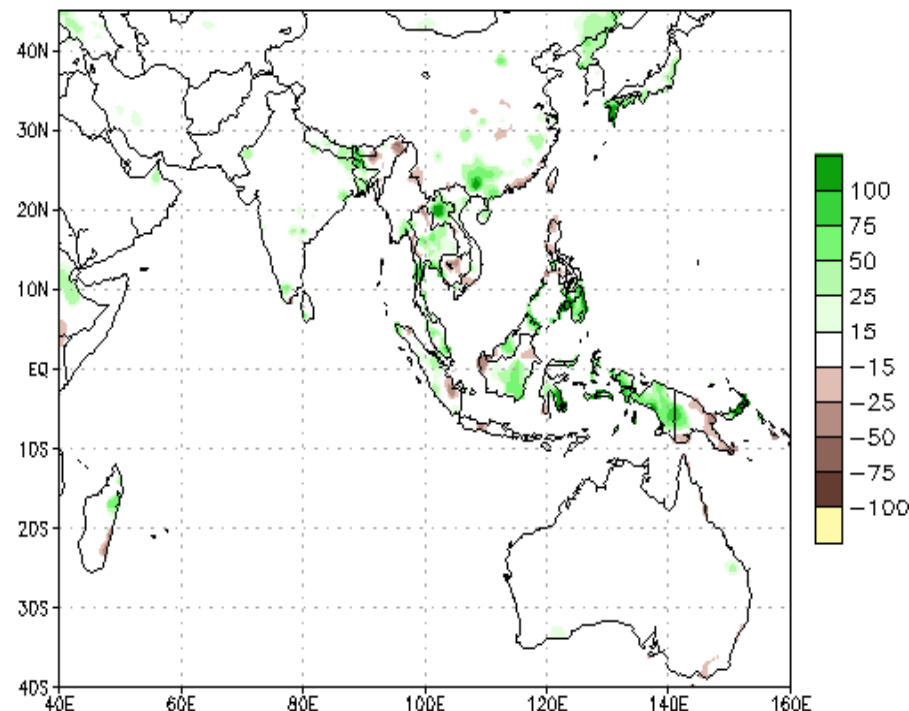


Precip Patterns: Last 7 Days

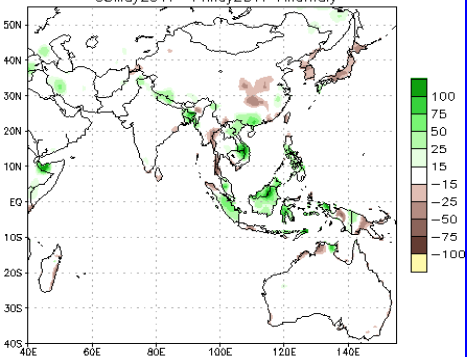
7-day Accumulated Prep (mm) 08MAY2017-14MAY2017



7-day Prep Anomalies (mm) 08MAY2017-14MAY2017



NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)
from: 08May2017
08May2017-14May2017 Anomaly



0.5x0.5 deg resolution) Precipitation Analysis

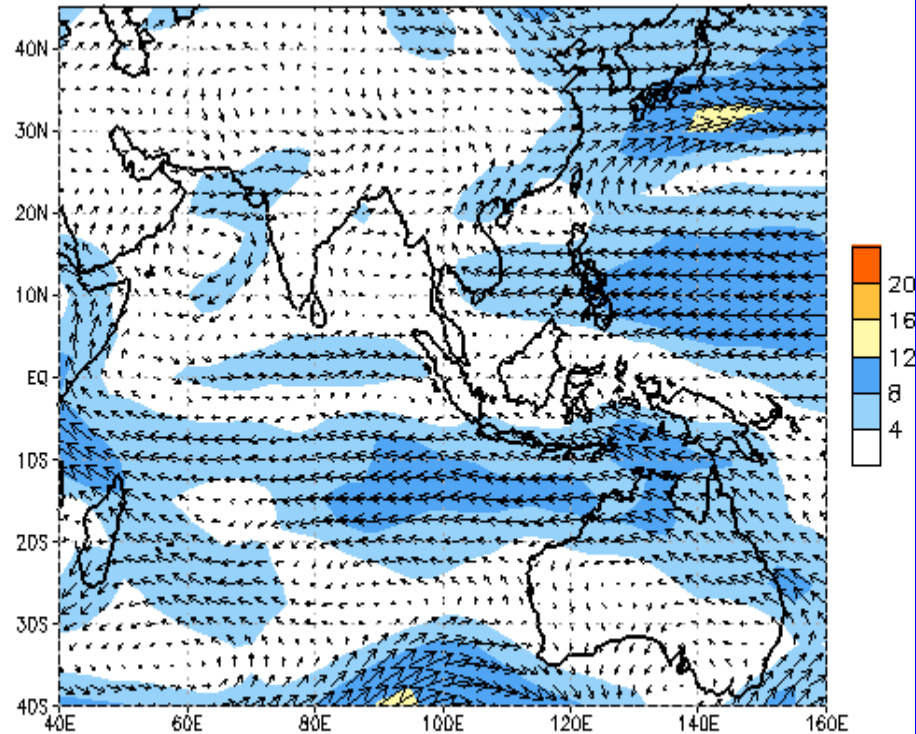
Data Source: CPC Unified (gauge-based & 0.5x0.5 deg resolution) Precipitation Analysis
Climatology (1981-2010)

In this past week, the observed rainfall amounts have generally been sporadic, and are slightly above normal in some places.



