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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Observational evidence of temperature trends at two levels in the surface layer" *by* X. Lin et al.

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Thanks much for the comments. First, the temperature could also have cooled more at 1.5m. The statistics do not tell us which is correct, although it appears that warming has occurred (albeit not statistically significant at the individual levels). However, a more important finding from our research, is that near the surface the magnitude of the trend depends on height.

This is a new result as there are no other long term high-quality mesonets with temperatures at two heights that we are aware of. This introduces a previously unrecognized uncertainty in the assessment of the magnitude of multi-year and multi-decadal surface temperature trends.

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In addition, at this point, it is not possible to extrapolate the results for a global land effect (or to address a global hiatus in our paper) due to data from one region. In fact, this calls for similar types of measurement from other regions to address global nature of the results of this study. However, since we found that the differences in trends were largest for light winds at night, which occurs often at high latitudes in the winter season (where night can last 24 hr per day), we suspect that our results will apply there as well.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 24695, 2015.