**Reading guidelines for Lecture 03: Extratropical monsoon and concept of global monsoon**

**Extratropical monsoon over North America**

1. Definition of Plateau monsoon and East Coast monsoon over North America
2. Seasonal movement of heat source and sink (over land and ocean).
3. Hydrological aspects of Great Plains Low Level Jet (GPLLJ; a summer monsoon boundary flow)
4. Interaction between monsoon wave and westerly disturbances
5. Seasonally-varying pressure and rainfall features of East Coast monsoon; Can you identify any similarities and contrasts to the tropical monsoon?
6. With the aid of warm oceans to the east, interaction between the westerlies and Appalachian mountain range leads to the leeside cyclogenesis of northeast storms (nickname: northeaster) over the east/northeast coast of North America.

**Concept of global monsoon (in the context of rainfall characteristics)**

1. Monsoon climate is characterized by contrasting rainy summer and dry winter. Therefore, annual range of precipitation is a fundamental parameter for monsoonal climate.
2. There exist 7 regional monsoon systems around the globe which are bonded by the global divergent circulation.
3. Precipitation holds a key in linking the external radiation forcing and the atmospheric general circulation.
4. The seasonal evolution of global precipitation and low-level circulation can be described by the combination of 2 dominant patterns, solstitial and equinoctial modes, by means of empirical orthogonal function analysis (i.e., principal component analysis).
5. Two precipitation-related criteria are used to define the global monsoon regime.
6. Where are the oceanic monsoon regions around the globe?
7. Is the SPCZ (South Pacific Convergent Zone) an oceanic monsoon region?
8. Area-averaged AR over the monsoon domain can be used to estimate monsoon intensity.
9. Detection of the trend of monsoon intensity in the past decades.
10. The use of Mann-Kendall rank statistics for trend detection.
11. Model results suggest that the variation of global monsoon precipitation (GMP) intensity is caused by the variation of external solar forcing on the millennial-to-centennial timescale.
12. Why the GMP is more sensitive to the external solar forcing than the global mean temperature?
13. GMP could be a more valuable index than the global mean temperature for measuring the global climate change.