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# *Interactive comment on* "Observations of the atmosphere and surface state over Terra Nova Bay, Antarctica using unmanned aircraft systems" *by* J. J. Cassano et al.

**Anonymous Referee #1**

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This manuscript describes observations of the atmosphere and surface state over Terra Nova Bay, Antarctica, using Aerosonde unmanned aircraft systems, in September 2012. I see this as a technical report, not necessarily as a scientific paper. The dataset described in the paper is easily accessible via the given identifier, both in netCDF and ASCII formats.

Some specific comments/questions:

At first, in the manuscript there are lot of papers cited (mostly in the Introduction) but not given in References list?

The UAS wind finding algorithm – is that standard procedure (any reference?) or just

developed for data analyzes from this campaign?

What about cloud data – flying in clouds might be very hazardous due to potential risk of formation of ice on the UAS prop blades, wings and sensors. Was that issue considered somehow when strategies of flight missions were determined? Any real-time monitoring of telemetered T and Rh data during UAS flights?

In Figure 3 there are maps of Terra Nova Bay flights with color shading indicating the flight attitude. It is unclear for me, is the color shading depicting only horizontal transects? For example, panel (d), AV215 flight at 18 September consists also (according Table 3) 8 vertical profiles up to 1600 m.a.g.l., but the location on the figure of those ascent/descent profiles is very hard to find if at all?

Caption of Figure 6 should say what temperature is plotted. Also the color shading (from -10 to -40 oC) is not the most successful in order to see any changes in the temperature.

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Interactive comment on Earth Syst. Sci. Data Discuss., 8, 995, 2015.