Interactive comment on "Methodology for determining multilayered temperature inversions" *by* G. J. Fochesatto

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1   **Methodology for Determining Multilayered Temperature**
2   **Inversions**

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11   **Abstract**

12   Temperature sounding of the atmospheric boundary layer (ABL) and lower troposphere
13   exhibits multilayered temperature inversions specially in high latitudes during extreme winters.
14   These temperature inversion layers are originated based on the combined forcing of local and
15   large scale synoptic meteorology. At the local scale the thermal inversion layer forms near the
16   surface and plays a central role in controlling the surface radiative cooling and air pollution
17   dispersion; however, depending upon the large scale synoptic meteorological forcing, an upper
18   level thermal inversion can also exist topping the local ABL.

19   In this article a numerical methodology is reported to determine thermal inversion layers present
20   in a given temperature profile and deduce some of their thermodynamic properties.

21   The algorithm extract from the temperature profile the most important temperature variations
22   defining thermal inversion layers. This is accomplished by a linear interpolation function of
23   variable length that minimizes an error function. The algorithm functionality is demonstrated
24   on actual radiosonde profiles to deduce the multilayered temperature inversion structure with
25   an error fraction set independently.

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Fig. 1. MS Revised