

***Interactive comment on “Climatology and ablation at the South Greenland ice sheet margin from automatic weather station observations” by D. van As et al.***

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Received and published: 21 February 2009

This paper reports on the AWS results from several years in southern Greenland. Unfortunately technical difficulties generally due to harsh climate curtailed the continuity of the records. The results due to the intermittent nature of the three station records, are not robust or important by themselves. The paper must better relate their energy flux calculations with others recently completed in the region. This is more of a field data report at present, important to learn from, but not presenting results that are substantial enough to draw important conclusions from. To leverage the discontinuous data records and technical issues into a more important paper, I suggest the following.

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1) Tedesco et. al., (2008) using ssm/i data generated energy fluxes using a MAR model for the same region. From Figure 3 of that paper it seems evident that the MAR results point to a higher sensible heat flux at TAS1, higher net long wave fluxes at Nuuk2 and higher net shortwave fluxes at St71. The MAR results are for the 2003-2007 period, and provide a long term mean for comparison. I may have misread the location of TAS1 on the MAR maps, but this is the point. The MAR results should be compared to the AWS energy model results of this paper. This would require locating the three sites on one of the MAR maps. In comparing the MAR results to Table 3 the results seem to agree.

2) The Van den Broeke et. al., (2008) paper use AWS results to look at energy fluxes at three stations moving inland from the southwest GIS margin. This paper is referenced, but the results are not sufficiently compared. Van den Broeke et. al.,(2008) find that net shortwave fluxes increase inland, this is in agreement with the observations of higher net shortwave flux at Nuuk2. Van den Broeke et. al.,(2008) also note the sensible heat decline with inland distance, does this fit the results from St71- St 72, or TAS1 versus TAS3 however limited or for the three stations. It is noted that temperature increases with altitude at TAS1 versus TAS3, does this impact sensible heat flux change?

3) Since the paper focuses considerable attention on the technical difficulties, the specific limitation and problems associated with the pressure transducer ablation measurement system need to be discussed. It cannot at present be determined how reliable or extensive the measurements obtained are. Given the problems it is appropriate to comment on what design changes if any would have provided a more resilient, redundant and reliable measurement system.

4) The albedo results in Figure 9 indicate the ability to determine the length of the ablation season. There should be some satellite imagery to confirm the snowline position at least for one location in one season. The lack of accumulation assessment is problematic. Based on the results what is suggested for gathering such information using an AWS system.

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Interactive comment on The Cryosphere Discuss., 3, 117, 2009.

**TCD**

3, S7–S9, 2009

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