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The Cryosphere Discussions

Interactive comment on "Northern Hemisphere spring snow cover variability and change over 1922–2010 including an assessment of uncertainty" *by* R. D. Brown and D. A. Robinson

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Brown and Robinson (2010) provide a thorough description of the development of a snow cover data set for March and April in the Northern Hemisphere. The resulting snow cover extent data set with the detailed confidence limits established provides a valuable data set for identifying changes in snow cover extent and the associated errors. I will confine my comments to two minor and one key point in this well written paper.

1)An important and potentially valuable further output from the data set that should be included here is the change in SCA from March to April each year. The net loss from

March to April each year of SCA would be more specific to early spring melting and hence temperature and less influenced by the snowfall conditions that preceded spring. Particularly in Figure 9 a plot of temperature versus the change in SCA from March to April should be more valuable than simply a plot of SCA versus the temperature of that month. The data set evaluated for March-April=SCA Change, yields a bit of a positive trend for NA since 1970, more SCA lost, and a negative trend for EA, less SCA lost. I would look forward to the authors potentially gleaning some further useful interpretation out of a comparison of the differences in SCA between March and April.

2) Figure 2: Why did the confidence interval in April for EA increase significantly for the 1990-2000 interval?

3) Abstract and Conclusion: "The rate of decrease in March and April NH SCE over the 1970–2010 period is âĹij7–8million km 2 per 100 years which corresponds to an 8–11% decrease in NH March and April SCE respectively from pre-1970 values. " Given that this is a 40 year long record the rate of change should be per decade.

Interactive comment on The Cryosphere Discuss., 4, 2483, 2010.