

# Brief introduction on MJO tracking code in Zhang and Ling (2017)

By Guiwan Chen; [chenguiwan@lasg.iap.ac.cn](mailto:chenguiwan@lasg.iap.ac.cn)

## 1. Preparation before running this code.

- NCAR Command Language (NCL) environment required.
- Data preparation are needed before running the tracking, including calculating daily anomalies, applying a two-dimensional fast Fourier transform to obtain the large-scale and intraseasonal signals.

## 2. The function of each script

### 1. *Cal.MJO.Track.ncl*

This script is corresponding to steps (i) – (ii) in Zhang and Ling (2017). The tracking domain and reference longitude can be changed. The input file for this script should be large-scale and intraseasonal precipitation anomalies averaged over certain latitude band (e.g. 15°S – 15°N).

### 2. *Cal.Track.Amp.ncl*

This script calculates the amplitude along each track, which is corresponding to steps (iii) – (v) in Zhang and Ling (2017).

### 3. *Cal.Track.Pick.EM.ncl*

This script identifies the eastward-propagating precipitation events, which is corresponding to step (vi) in Zhang and Ling (2017).

### 4. *Cal.Track.Pick.MJO.ncl*

This script identifies the MJO events.

### 5. *Cal.Track.Pick.MJO.IO.v3.ncl*

This script identifies the MJO events that start west of 90°E and propagate across 100°E. Which might not be necessary if the study focus is not on the MJO events over the Indian Ocean.

Note: This module “load “\$NCARG\_ROOT/lib/lingjian.ncl”” can be commented.