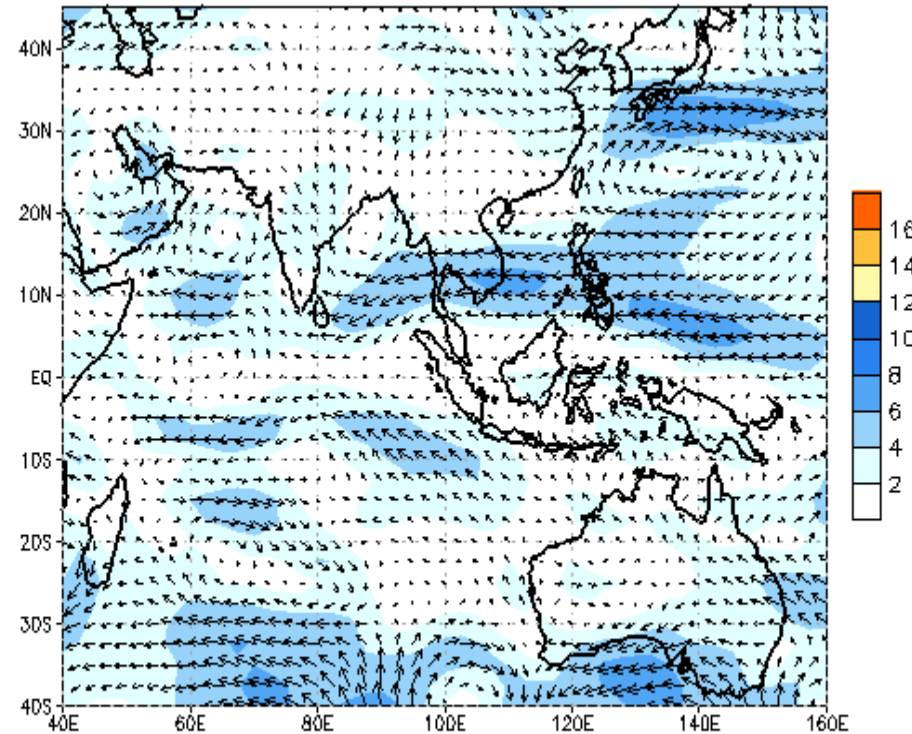
Atmospheric Circulation

850 hPa Vector Total Wind (ms^{-1}) 07 MAY 2017 – 13 MAY 2017



Data Source: NCEP/CDAS
(Wind speed $> 4 \text{ ms}^{-1}$ shaded)

