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Interactive comment on "Stable climate and surface mass balance in Svalbard over 1979–2013 despite the Arctic warming" *by* C. Lang et al.

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Lang et al (2014) provide a detailed model for SMB in Svalbard that could well be a useful addition. They correctly note the short duration and limited spatial extent of mass balance programs. There are two key issues that prevent it from being valuable at present, that the authors can readily address. The first is a poor assessment of the recent state of SMB in Svalbard. The second is validation that is too limited to provide any confidence in the results. Again the model may generate excellent results, but without better consideration of the larger SMB data sets and surface elevation change data from the field for validation we cannot know this.

4499-4: I do not see that the stabilization of mass balance can be easily defended as a statement of fact, if it emerges in the conclusion after detailed assessment, fine.

The results from Sobota (2007) on Waldemarbreen do not support this. James et al (2012) found increased thinning after 1990. The six glaciers with mass balance results submitted to WGMS displayed in the Norway3 chart of the WGMS mass balance bulletin also does not support this stabilization. Nuth et al (2013) point out area loss was smaller and retreat rate larger during the post 1990 period. This conclusion is supported by Blaszczyk et al (2013). Nuth et al (2012) point out greater surface elevation changes after 1990. This collection of data all based on field observations do not indicate stabilization.

4505-20: This is a weak temporal data set for validation. Why is the Waldemarbreen SMB data not used it has been submitted to WGMS since 1995. This would be an ideal data set since the glacier is not calving or surging and has summer and winter balance values. Sobota (2007) discusses it at length. In terms of validation how do the results compare to James et al (2012), who provide changes with elevation? Moholdt et al (2010) found a varied SMB with elevation with interior thickening of up to 0.5 m a$-$1, at the same time as the margins are thinning at a rate of 1–3 m a$-$1 on Austfonna, this would be a key result that the SMB model should also generate.

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