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Hydrology and Earth System Sciences Discussions

Interactive comment on "

Snow cover dynamics and hydrological regime of the Hunza River basin, Karakoram Range, Northern Pakistan" *by* A. A. Tahir et al.

Anonymous Referee #3

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This paper describes the dynamics of the snow cover and of the hydrologic response of river Hunza in the Karakoram. Albeit most of the findings are not really new or surprising, this is a nice and well-conducted work which improves our knowledge of the hydrology of this area.

I have a few comments:

Trend detection over less than ten years of data is a truly dangerous exercise. I think

interannual fluctuations can mask any real trend and decadal fluctuations can generate spurious detections, so I would rather eliminate this part or, at least, present it just as an euristic attempt. I think no conclusion on trends can be drawn from such a short time series.

Page 2833: "A significant inverse correlation between summer precipitation at Gilgit and runoff" sounds indeed strange. Maybe the authors should try to explore this issue more thoroughly - right now it is left vague in terms of understanding.

Page 2834: "The correlation between winter and spring temperatures and runoff". Why winter temperatures are correlated with runoff ? Is it because there is a correlation between winter temperatures and precipitation ? It would be good to explore this issue.

Page 2834 (and again 2838): "the Gilgit climate station can be replaced with the Hunza basin climate stations": But Gilgit is the only one which has a significant inverse correlation between summer precipitation and runoff... So it seems it behaves differently from the Hunza basin stations - unless the correlation is statistically significant but irrelevant.

Page 2835: "a significant expansion of the snow cover area in zone C". Again, maybe statistically significant but not really visible... and why only in zone C ?

There are a few language issues, such as the use of "most greatest" on page 2827, which should be polished.

Overall, a good paper which deserves publication once the points raised above have been considered and which would benefit from some deeper discussions on the physical/climatic implications and/or motivations of all these correlations.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 8, 2821, 2011.