Comments:

Temperature is essential information of the mesosphere. In this work the authors report the evaluation of the estimation of mesopause temperature from meteor radar echo height distribution in terms of observations from satellite observations and a meteor radar in Antarctic region. This is the extension of their previous investigation (Lee et al., GRL, 2016) with update of temperature from SABER and check the effect of meteor echo ceiling (MHC) effect on the temperature estimation.

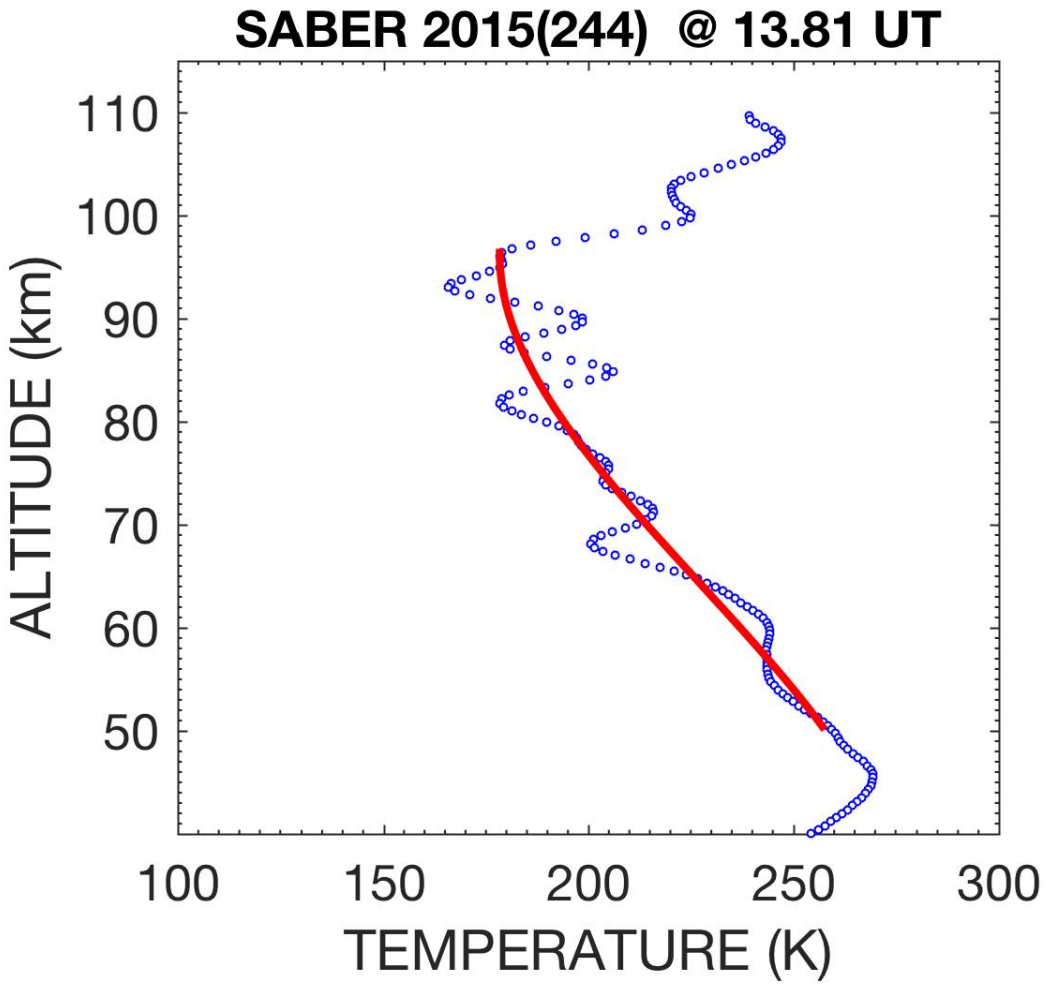
The investigation is of significant value, however, the work needs major modifications as points raised below.

Detailed comments/suggestions:

1. Page 1, Lines 19-22: The sentence should be moved to the first part of paragraph.
2. Page 2, Liu et al. (Liu, L., H. Liu, H. Le, Y. Chen, Y.-Y. Sun, B. Ning, L. Hu, W. Wan, N. Li, and J. Xiong (2017), Mesospheric temperatures estimated from the meteor radar observations at Mohe, China, J. Geophys. Res. Space Physics, 122, 2249–2259, doi:10.1002/2016JA023776.) should be cited (reasons will be stated below.).
3. Page 2, Lines 10-11: Since the MHC effect, how to describe the height distribution now because the normal distribution be fail? I am curious at that they still use Guassian function to fit the distribution (Line 21, Page 3) if the

MHC effect is important.

4. Page 2, Line 8: “invariance” must be deleted, because it is not so as this work presents.
5. Page 3, Lines 1-2: Since there are so limited observations from SABER over the station (the authors can check the local time coverage of SABER), how can they obtain information of geopotential height at times without SABER passes.
6. As Figure shown below for example,



the authors should be stated clearly step by step in the revised manuscript how to obtain the layer mean temperature from SABER. As there are waves in the temperature profile, how to take them into account to get the background profile?

7. More important, the SABER temperature lacks local time coverage, how to obtain daily mean temperature. If it fails to do so, how to reach the statement as given in Page 2, Lines 8-9.
8. Page 3, Lines 15-16, describe the daily profile number of SABER available over the station.
9. Page 4, Lines 20-21: It must be deleted, because Equation (1) is not valid under this case. In other words, the authors should be realized that there are assumptions being made.
10. Page 4, Lines 24-25: It should be removed as reason being given in the above and also in the Table.
11. Page 4, Lines 25-31: Words are required to tell how to get such result.
12. Page 5, Lines 3-5: no ideal local time coverage is reached for the SABER observations, how to get FWHM with geopotential height information from SABER and layered mean temperature? Figure is welcome to show it.
13. Page 5, Lines 20-23: the statement is invalid, because geopotential height of each echo should be given and the ratio of layer mean temperature to FWHM be given.
14. Page 5, Lines 30-32: It is not the same in the height range as FWHM covered. If the statement here is true, what is usefulness of Equations (1)-(3). They are no the same now. Further, how to understand the result presented in Figure 3. I now strongly feel the authors make the layer mean temperature over FWHM and temperature at specific height confusing (although they may mean

the temperature within 2.4 km).

15. Page 8, Line12: As stated above, it is misleading now. Further the statement in Page 1, Lines 11-13.
16. Figure 2: the vertical axis of left panel listed MLS, no points in the panel.
17. Figure 3: SABER temperature? Layer mean temperature over FWHM?
18. This work and Lee et al. is done with TEMPERATURE = C times FWHM, while Liu et al. [2017] adopts TEMPERATURE = C times FWHM + A. Liu et al. introduces another term A to fit the relationship between TEMPERATURE and FWHM. Further, Table 1 shows the coefficient, or C, is changing or different in years separately or together, and differs from those in column 4. At last, the authors need clarify what temperature from SABER used, layer mean temperature over FWHM range, or temperature within 2,4 km.