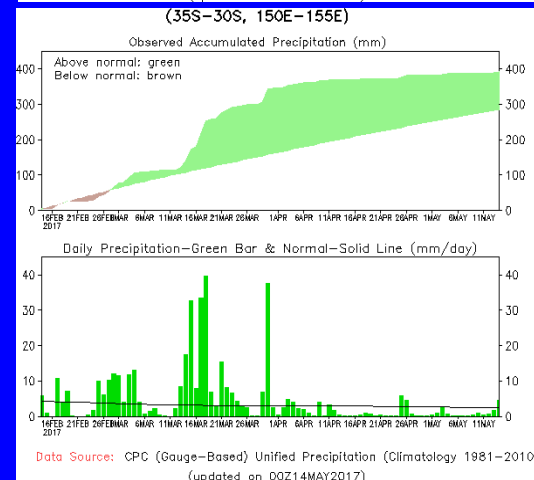
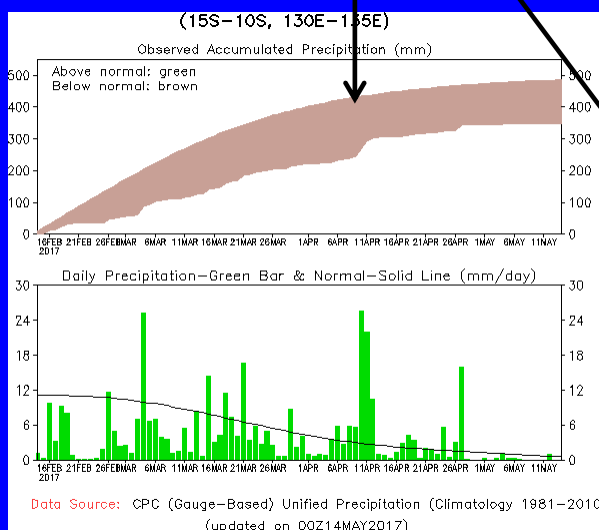
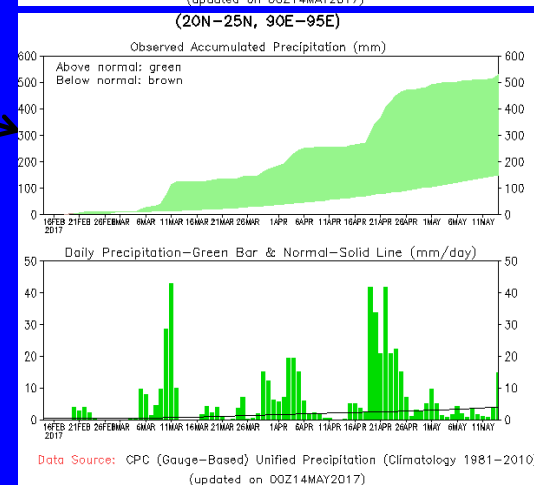
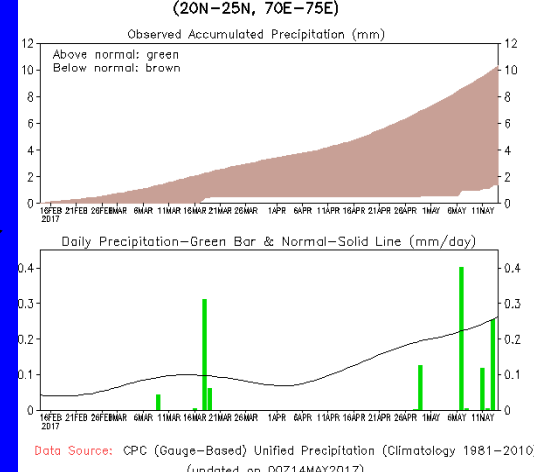
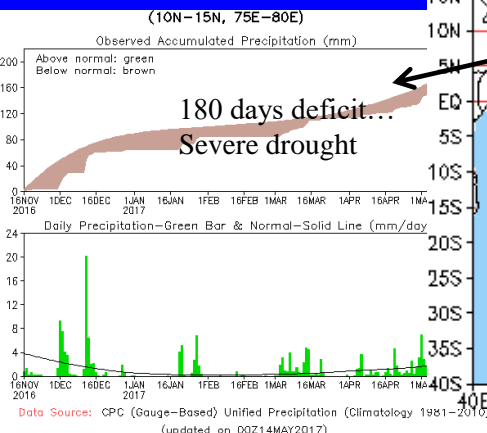
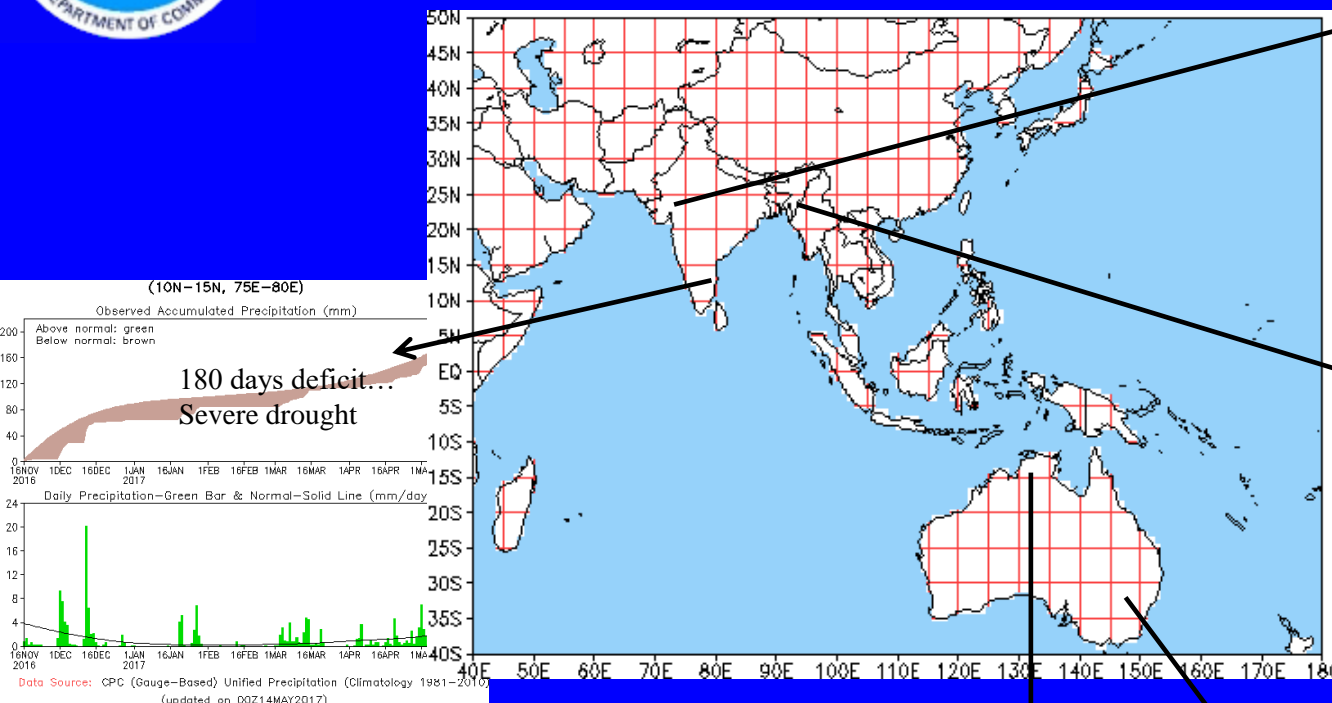
850 hPa Vector Wind Anomalies (ms^{-1}) 07 MAY 2017 – 13 MAY 2017



