

Interactive
Comment

Interactive comment on “A snow cover climatology for the Pyrenees from MODIS snow products” by S. Gascoin et al.

Anonymous Referee #2

Received and published: 9 December 2014

The authors assess the accuracy of the standard MODIS snow gridded products, MOD10A1 and MYD10A1, on the seasonal snow cover mapping in the Pyrenees. They compare results from the snow maps with in-situ measurements. They also use Landsat images to validate the MODIS snow maps. They find high accuracies for the satellite-derived snow cover maps, with a slightly higher accuracy found for the MOD10A1 (Terra) snow maps. Using the snow maps they compute a mean monthly snow cover duration in the Pyrenees, and analyze snow patterns in the 2011-12 winter and relate that to a drop in hydropower.

While I like the paper a lot, I feel that there are several important topics described, and that the topics are not all equally well-developed. For example, very little is said about the snow cover duration in different elevation bands, in the Results section and in the

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Abstract, though there is a nice figure (Fig. 9). I would like to see a larger discussion of this interesting result. Also, how exactly can the snow maps be used to improve or predict hydropower production? That is discussed but a more detailed discussion of that would also be useful.

Finally and very importantly, it seems that there is new information provided in the Conclusions. Some wording (which is good wording) should be described in the Results section first and then mentioned again in the Conclusions.

Figures: I cannot read the labels on the figures easily; the font is quite small on a lot of them. Please go through the figures to determine if they are all needed. There are quite a few and many are not explained very well in the text.

So my suggestion is to try to develop all of the major findings or topics a bit better, or take one out and use it for a companion paper.

Abstract Please provide some results of snow cover duration per elevation band in the Abstract. Introduction – there are numerous acronyms that need to be spelled out with the first usage. Page/Line 12533/15 change to functions 12535/2 should reference Klein et al., 1998 here 12535/4 & 5 this should read NDSI instead of NDVI and NDSI should be spelled out 12536/7 should also reference Salomonson and Appel, 2004 and 2006 12536/14 should read “...which enables us to generate...” 12536/18&19 should re-phrase this sentence for clarity 12545 end of Section 3.2 – the last couple of sentences are a bit confusing and should be re-written for clarity 12546/8 product should be products 12547/20 an should be a 12548/20 please describe MOD01A1 - it just comes out of the blue, though it's possible that I missed a description of it earlier in the paper 12548/25 also reference Riggs et al., 2006 online User Guide to snow products References I don't understand the 5-digit numbers at the end of each reference???

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 11, 12531, 2014.

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