

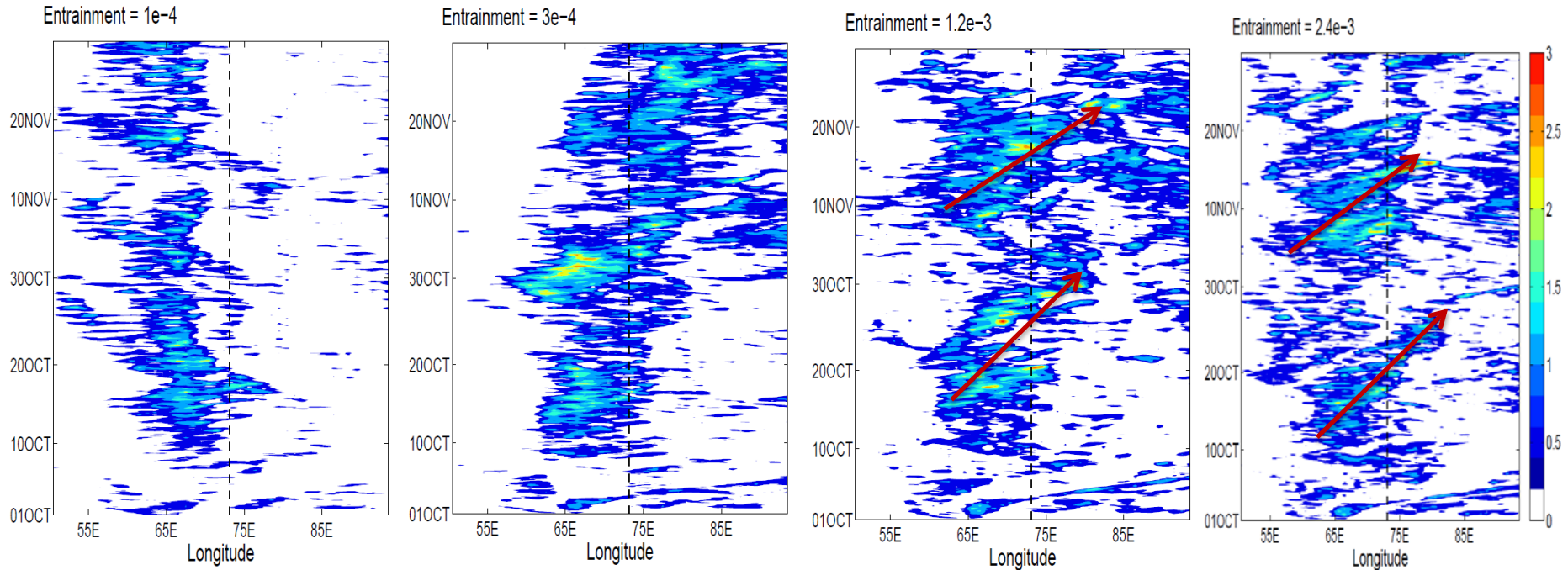


Questions for discussion

- ▶ What specific processes need to be understood and/or parameterized to accurately simulate the MJO?
 - Moisture mode instability (convection importing moisture directly? Through interactions with surface and cloud radiative feedbacks? Diurnal Cycle?)
- ▶ What can and needs to be examined?
 - Moisture-cloud variability in GCMs and observations.
 - Interactions of convection with surface fluxes (diurnal cycle, cold pools, organization) in observations.
 - Improved parameterization of entrainment/detrainment, cold pools.
 - What is the best way to leverage the ASR science and ARM resources effectively to that end?
 - To 'entrain' folks interested in **meso-scale organization, cold pools, vertical velocity, entrainment and shallow-to-deep transitions** issues etc.
 - All within the context of the MJO, relative importance, how they interact, etc.



Global WRF Model simulated rain-rate (mm/hr) using Tiedtke cu-scheme.



- What if anything can observations tell us about entrainment rate dependence on model resolved variables? Perhaps via relationships among relative humidity, cloud size and depth?

