

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

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### General comments

The manuscript presents parametrization of the snow depletion curves at a small plot in Mediterranean site. This parametrization is based on terrestrial time-lapse photography. The fitted curves are then implemented in a point snow model and tested for estimation of mean snow height and snow cover fraction.

Overall, the topic is interesting and within the scope of HESS. It is worth to publish, but I agree with the reviewer #1 that some revision is needed. I would also suggest to improve the discussion of the paper, relating the findings to existing literature, as well as to discuss the transferability of results to other regions. I would like to suggest to show the value of implementing this new approach into a snow model more clearly, e.g.

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by comparing the simulations with a “standard” approach.

Overall I would recommend to publish the paper after some moderate revision.

#### Specific comments

- 1) Abstract: What is the GIS-based representation of snow?
- 2) P.2, l.20: Please correct the typo in the name Kolbert.
- 3) Table 5 caption does not explain the table well. The meaning (or reference) of table headers is not explained.
- 4) “Each cycle corresponds to the time period between the beginning of a snowfall and the end of the associated melting. Not clear what is the meaning of associated melting.” Perhaps it would be more clear if Fig.4 does indicate the start and end of selected cycles.
- 5) Fig.3: Would it be possible to indicate the position of rods in bottom panels?
- 6) Fig.5: The fit of Curve0 seems not be very close to the observations. Does this difference affect the model performance in accumulation phase? If yes, for which events and how?
- 7) The length of cycles is confusing “The number of cycles and their duration varied considerably over the years, with a mean number of  $18 \pm 5$  cycles per year and a mean duration of  $49 \pm 14$  and  $108 \pm 18$  days for the accumulation and melting phases of each cycle, respectively.” This reads like e.g. 18 cycles per year, each has 49 days, so it is  $18 \times 49$  days in a year?

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