# Unit 2: Tropical Disturbances

## Questions for review

* Describe the basic properties of tropical easterly waves including vertical and horizontal structure, speed, origins, and weather hazards
* List at three methods of tracking tropical easterly waves
* Describe the basic structure and characteristic weather of TUTTs
* Describe the basic structure and characteristic weather of subtropical cyclones
* Discuss the influence of the MJO on tropical cyclone activity in the tropics.
* Which equatorial waves are observed to cause some cases of tropical cyclogenesis?
* How would you identify a mixed Rossby gravity wave from a satellite loop and 200 hPa synoptic charts?
* How would you identify an equatorial Rossby gravity wave from a satellite loop and synoptic surface or 850 hPa charts?
* How does the monitoring of intraseasonal circulations, such as equatorial waves and the MJO, help tropical forecasters?
* Identify five parts of the tropical cyclone and where you would expect to find them with respect to the surface center of the storm.
* List six necessary, but not sufficient, conditions that must be present in the large scale environment for tropical cyclogenesis to occur.
* Identify four potential incipient disturbances that could lead to tropical cyclogenesis.
* Identify and describe the six possible stages of a tropical cyclone lifecycle. Two of these stages may not occur in an individual tropical cyclone lifecycle – which ones?
* List three factors that must be considered when forecasting tropical cyclone motion.
* List three factors that must be considered when forecasting tropical cyclone intensity change.
* Using satellite remote sensing techniques, describe how you could detect changes in the intensity and structure of tropical cyclones.
* Describe the hazards of tropical cyclones particularly those at landfall (storm surge, heavy rain and floods, strong winds, tornadoes, ocean waves) and discuss the basic mechanisms for each type of hazard.
* List the criteria for the classical monsoon and describe the monsoon systems that match or do not match those criteria.
* Describe the evolution of the Asian monsoon from onset to demise in terms of precipitation and mean synoptic-scale features.
* Describe the basic structure (temperature, wind, and pressure) and characteristic weather of monsoon depressions
* Describe the major factors that lead to intraseasonal variability and break periods in the Asian-Australian monsoons.
* List the major differences between active and break monsoon periods over Northern Australia in terms of dynamics and thermodynamics.
* What are some conditions in monsoon regions, such as West Africa and East Asia, which make those regions conducive to tropical cyclone genesis?
* Explain how the El Niño Southern Oscillation affects weather in Australia, Indonesia, Tropical South America, and adjacent ocean during winter and summer.
* Explain how the El Niño Southern Oscillation affects tropical cyclone activity