

Referee Report for
Characterizing and correcting the warm bias observed in AMDAR temperature observations

The correction approach for AMDAR observations is well documented. Furthermore, their test of the correction appears to be carefully conducted and indicates a measurable improvement when compared to independent observations. I therefore recommend publication of the manuscript in Atmospheric Measurement Techniques. However I did find some minor corrections and comments that the authors may wish to address:

1. Some nomenclature is not fully defined in the text. The ones I noted were:
 - In equation 2, T , ρ and P are not defined. In addition, it should be clarified whether these are total or static temperatures/pressures. Also, since the static temperature and pressure is defined as T_a and p_s , it may be more clear to use these terms in this equation.
 - Similarly, in the development of the correction, T_a is used for ascending temperature, whereas it has previously been defined for static air Temperature. In the same section T is introduced as simply temperature, without clearly indicating whether the authors are referring to total or static temperature.
 - V_a is not defined, and appears in Section 3.2.
 - The acronym ECMWF is not defined.
 - The acronym ACARS is not defined.
 - The acronym WCO is not defined.
2. In Figures 2 and 3 the same dotted line is used for the τ correction and the zero line. The line format for one of these should be changed to avoid confusion.
3. The two phenomena that are being corrected are not the only ones which may provide warm bias, and the authors may wish to provide potential sources of bias which may affect the warm bias, but are not as easy to correct for (For example, calibration bias/sensor drift and inaccuracy in λ).
4. Given the results presented in Figure 4, is it possible to correct for aircraft dependent bias through λ ?