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Geoscientific Instrumentation Methods and Data Systems Discussions

Interactive comment on "Calibration of non-ideal thermal conductivity sensors" *by* N. I. Kömle et al.

Anonymous Referee #1

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It is indeed useful to demonstrate robust methods for thermal conductivity measurement and understand deviations from the ideal case of a line heat source.

This work demonstrates the cross-calibration between the LNP sensors and the TP02 sensor, but it is not clear how, more generally, one may determine whether or not the calibration of a practical sensor may be approximated, over a particular range of thermal conducivity, using a constant factor f_cal. A comparison of the results with model predictions for f_cal would also have been useful. Without addressing these two points, this work seems to be of only qualitative use outside the scope of the particular sensors and Tc range used.

p688: "The only space instrument that has measured thermal conductivity on an extraterrestrial body other than the Moon was the TECP-instrument aboard the NASA Phoenix spacecraft." - This is not quite true, as the THP sensor of the Huygens Surface

Science Package measured the thermal conductivity of Titan's atmosphere. Maybe a caveat '... of solid material...'?

Figure 5: Please explain the dotted lines.

Conclusions: * 1st sentence - why? Because the non-radial (i.e. up and down) component of heat flow is significant? * 'almost linear' - not a quantitative statement. * What constitutes 'suitable' measurements (e.g. with what precision?)? * What constitutes an 'appropriate' thermal conductivity range?

p686, 2nd line of Abstract: delete 'to evaluate'.

Interactive comment on Geosci. Instrum. Method. Data Syst. Discuss., 2, 685, 2012.