

## ***Interactive comment on “Subgrid parameterization of snow distribution at a Mediterranean site using terrestrial photography” by Rafael Pimentel et al.***

### **Anonymous Referee #3**

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The authors analysed snow accumulation and melt cycles in four winters to determine the representative snow depletion curves which were then applied in an energy based snow accumulation and melt model. Model validation showed that the approach resulted in a reasonable reproduction of snow depth variability in an environment characterized by frequent accumulation-melt events. I am not sure that the approach which was not validated for more and larger control areas is so easily transferable to larger scales, e.g. a catchment. However, the manuscript is inspirational and I agree with its publication after modifications considering the following comments:

- Please write what is the resolution and accuracy of snow depth values estimated from the photographs and snow poles.
- Equation 2 describes the relationship between  $h_{ref}$  and  $h$  (for the whole control area).

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However, two snow poles are mentioned in data description. It is not clear if data from both poles were used in calculation of h and how.

- Please correct the error in the last two lines of table 2; do they not give "mean duration", but total number of days with snow accumulation and snow melt in particular winters, respectively (this corresponds to the mean values given on p. 7, l. 16).
- Caption of Fig. 5 b and elsewhere in the text (e.g. page 8, line 5; p. 10., l.2) - the curve for snow accumulation (Curve 0) should not be called "depletion" curve, because the snow covered area is not decreasing, but increasing
- Table 3 - please add a column with number of points (days) which were available for fitting in each cycle
- Quality of Fig. 5 is not good, especially Fig. 5b is not readable
- p. 9 l. 19 - Please change formulation of the sentence - simulation of snow cover FRACTION should not have ME, MAE and RMSE in millimeters.
- Fig. 8 - adding measured precipitation and air temperature to the figures would aid explanation of the mismatches mentioned in the Discussion (p. 10., l. 24-32).
- The Discussion could also compare the results of presented approach with other works devoted to incorporation of subgrid distribution into snow models

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