

# Cloud Observation Overview / Convective Cloud Vertical Velocity and Mass-Flux Characteristics from Radar Wind Profiler Observations During GoAmazon2014/5

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**Breakout:** GoAmazon2014/5 synergies  
Scott Giangrande (BNL)  
ASR-ARM PI Meeting 2017

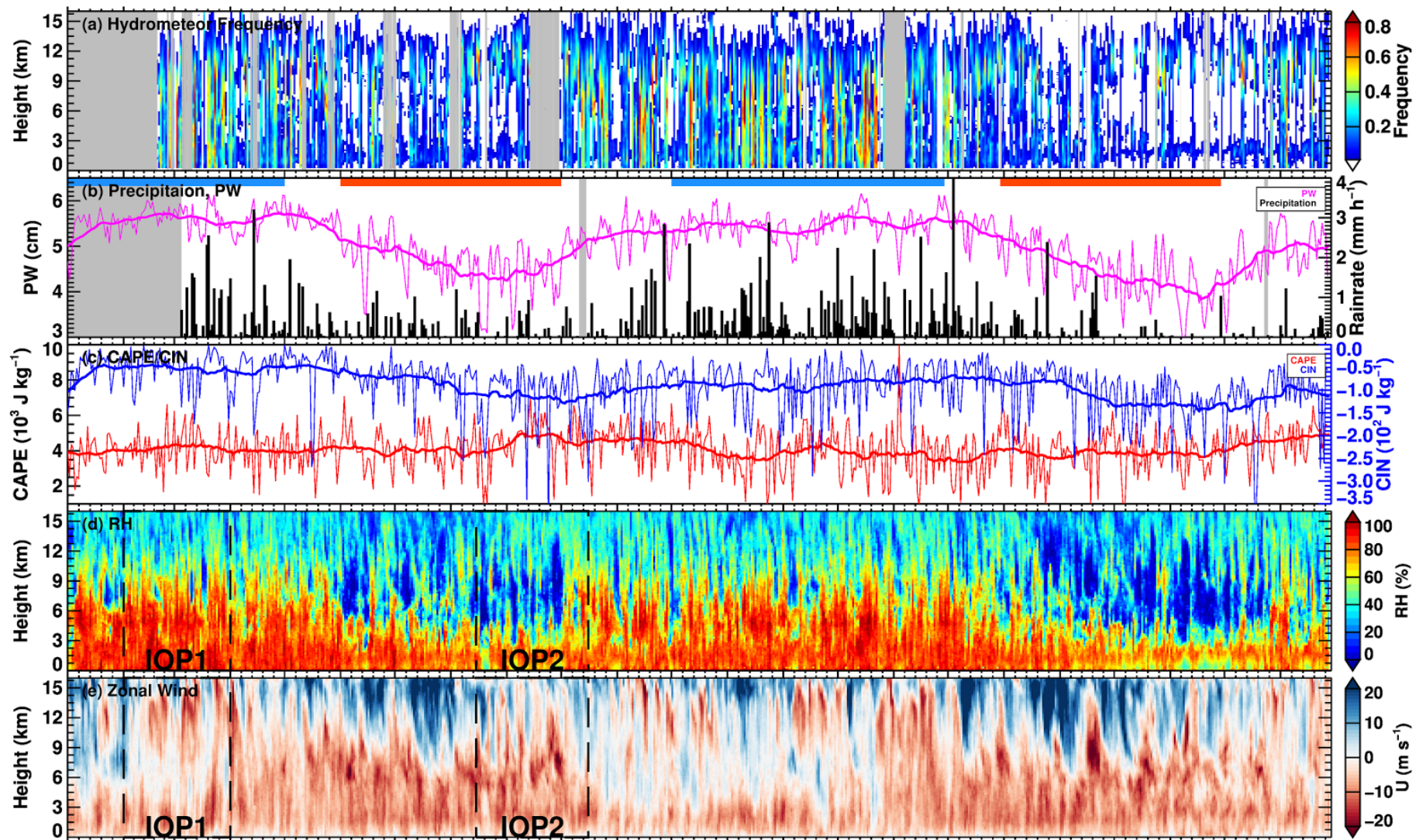
Giangrande, S. E., T. Toto, M. P. Jensen, M. J. Bartholomew, Z. Feng, A. Protat, C. R. Williams, C. Schumacher, and L. Machado (2016), Convective Cloud Vertical Velocity and Mass-Flux Characteristics from Radar Wind Profiler Observations During GoAmazon2014/5, *J. Geophys. Res. Atmos.*, 121, doi:[10.1002/2016JD025303](https://doi.org/10.1002/2016JD025303).

