We thank Piotr Drzewiecki for his interest and his comments concerning our paper. Please find below our answers to all his points. His comments are in bold while our answers appear in normal font.

Regarding the content of the paper and my 2 years perspective of Crocus model testing at Polish national hydro-meteorological service, it's like obligatory to mention, that because of the transparent structure of the publication and very well depicted general view of model utility, new release of Crocus description, is really friendly, in terms of understanding and following the ideas pointed in it. On the other hand, from personal point of view (i.e. Crocus enduser/tester), for gaining best form and content of the article, some specific extensions of the paper could be added.

Section 3.1, equation 2,3. Even if the main goal of the paper is a general overview of the model, I would attach some specific plots which refers to those basic formulas mentioned in the text, which were not as that much presented in Crocus descriptions until now, yet. Couldn't it be worth to enclose the plots of "dfall" and "sfall" as a function of typical values for wind speed?

Following this suggestion, we included a figure (Fig. 3 in the revised version of the paper) that describes the characteristics of freshly fallen snow (dendricity, sphericity and density) as a function of wind speed and air temperature. This figure is attached at the end of this document.

Section 3.5, equation 9. Staying with the same argumentation like in comment for section 3.1, I would suggest to add the plot, which shows the behavior of the function, mentioned in the line just below the equation 9, taking the typical range of the density as an argument.

The mobility index M_O of a snow layer describes the potential for snow erosion of a given layer and is diagnosed from Crocus variables: grain variables and density. The function $F(\rho)$ represents the dependence of M_O on snow density, which is only a term in the equation for M_O. Therefore we decided not to emphasize this particular term with a specific figure.

Section 3.5. Considering the issue of the extension for Mobility index, I would suggest to add a comment, that the density values larger than 330 kg/m3 (taken as an average for the whole depth of the snow pack) are also quite often encountered in the Carpathian Mountains (this is through, at least for north-west part of it, i.e. in polish Tatras, where right quality of data set, is available for last 50 years), which means, the development mentioned in this part of the paper, could be potentially very useful, not only for

polar snow regions.

We agree that snow density higher than 330 $\mathrm{kg\,m^3}$ are often encountered in alpine terrain. Therefore we slightly changed the way we present this parameterization, but we still mention the particular interest for polar snow:

"The purpose is to extend the use of M_O to snow with a density larger than $330\,\mathrm{kg\,m^{-3}}$ (upper limit for application of Guyomarch and Mérindol, 1998). This extension is especially important for polar snow."

Section 3.12. Regarding the word "time step", which occurs in this section and the description of numerics used in Crocus/SURFEX (implicit and centred Cranck and Nicholson method - the information taken from former Crocus documentation, still valid for the actual release of the model?), wouldn't be useful to mention the name of numerical scheme, used in actual release of the model, with additional comment about the typical values of time step applied for integration?

The model uses the implicit backward difference time scheme to solve the heat diffusion within the snow-cover. The scheme is explicitly stated in Sect. 3.8. It differs from the previous version of Crocus and relies on the method implemented in the ISBA-ES snow scheme. This scheme allows time steps up to 1h in offline mode and 30 minutes when coupled to an atmospheric model. A sentence has been added at the end of Sect. 3.8 to mention these typical time steps:

"The model can be run using time steps up to 1 hour in offline mode and 30 minutes when coupled to a GCM."

Finally we changed the name of Sect. 3.12 and used "Final updates" instead of "End of time step updates".

Section 4. Supposing, that the article is addressed to quite wide audience and considering the context of potential enlarging the community of Crocus/SURFEX snow pack prognostic application users, I would suggest, the additional information could be provided, that stand alone version of Crocus/SURFEX is NWP model input independent - i.e. if mentioned in section 2.3 fields are available in adequate format, then there are no particular constrains, for feeding Crocus/SURFEX stand alone mode, with any kind of NWP model output, for the aim of snow pack prognostic calculations (that is, how I get the issue of meteorological input, necessary for using snow pack features prognostic utility, applied for single points localities). Hadn't it better, for the transparency of the publication, if this kind of statement would be explicitly pointed, if not in the section 4, then possibly somewhere else, within the discussed paper?

We mention at the end of Sect. 2.3 that input data can be taken either

from observations or from output of atmospheric models:

"The input for Crocus may be derived directly from local observations, atmospheric models or reanalyses. Section 5 describes several applications of Crocus using different kinds of atmospheric forcing."

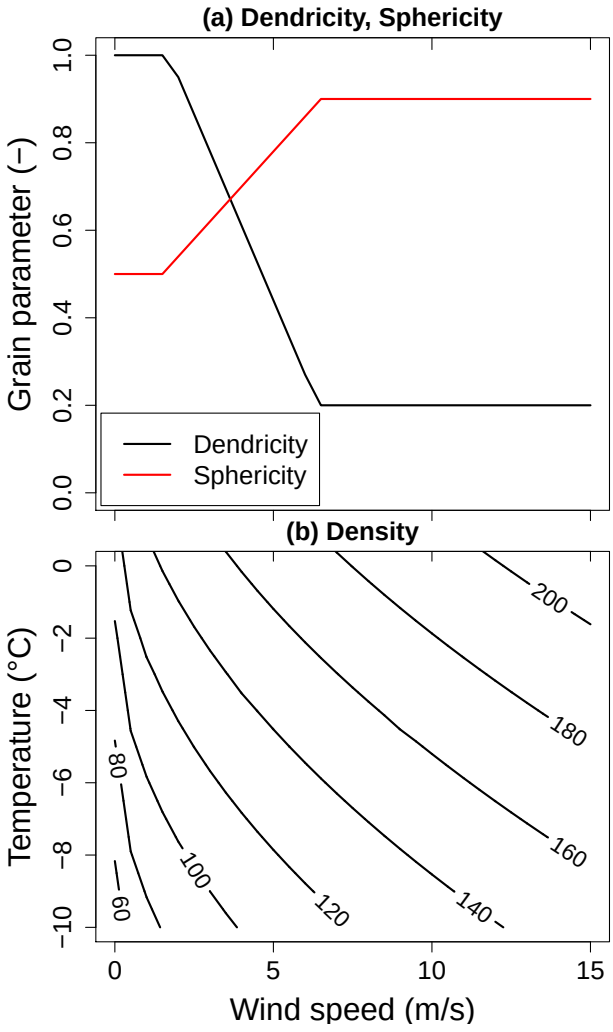

Figure 1: Properties of freshly fallen snow. (a): dendricity and sphericity as a function of wind speed; (b): density as a function of air temperature and wind speed.