Data Source: NCEP/CDAS – Climatology (1981–2010)
(Wind speed $> 2 \text{ ms}^{-1}$ shaded)



Rainfall Time Series over 5x5 lat-lon boxes



The time series of precipitation over the various regions is pretty much consistent with the spatial maps shown earlier.

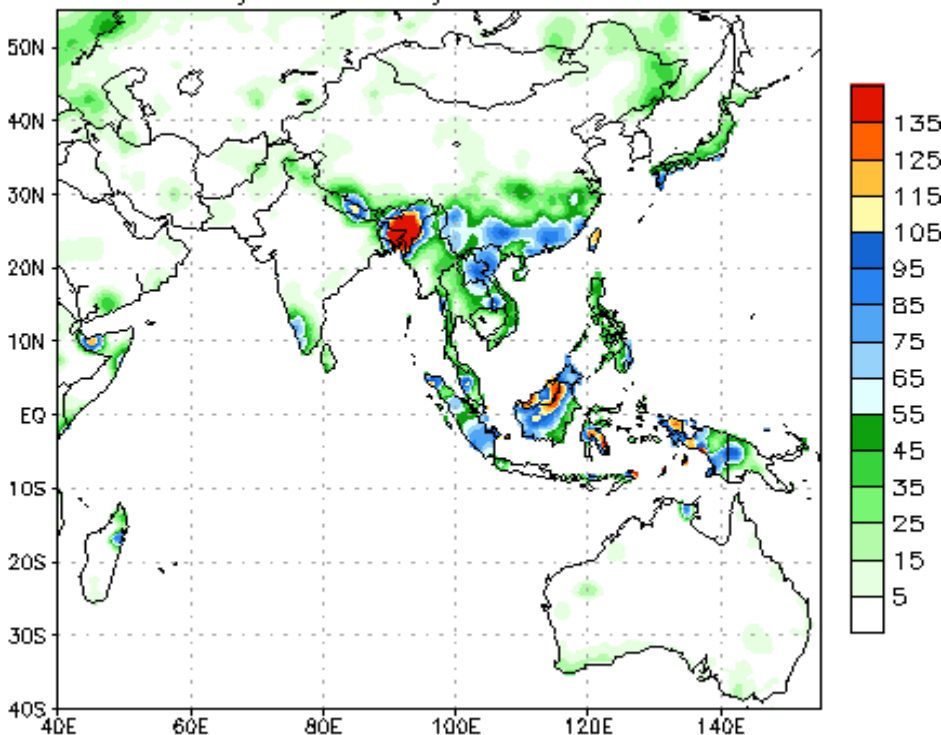


NCEP/GFS Model Forecasts

Accumulated Precip. for Week 1 & Week 2

NCEP GFS Ensemble Forecast 1-7 Day Precipitation (mm)
from: 15May2017

15May2017-21May2017 Accumulation



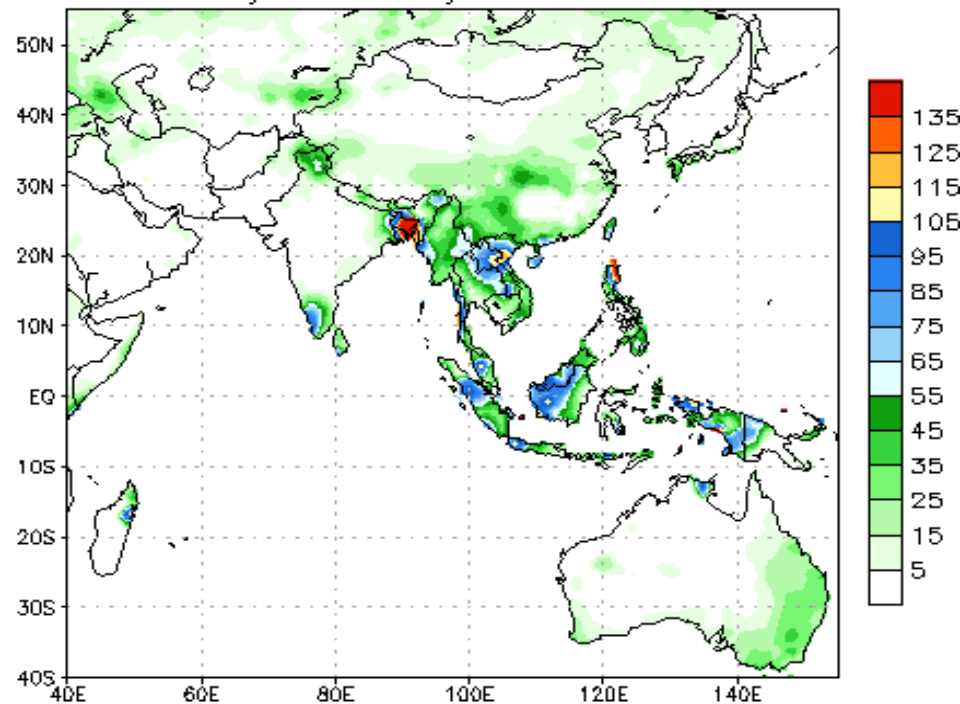
Bias correction based on last 30-day forecast error

Week-1

Week-2

NCEP GFS Ensemble Forecast 8-14 Day Precipitation (mm)
from: 15May2017

22May2017-28May2017 Accumulation



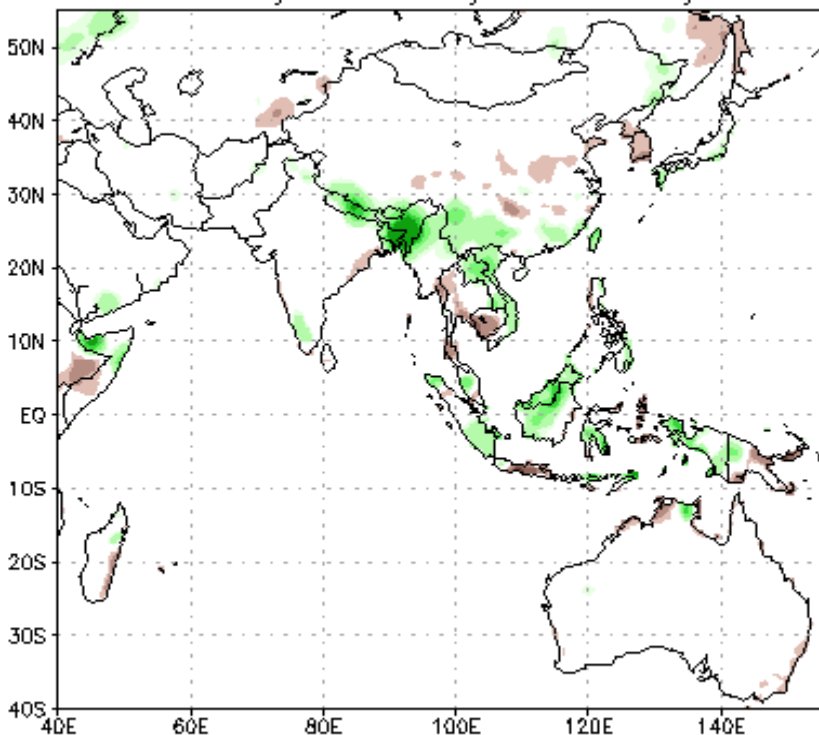
Bias correction based on last 30-day forecast error



NCEP/GFS Model Forecasts

Bias-Corrected Precip. Anom. for Week 1 & Week 2

NCEP GFS Ensemble Forecast 1–7 Day Precipitation (mm)
from: 15May2017
15May2017–21May2017 Anomaly