# Motivation (Initial Amazon RWP Efforts)

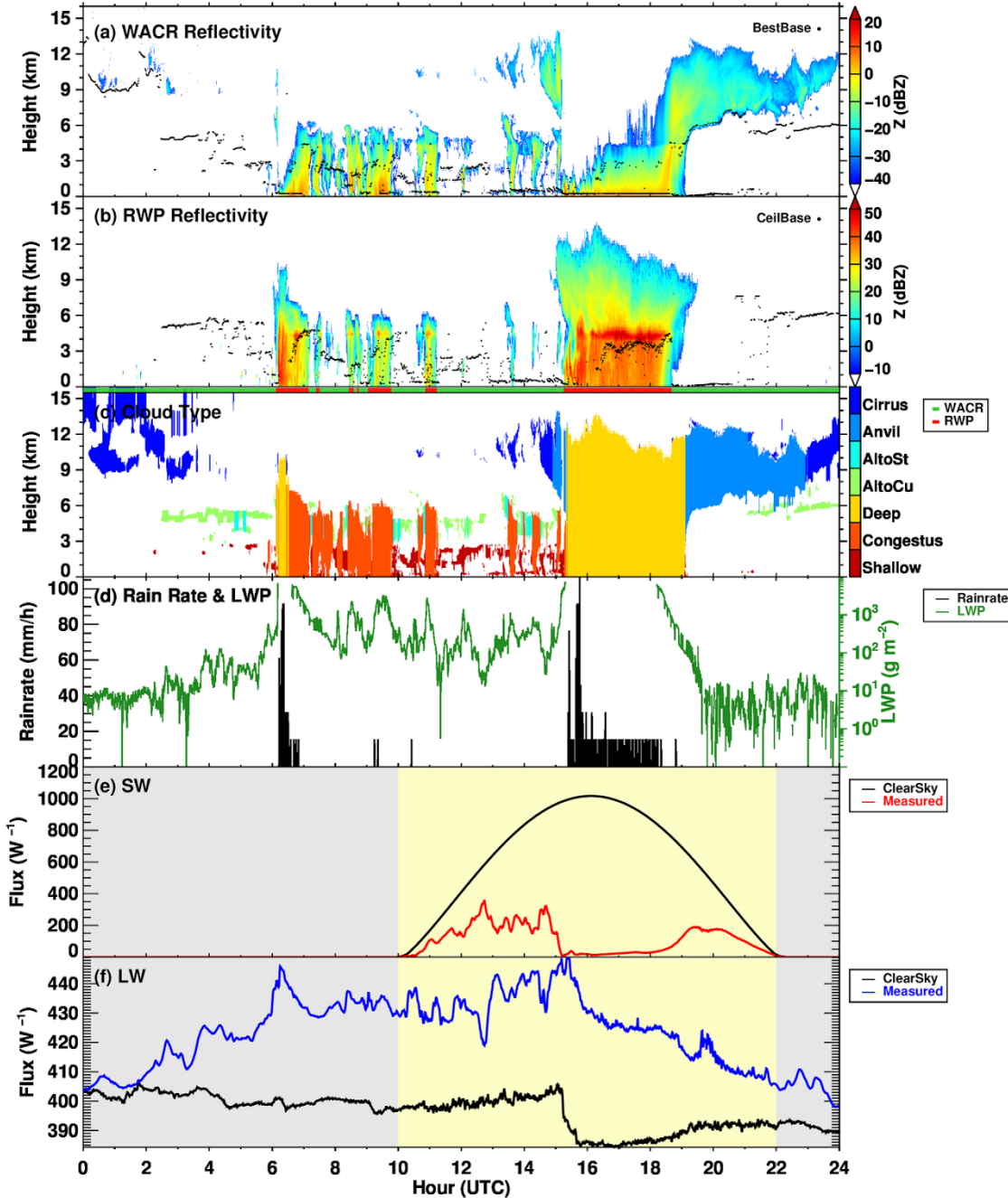
- ARM Radar Wind Profilers (RWP) used to help inform deep convection parameterizations -- characterizing the relationships between thermodynamical conditions and (domain) storm intensity measures in terms of vertical velocity, convective coverage, and updraft mass flux.
- Vertical motion climatology of Amazon clouds.
- Products (processed velocity, calibrated) to be available as PI products (VAPs).
- Poster session (links available on my poster to JGP paper, dataset)



