**Reading guidelines for Lecture 14: Monsoon prediction**

1. The operational prediction of Asian monsoon variability is still in its infancy.
2. What is predictability? What is potential predictability?
3. The major sources of monsoon variability are 2 external forcings of annual cycle and diurnal cycle and 2 internal feedbacks with ENSO and ISO.
4. The diurnal rainfall patterns can be divided into 3 regimes.
5. Notions should be given to the onset routes of Asian summer monsoon. See Fig. 3.
6. What is the characteristic of monsoon onset over the western North Pacific?
7. What are the major weaknesses of the climate models in simulation of the annual cycle?
8. The phenomenon of Monsoon Intra-seasonal Oscillation (MISO) links weather and climate because its variability falls between the daily weather and the seasonal mean climate.
9. The MISO could result from the modification of monsoon circulation on the tropical Madden-Julian Oscillation (MJO) or from the intrinsic ISO modes along with the monsoon itself.
10. What essential/observed features does the MISO have?
11. What are the major hurdles for a realistic simulation of MJO and MISO?
12. What is a hindcast experiment?
13. What are the 2 major year-to-year variability modes of Asian-Australian monsoon (A-AM) variability?
14. What are the positive and negative feedbacks known for the monsoon-ocean interaction?
15. What is the monsoon TBO phenomenon?
16. Identify the 3 fundamental factors for understanding the A-AM variability.
17. What requirements make the dynamical prediction of Asian monsoon extremely challenge?
18. Why the AMIP-type modeling failures to simulate the summer monsoon variability?
19. What is the two-tier vs. one-tier approach for dynamical seasonal forecast?
20. Identify the two types of error sources of dynamical prediction and discuss how to reduce these errors.
21. What is the key for improving the long-lead seasonal forecast?