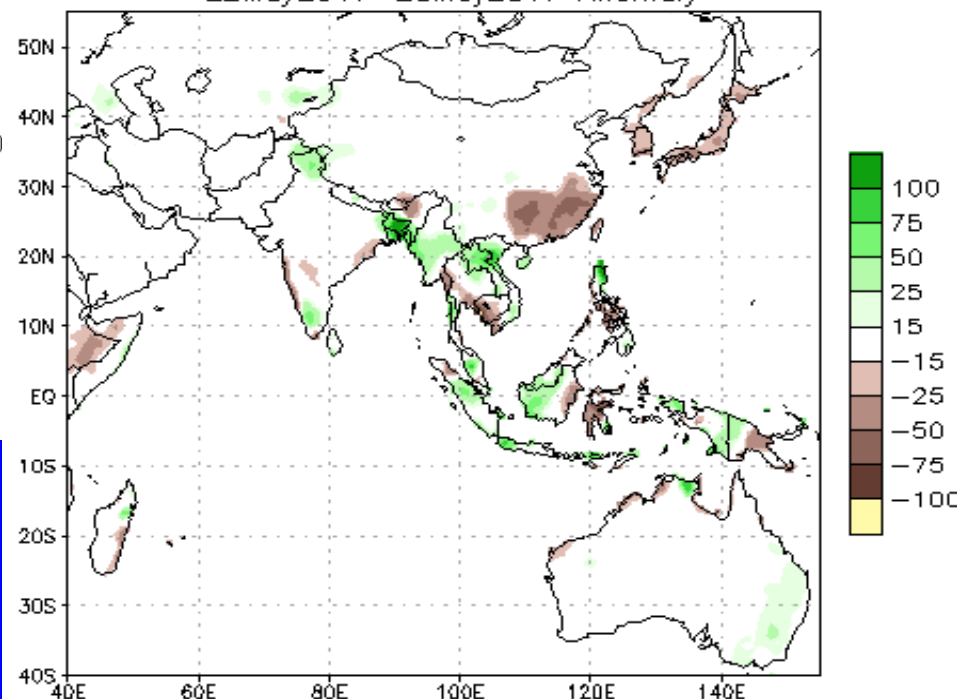


Bias correction based on last 30-day forecast error
CPC Unified Precip Climatology (1981–2010)

Week-1

Week-2

NCEP GFS Ensemble Forecast 8–14 Day Precipitation (mm)
from: 15May2017
22May2017–28May2017 Anomaly



Bias correction based on past 30-day forecast error
CPC Unified Precip Climatology (1981–2010)