# Two-Year (RWP) Observational Dataset

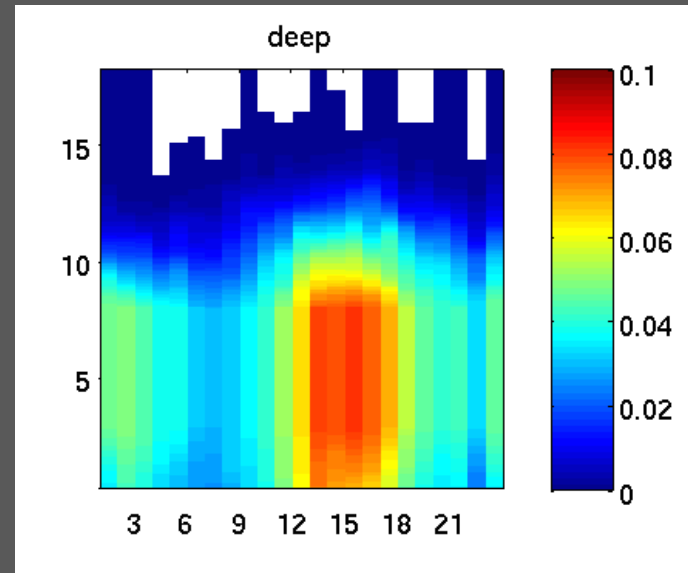


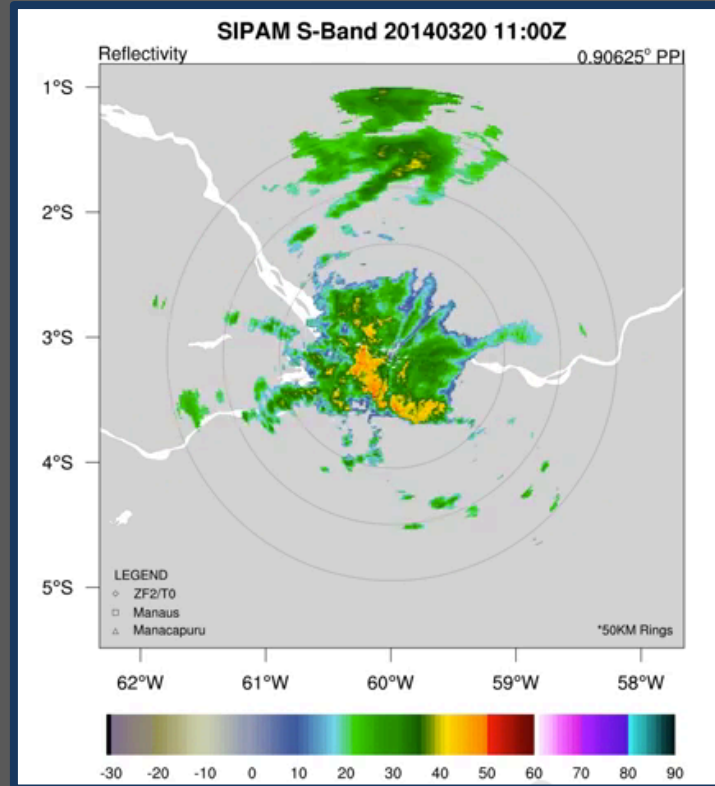
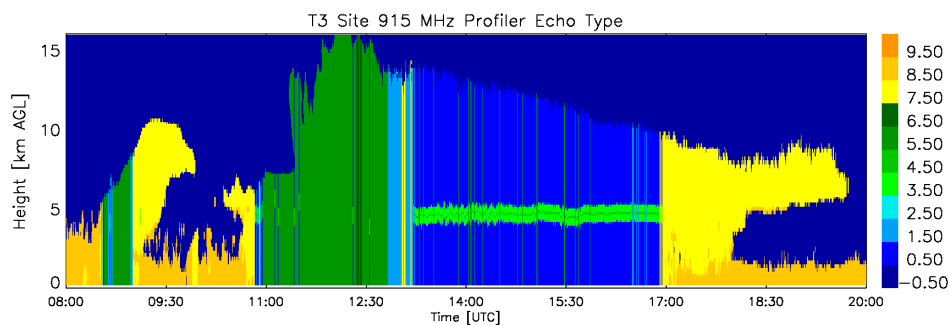
