**Climate
of the Past
Discussions**

Interactive
Comment

Interactive comment on "Snow and weather climatic control on snow avalanche occurrence fluctuations over 50 yr in the French Alps" *by* H. Castebrunet et al.

Anonymous Referee #1

Received and published: 16 January 2012

This is a good paper that presents a novel analysis of an extremely important dataset for consideration of long term variability in climatologically driven natural hazards in general, as well as avalanches in particular. I have three main points that I would like the authors to address: (a) Multiple statistical tests are applied but Bonferroni (or related) corrections do not seem to have been applied. This may have led to incorrect inference in places and should be addressed by adjusting the relevant p-values where required. (b) I think it would help the reader if the components of the SAFRAN-CROCUS-MEPRA model chain were discussed with respect to alternative models (e.g. CROCUS vs SNOWPACK) so that their merits and demerits as forecasting tools can be assessed. (c) The conclusion about a peak in activity in ∼1980 from the 5 year

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running means is very interesting and important. Does this relate to any meso-scale circulation phenomena (e.g. the NAO etc.?) Some comment on this by the authors would be helpful.

Minor comments: P.4174 L.25 Either "Mountainous areas and high latitudes are very sensitive..." or "Mountainous areas, as high altitude regions, are very sensitive..." P.4175 L.25 "Intuitive" is not clear here. L26 McCarroll P.4176 L.6 ", which is often" P. 4178 L6. "in the data series" P.4182 L6. I find it hard to interpret the statement that the data fall within the -2 to +2 interval without accompanying information on the typical autocorrelative structure of the data. It would be helpful if this were provided. P.4185 L21. I think the commas are better as "The interannual variability is very high with, for all indicator series, years of ..." P.4186 L10. If these results are Bonferroni-corrected (as they should be) presumably non are significant? P.4187 L27. Is there a non-linear, or threshold relation in evidence here, where, for example, mid-values for depth stabilise the pack, but the largest promote instability? If so, this might also explain the nature of the result found. P.4202 L10. small increase rather than short? P.4202 L11. "and was more marked" not "mostly marked"

Interactive comment on Clim. Past Discuss., 7, 4173, 2011.