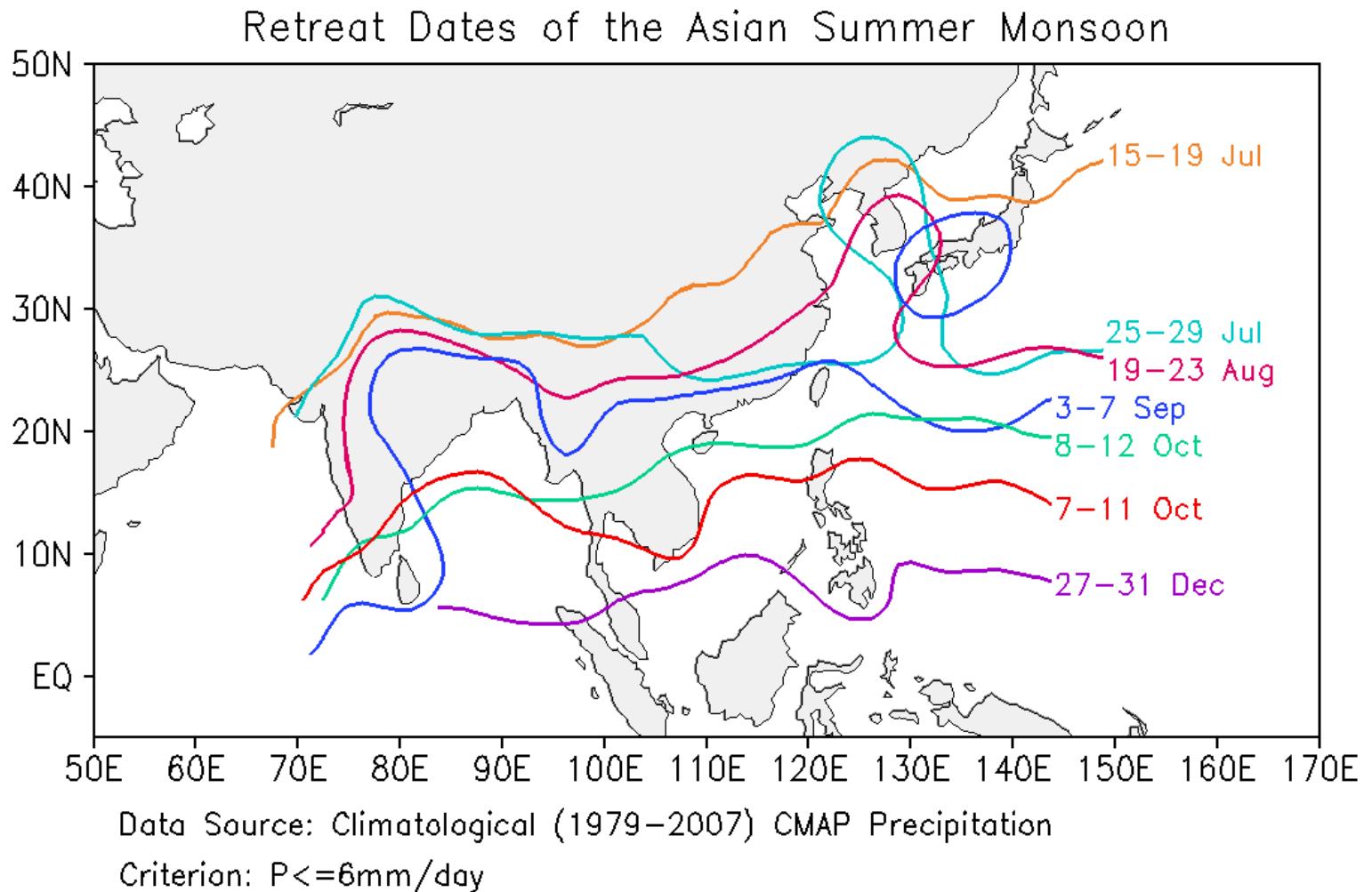
Summary

For the past 90 days, normal to slightly below normal rainfall deficits remain in general over most parts of India, except over northeastern India and Bangladesh where the rainfall was excess. Large rainfall deficits are noted over large parts of Australia, except along its east coast. Elsewhere, the rainfall was generally near to above normal, except over Papa New Guinea where it was below. For the past 30 days rainfall deficits are found over Papa New Guinea and along the east coast of Australia. Small deficits are also noted along coastal southern India, South Korea and some parts of Japan. Large excess precipitation is noted over northeastern India. Elsewhere, the rainfall is generally above to near normal.

In this past week, the observed rainfall amounts have generally been sporadic, and are slightly above normal in some places. In the next couple of weeks the NCEP GFS model is predicting above normal rainfall over northeastern India in the first week, and below normal rainfall over southeastern China in the second week.



