Reviewer #2: The paper provides a comprehensive overview of The Persistent Cold-Air Pool Study (PCAPS) field experiment conducted in Utah's Salt Lake Valley in the 2010/2011 winter season. The goals of PCAPS and instruments that were deployed are clearly described and some initial analyses are presented for a few case studies. The paper reads very well and is appropriate for publication in BAMS. I only have a few comments.

1)   It is not very clear what the new findings are about persistent cold air pools from the initial analyses. It is often mentioned in the text that a 'multitude' of meteorological processes are responsible for a particular behavior of a persistent cold air pool. This has been known for a long time. Please provide a clearer picture of (potential) new discoveries made from data collected during the field study.

2)   The motivation of this study concerns the poor performance of NWP models in PCAP conditions (see in particular lines 82-95). Can the authors provide an example of a forecast during the PCAPS field study that demonstrates this poor performance?

3)   For the creation of Fig. 3, data from Rose Park and Cottonwood are used when Hawthorne Elementary data are unavailable. How do data from the three stations compare during times that data are available at all three stations?

Minor comment:
4)   Caption Fig. 7: change "Boundary layer evolution during IOP-5" to something that is more representative of the variables in the figure.
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