

## ***Interactive comment on “Vertical Air Motion Retrievals in Deep Convective Clouds using the ARM Scanning Radar Network in Oklahoma during MC3E” by Kirk W. North et al.***

**Anonymous Referee #2**

Received and published: 28 September 2016

The study investigates high resolution weather radar Doppler observations to estimate vertical air motion in deep convective clouds. Firstly, an empirical wind retrieval sensitivity analysis is presented. Then, the authors evaluate uncertainties and agreement comparing 3DVAR vertical velocity retrievals by X-, C-, and S-band scanning radars with a co-located radar wind profiler. Finally, the authors investigated differences between 3DVAR and an iterative upwards integration retrieval for the squall line event on 20 May 2011.

The study is scientifically interesting, clearly presented by proper language. In the following some remarks are listed to improve the paper.

1) In the conclusions the authors assert “X-, C-, and S-band scanning radars have been  
C1

used together to pseudo simultaneously”: the reviewer is not able to find information about the S-band radar in Table 2 and its role in the study is not clear. 2) There are no information about radiosonde location, please provide them updating also Figure 1 3) The observation simultaneity is the key factor for multi-Doppler retrievals: please provide more details on this topic. 4) The comparison between 3DVAR and iterative retrievals is performed for only one event. It should extended to all cases.

---

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2016-269, 2016.