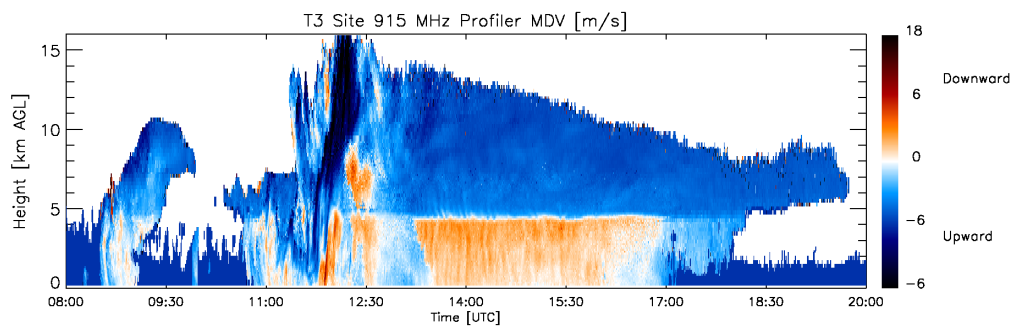
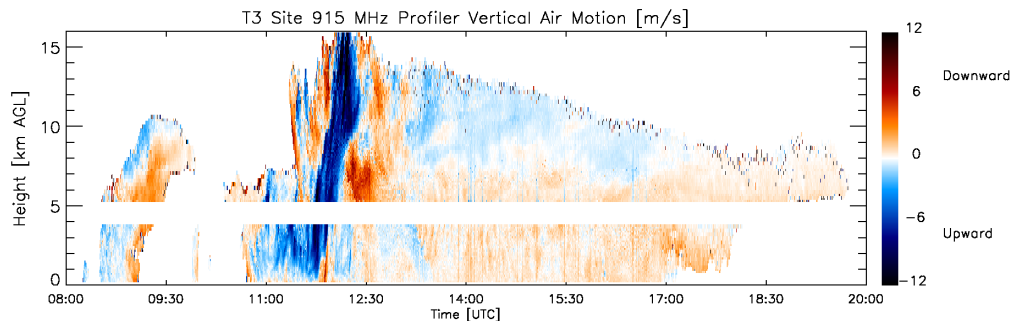
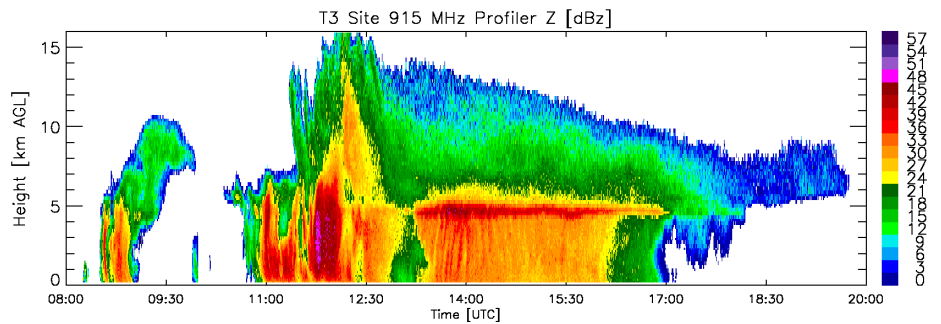
MAO WACR+RWP 2014.04.01