Role of Diurnal Cycle During Suppressed Phases of AMIE/DYNAMO MJOs

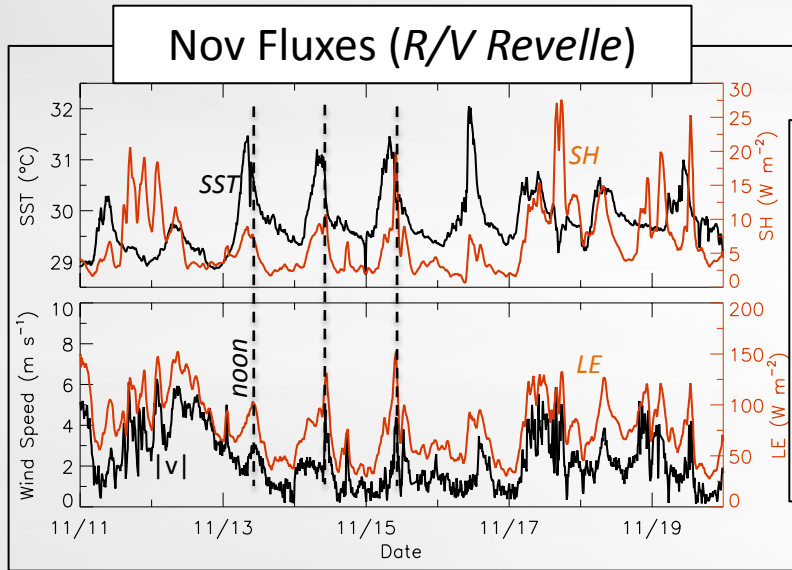
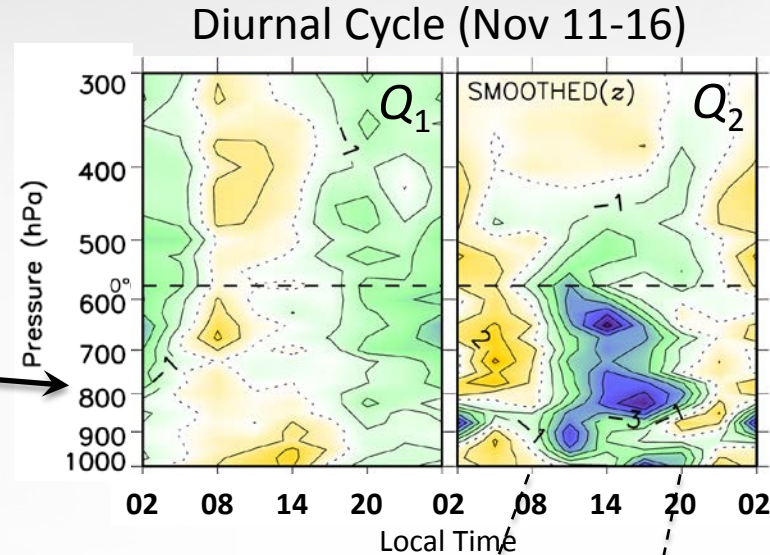
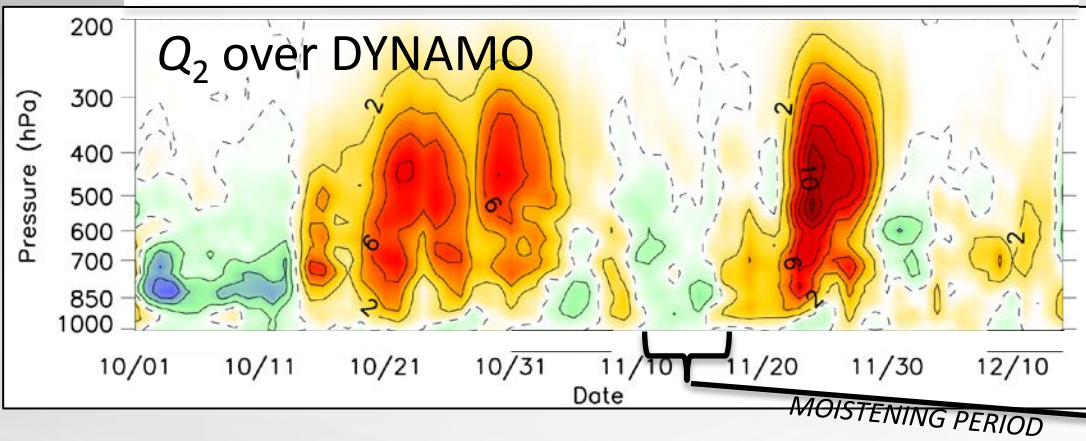
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Observations: Shallow-cloud moistening during MJO suppressed phase has prominent diurnal cycle

Question: Can models properly capture moistening phase of MJO without including the diurnal cycle?



Large diurnal cycle in SST, sensible and latent heat fluxes

