

## ***Interactive comment on “Autonomous Adaptive Low-Power Instrument Platform (AAL-PIP) for remote high latitude geospace data collection” by C. R. Clauer et al.***

### **Anonymous Referee #1**

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General comments: This is a valuable description of a complex system that makes environmental measurements in a challenging environment.

Specific Comments. The BAS LPM is described but no reference is given. doi:10.1016/j.polar.2008.04.002 Yamagishi et al. would be appropriate.

The size of the Photovoltaic panels is not given.

The Power budget of the system is not presented, and this seems to be of major importance both in the design and performance of the system, for instance in the in-ability to continue measurements through winter.

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It is not explained why the electronics require heating but the sensors can be operated at ambient temperature. This leaves many open questions, is it because some electronics was not available in low temperature versions, why were approaches that use low temperature electronics not used?

The paper states that "As the batteries warm up their capacity increases and their remaining energy stored energy becomes available", this is not exactly correct - the only thing that changes with increasing temperature is the rate that charge can be taken out of the batteries.

Page 281, line 10 quotes that the rated capacity of a the selected batteries is 48% while powering a 1.4W load, it is not clear whether this is for one battery or for the 16 batteries which is obviously quite a difference.

It is not explained why when the PV power comes back this is all used to heat the batteries rather than power the instrument - is it because as well as the batteries needing warming so does the instrument electronics?

The LVD voltages are given but without any temperature coefficient - is this because no temperature coefficient was applied? If not why not.

A version number of the Linux running was given but not the distribution name.

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