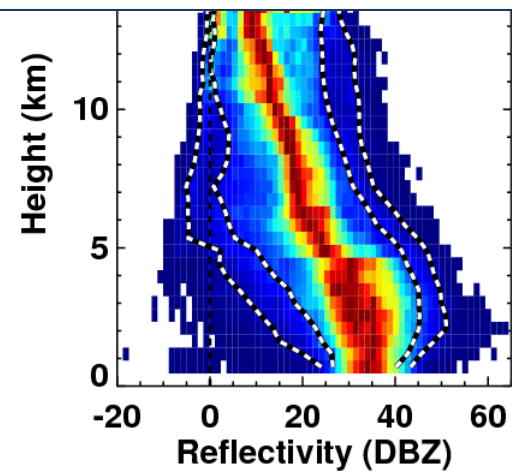
Merged RWP + WACRARSCl column products (as in the left, Zhe Feng + others).

Solid coverage for profiling radar + ground rain gauge observations from March 2014 to Dec 2015.

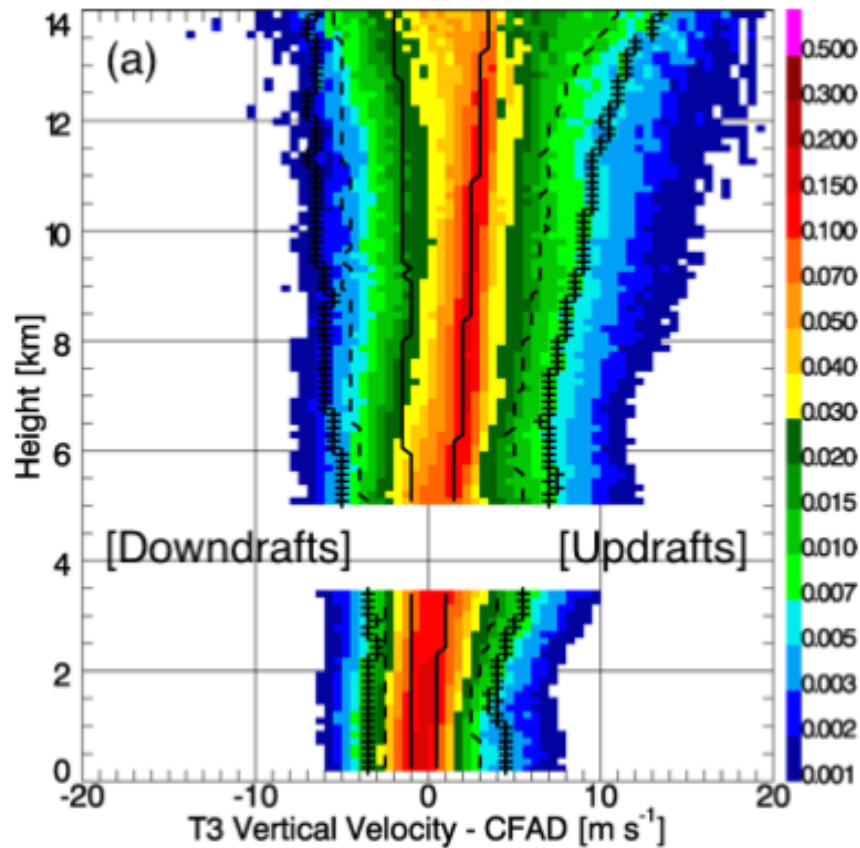




