Review comments for "**Thermal-Driven Graupel Generation Process to Explain Dry-Season Convective Vigor over the Amazon**"

General comments

This manuscript conducted a series of LES experiments to examine the dry-wet season contrast on the evolution of deep convection processes, particularly, the interaction between updraft velocity and microphysics on convective vigor. Through tracking thermals in simulated golden cases, it found that dry-case (wet-case) convection tends to generate more (less) numbers of droplet-loaded thermals in the lower atmosphere, corresponding to larger potential buoyant energy at a low level in the dry season. Greater concentration of low-level thermals can potentially lead to more cold precipitation production and convection invigoration. In general, this manuscript is well designed, which uses both LES simulation and observations to investigate underlying processes. It is also quite novel to track microphysical properties within cloud thermals rather than updraft plumes, which provides a new perspective to understand updraft-microphysics interaction. Overall, I think this manuscript presents great work that is worthy of publication. I just have some minor comments as follows:

Minor comments:

1. L165: "without expectations for larger hail in Amazon deep convective storms", is there any reference or literature to support this statement?

2. L221: What about the initial condition and surface fluxes? How to initialize each run? I don't see any description of these conditions.

3. L429: There also seems to be discrepancy in GH and RN categories as well. Did you compare the simple statistics such as precipitation and cloud fraction between observation and simulation for more direct comparisons? This comparison can directly reveal how well the simulated case represents typical cloud and precipitation environment of each season.

4. L482: What is the definition for "golden events"? I don't seem to find this in the manuscript.

5. L601: Could you elaborate on this statement? If the thermal size is smaller, shouldn't we expect more rather than less dilution from the environment?

6. L607: Again how so?

7. L619: lesser -- fewer

8. L622: normalizing -- normalization