The paper, titled “openAMUNDSEN v 0.8.3, an open-source snow-hydrological model for mountain regions”, describes a fully distributed snow-hydrological model optimized for mountain regions. The model provides a detailed simulation of the snow cover's seasonal evolution, including mass and energy balance across the snowpack. It's designed for varied spatial scales (from point scale to thousands of square kilometers) and temporal scales (from single events to climate change scenarios), incorporating features such as spatial interpolation of meteorological data, multi-layer snow simulation, and glacier ice response to climate change. The model's flexibility allows customization for specific applications, backed by a Python codebase and available as an open-source project for public use. The paper is concisely and clearly written, but I believe it requires some revisions. I am convinced that making these revisions will improve the paper. The comments on major revisions are as follows.

- The gridding of meteorological elements through interpolation of weather station data in this paper is conceptually similar to the Micromet model (Liston and Elder, 2006). Therefore, I would like the paper to discuss the advantages of its methodology by comparing it with Micromet. Additionally, please explain the temperature lapse rate with elevation and the elevation dependence of precipitation using equations. I would also like you to describe how these values differ when compared to Micromet.

  We will insert a new paragraph in which we will briefly describe MicroMet. There we will discuss the differences between the two approaches, in particular with respect to the computation of (i) the lapse rate of temperature and of (ii) the elevation dependence of precipitation.

- The method of determining the Snow Redistribution Factor (SRF) should be explained in figures such as Figure 1 or Figure 3. Furthermore, it seems that calculating SRF requires a fairly detailed DEM, so there should be a discussion on the maximum grid size for which SRF can be calculated. Additionally, expressing how SRF is used in a formula would allow for a better understanding, so I would like you to show the utilization of SRF in an equation.

  We will include a paragraph for the discussion of the grid size effect of the determination of the SRF (with respect to scale limits), including the original references where its computation is described in detail (Hanzer et al. 2016, Helfricht 2014, Yokoyama 2002, Grünewald et al. 2014, Freudiger et al. 2017). We will try to find a proper balance between what is described in detail in our revised manuscript, and what remains referred to in the respective original literature.

- I believe the merit of this model lies in the estimation of the spatiotemporal distribution of snow water equivalent (SWE). On the other hand, the validation data consists of snow cover fraction and snow depth, and I think a comparison with SWE is essential to demonstrate the model's validity. I would like you to show the reproducibility of point SWE measurements. By doing so, it would be possible to verify to what extent the model can reproduce the spatiotemporal distribution of SRF and precipitation, so I would like to request additional validation.

  We will use the conducted simulations for the Rofental using different model configurationsto provide such a proof of validity. In the Rofental, mostly the Proviantdepot station provides SWE measurement that can be used for this purpose. At Latschbloder only snow depth is observed, and at Bella Vista a local jet with small-scale erosion and deposition effects is observed. We will consider that any comparison of distributed modelling of snow (in a particular grid cell) to local station recordings always suffers from the scale gap between the model resolution and the very particular (local) situation at the measurement device. In mountain regions this effect can become significant. See, e.g., the very recent paper by Haddjeri et al.: (https://egusphere.copernicus.org/preprints/2023/egusphere-2023-2604/).

  What we additionally can do is a short description of the "multi-level spatiotemporal validation" developed by Hanzer et al. (2016), a systematic, independent, complete and redundant validation procedure based on the observation scale of temporal and spatial support, spacing, and extent. This approach provides quantitative measures for the validity of the openAMUNDSEN results for all dimensions in space and time.

- I do not fully understand the meaning of the sentences in lines 355-357, so I would like you to rewrite them more clearly.

  We will provide a new formulation of these sentences to better explain the issue of the snow tower artefacts in simulations of decadal horizons or longer.

  Thank you very much for supporting the improvement of our paper! All your comments are very valuable.