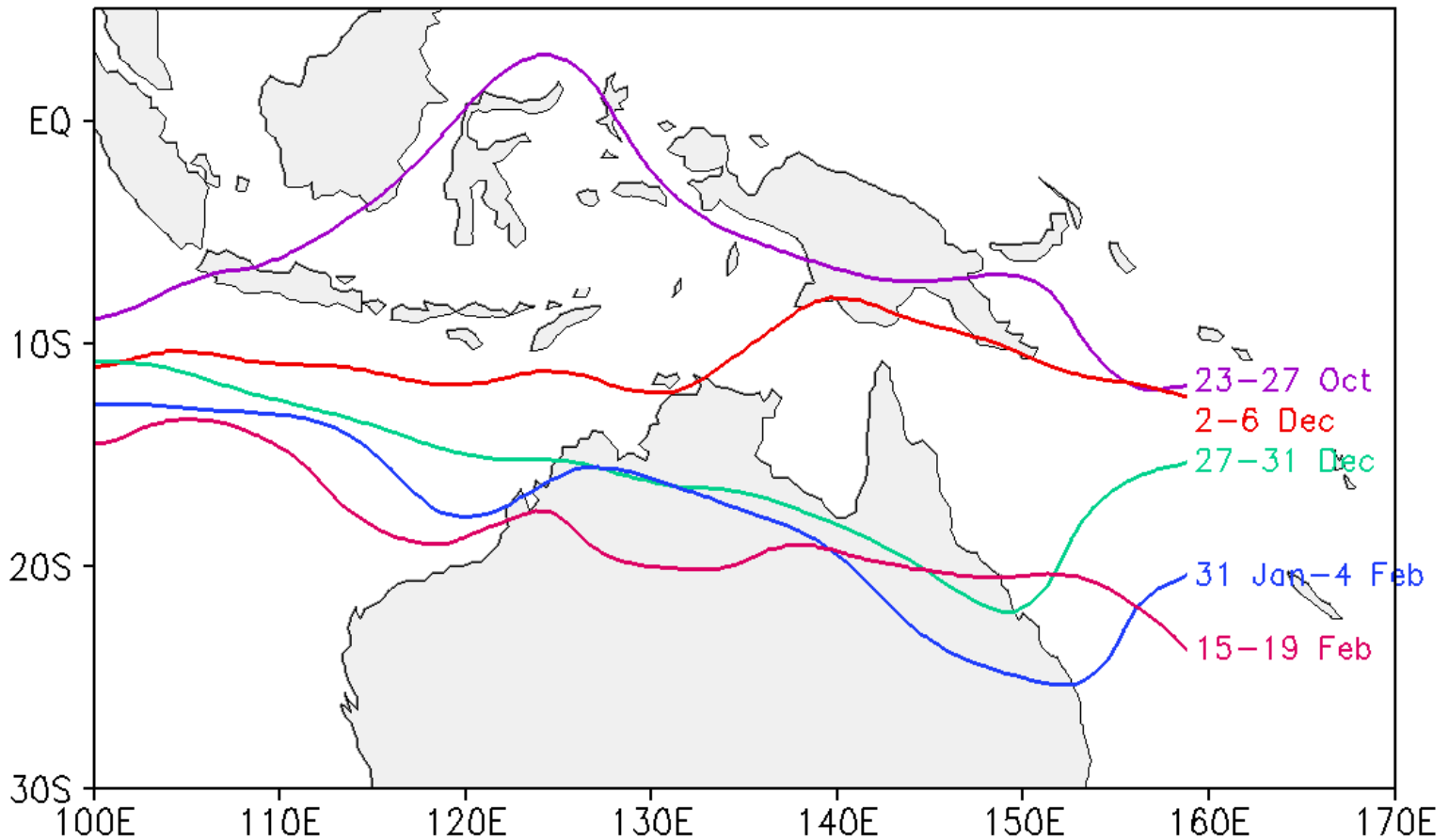
Demise of the Asian Monsoon





Onset of the Australian Monsoon

Onset Dates of the Australian Summer Monsoon



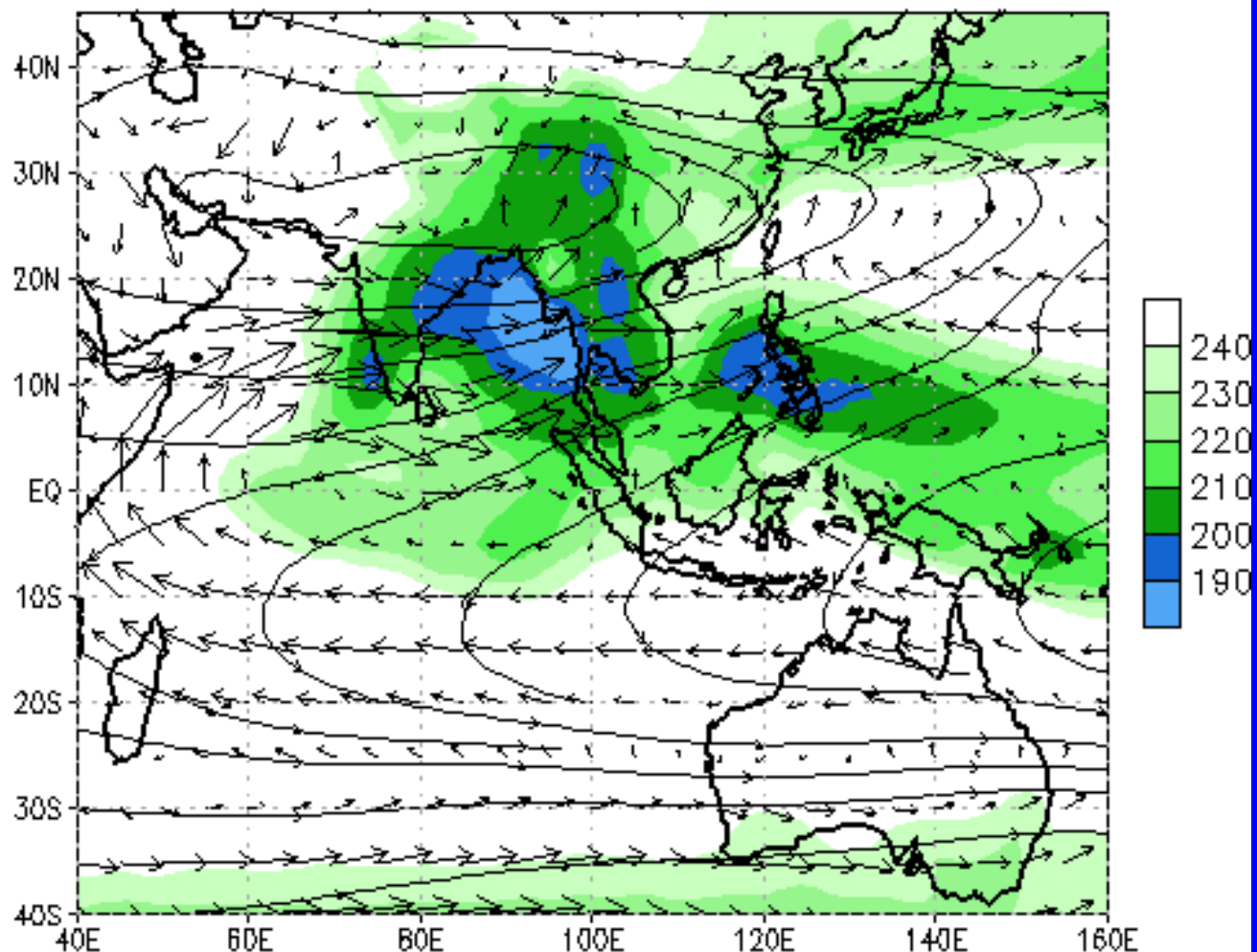
Data Source: Climatological (1979-2007) CMAP Precipitation

Criterion: $P \geq 5\text{mm/day}$

Climatology

OLR, 200-hPa Streamlines and 850-hPa Wind Clim (1979-1995)

02JUL



Data Sources: OLR - NESDIS/ORA, Winds - NCEP CDAS/ Reanalysis