Responses to Anonymous Referee #2 (Page 1)

My co-authors and I wish to thank Reviewer #2 for their time and consideration in reviewing this manuscript. Many comments are consistent with those of Reviewer #1 and have been incorporated into the revised manuscript.

General Comments

1) *I think that the spin-up time of 72 hours is too long for a simulation without any kind of assimilation. A test with a shorter spin up (12 hours) could be recommendable*

In light of your suggestion and a similar comment from Reviewer #1, we shifted the model initialization time forward until 24 hours prior to cyclogenesis off the Mid-Atlantic United States and re-ran all 35 WRF model simulations. We set our start time 24 hours beforehand because simulated radar reflectivity fields still appeared slightly "blooby" up through 9-10 hours. Starting the model simulations 24 hours before primary cyclogenesis allowed for full development of simulated radar reflectivity structures and WRF-GMA track differences tended to be modest (<50 km).

2) *"A microphysical comparison with observations could be useful because this topic is the main focus of the paper. Is it possible to retrieve data from radar or satellite platform"*

Thanks to your suggestion, we have given this revised paper more of a microphysics-style focus. I looked both into TRMM and CloudSat 2C-Ice products. TRMM offers a wide range radar observations but its orbital inclination is 35 degree (http://disc.sci.gsfc.nasa.gov/precipitation/additional/instruments/trmm_instr.html), which limits its usefulness when only half my analysis domains falls equatorward of 35°N. CloudSAT does provide profiles cloud ice, which my collegue used in a recent paper on global cloud species. It narrow swath range (see Figure 3) made getting a consistent "hit" on a nor'easter challenging.

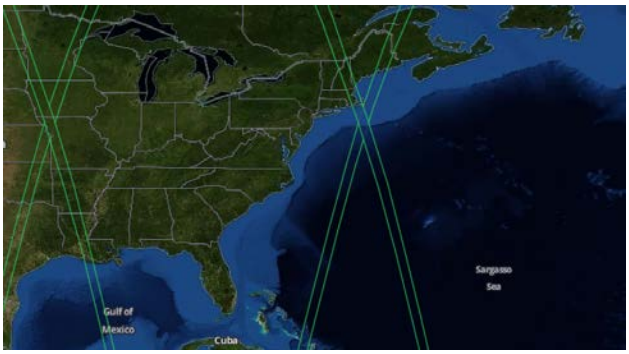

Fig. 3: CloudSAT orbital overpass sample from 2012.

I did find success with the Multi-Radar Multi-Sensor product from National Oceanagrahic and Atmospheric Association (NOAA), which provides hourly gridded 3D volume scans at 1-hour intervals (See Figure 4). Similar to StageIV, MRMS data only covers part of domain 4 in many of the seven cases, but the results thus far have been reasonable and useful.

Responses to Anonymous Referee #2 (Page 2)

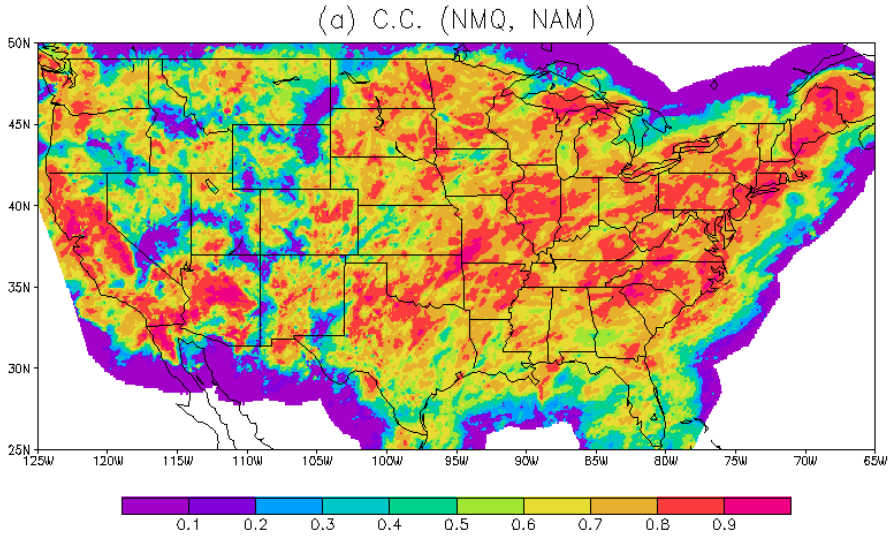

Fig. 4: MRMS coverage area (everywhere with colors).

Specific Comments:

1) *Line 133: w is the mixing ratio of rain?*

Although 'w' is often used in meteorology to denote mixing ratio, it represents vertical velocity in the energy norm equation. Instead, this formula uses 'q' to represent mixing ratio. With the removal of the energy norm from the paper's results this particular comment is no longer valid.

2) *Line 203: Not Fig. 4 but Fig. 5*

Thank you for catching the typo. I have corrected the manuscript to refer to Fig. 5.

3) *Figs. 5-6-7: insert letters in the panel to easy the reading of section 3.*

While I will not dispute that Figs. 5-7 do attempt to show much data. In an earlier form of this paper, I actually tried putting letters into the panels, but these letters were difficult to place without blocking or interfering with the displayed data. I thank you for the suggestion, but I have decided to keep my "Microsoft Excel-like" approach to plot labelling.