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

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Discussion Paper

1 **Methodology for Determining Multilayered Temperature**

2 **Inversions**

3

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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