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The Cryosphere Discussions

Interactive comment on "Spatial patterns of North Atlantic Oscillation influence on mass balance variability of European Glaciers" *by* B. Marzeion and A. Nesje

Anonymous Referee #2

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This is an interesting paper on the influence of NAO on glacier mass balance in the European Alps and Scandinavia. The manuscript needs to be more carefully checked for - mainly minor - presentational errors through a more thorough copy-editing, but the scientific reults are generally clear although part of them have been known before from previous studies on this subject. I have several specific queries about the methods: (1) I'm not sure how the threshold length of 12 years for glacier mass balance measurements (p.9, last sentence) was chosen. (2) p.12, line 6 from bottom "the climatologically derived model provides the most reliable results": why should this be given that the other models are trained against mass-balance measurements? - this seems counter-intuitive. (3) I am concerned that the correlation maps merge mass

balance records based on different time periods, which are not clearly specified in the paper and could bias the results if the NAO-mass balance relation is time-dependent with different spatial correlations and strengths according to the exact timeframe being considered (which it most likely is to some extent). p.10, ,line 14 (& elsewhere): change "exemplary" to "example". Also on p.13, l.15. p.11, ll.12-13: "...(mean correlation of 0.74), but the performance suffers only a little when applied over all of Europe (mean correlation 0.3)." - this seems to me to be a big correlation difference, so can the authors reword and/or clarify?

Interactive comment on The Cryosphere Discuss., 6, 1, 2012.