**Reading guidelines for Lecture 09: Maritime Continent monsoon**

**Part 1: synoptic climatology**

1. The MC acts as the principal diabatic heat source for the monsoon, Hadley, and Walker circulations.
2. The large-scale seasonal pressure reversal appears to be limited to only the northern and southern parts of the MC. The pressure field is rather flat thereby light winds near the equator.
3. Many of the island stations in Indonesia have more rainfall during southern summer (DJF) than winter (JJA). In the Philippines, however, more rainfall occurs during northern summer (JJA) than winter (DJF).
4. Asia appears to have larger influence on MC climate than Australia.
5. Notions should be given to the formation of equatorial countercurrent.
6. Discuss the various features seen in Fig. 6.3.
7. The SPCZ is a quasi-permanent heat source appeared as a warm trough of low pressure over the southwestern Pacific Ocean.
8. In which season, the intensity of SPCZ is stronger? Why? Please discuss the possible origins of SPCZ.
9. Discuss which terms in the heat budget equation i.e., HS = R∞ – R0 – SC + LH, are important over the MC.
10. Where are the centers of heat source over the MC?

Part 2: variability (Read sections 1, 2, and 3 of the paper)

1. Discuss the two important seasonal asymmetries regarding the annual cycle of rainfall activity over the grand Asian-Australian monsoon system.
2. MC rainfall is mostly concentrated over islands. Why? Some regional model simulations show the opposite result. That is, the oceanic rainfall is often overestimated. Discuss the possible reasons.
3. Same as the Australian monsoon – ENSO relation, the rainfall over MC is more anti-correlated with the ENSO during the dry and transition seasons (JJA-to-SON), but the relation is quite weak during the boreal winter (DJF).
4. What is the implication when the high-resolution regional climate models show that higher rainfall intensities over the topography during the monsoon of El Nino (+1) years?