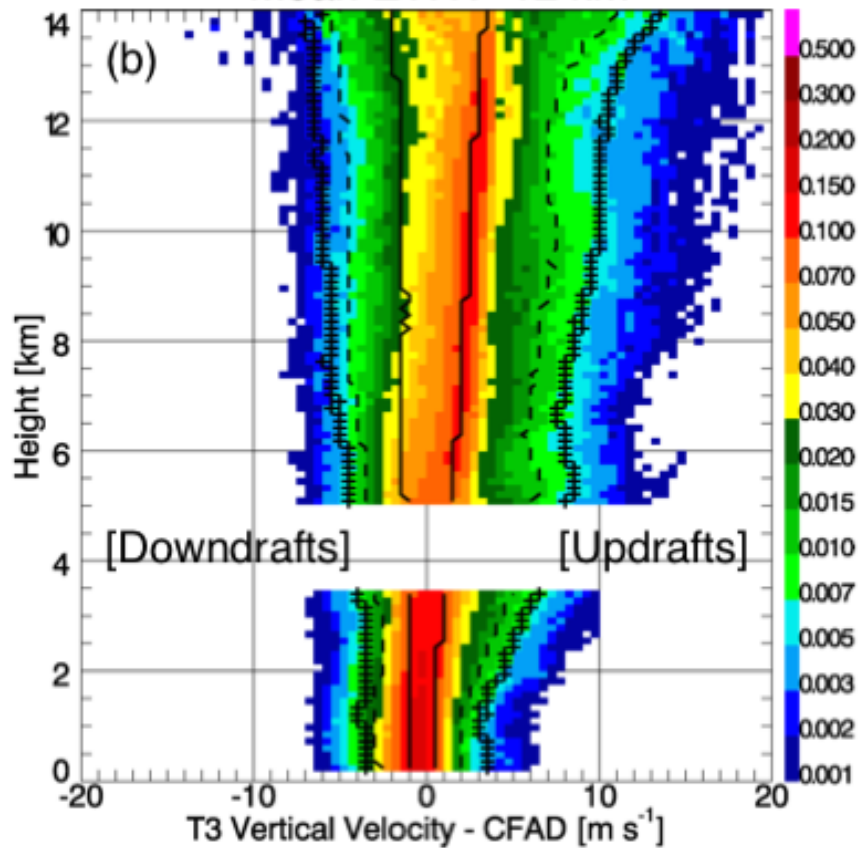
## CFAD Z - Convection

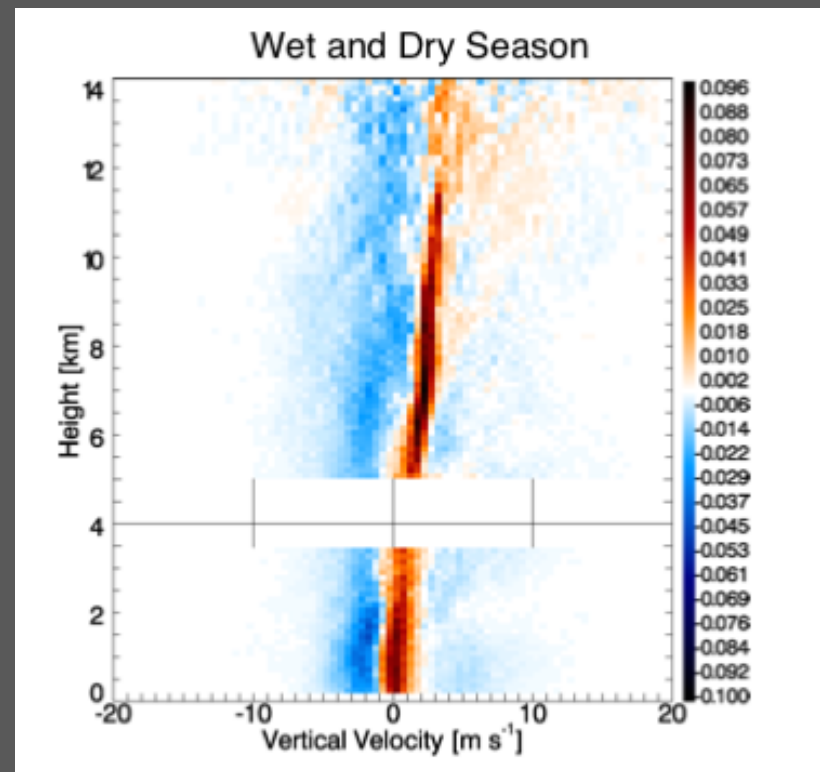
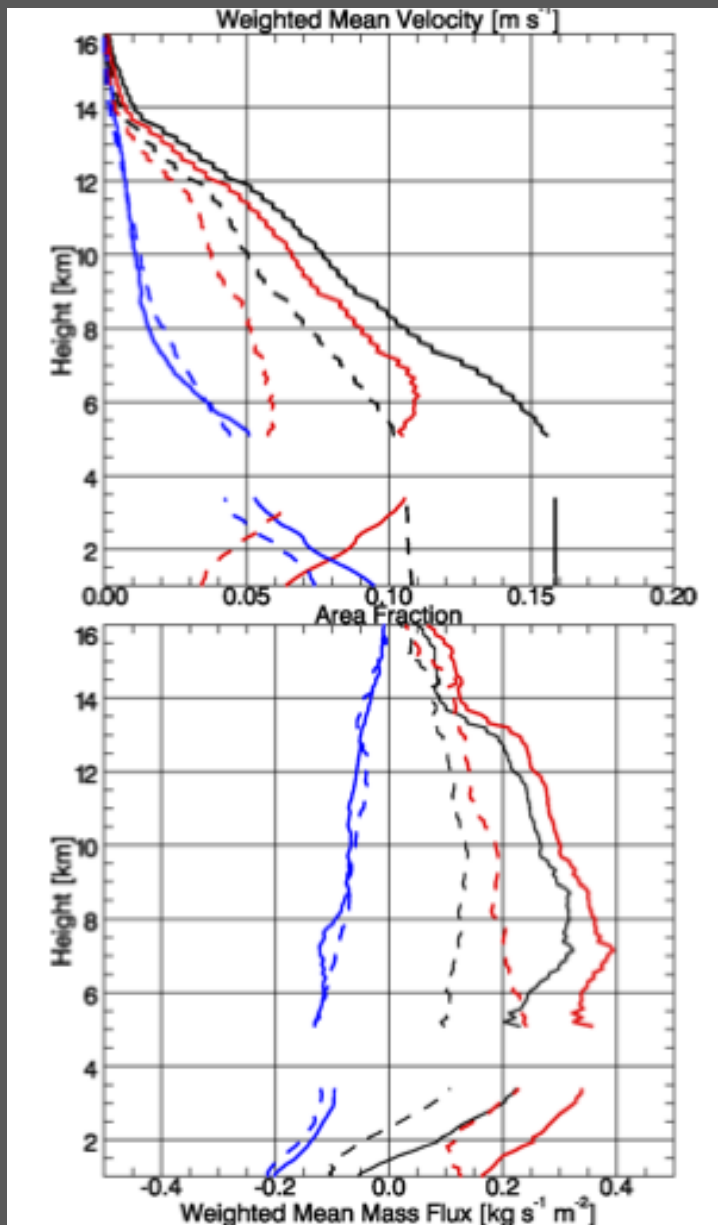


All ETH



Mean ETH > 12 km





One attempt to inform on convective area, velocity and mass flux behaviors at larger spatiotemporal scales (60x60x1hr).

Observed that (domain) mass flux, convective area fraction substantially larger during the wet season.

Typically, convective cores are more intense during the dry season (not counting 'transitional' events).