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Comment

# ***Interactive comment on “Greenland annual accumulation along the EGIG line, 1959–2004, from ASIRAS airborne radar and detailed neutron-probe density measurements” by T. B. Overly et al.***

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Received and published: 2 February 2016

Overly et al present radar derived accumulation rates along the EGIG line in western Greenland. They present a thorough study combining airborne radar data, multiple ground measurements and high resolution modeling data to investigate radar-derived accumulation rates. They also provide the temporal and spatial change in accumulation across a very important transect of the Greenland ice sheet.

This paper should be published after revision. I first list my major scientific concerns

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that need to be addressed. The first is that the timing on the annual accumulation measurement data is not given. For instances a typical annual dating on an ice core would be Jan 1 to Dec 31 yet the annual dating for the NP and radar will be density peak to density peak which as defined in the paper is in the summer time. The authors also need to clarify how they are defining annual and any differences that then arise between the measurements due to timing. Second, all of the field measurements and radar-derived accumulation should be given uncertainties or errors to put them in perspective with the accumulation changes that are being detected on a decadal scale. Specifically, error estimate on density and radar-derived accumulation should be given as well as any errors that were reported with the ice core dating for ice core derived accumulation. Third, more information is needed and justification provided on how the paper is comparing point, line and area measurements. It is unclear at points in the paper if, for instance, the radar-derived accumulation is being averaged to the Polar MM5 grid or just compared at point locations, and clarification is needed as it provides a better understanding of how the small scale spatial variability in accumulation is scaling between measurements

My other concern is that the paper needs additional references, including Medley et al 2013, and others listed in the markup and is confusing to read in places. Additional read through for clarification is needed and are well within the list of coauthors abilities. I have included a detailed mark-up of the .pdf in the supplemental to this comment. The mark-up includes additional references and highlights where I found material confusing or vague.

Please also note the supplement to this comment:

<http://www.the-cryosphere-discuss.net/9/C2935/2016/tcd-9-C2935-2016-supplement.pdf>

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Interactive comment on The Cryosphere Discuss., 9, 6791, 2015.

TCD

9, C2935–C2936, 2016

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