

## ***Interactive comment on “Grain shape influence on light extinction in snow” by Q. Libois et al.***

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The paper is aimed at the studies of the influence of the grain shape on light extinction in snow. The paper is well written and can be published after minor corrections given below: 1. I would suggest the modification of the title. Interaction of light with snow is described in terms of extinction, scattering, and absorption. Extinction is usually referred to the attenuation of direct light beam by a snow (falling or on the ground). The authors consider not extinction coefficient given by Eq. (1) but rather AFEC given by Eq. (8). This must be specified in the title and also in the paper. 2. I suggest that the authors modify Table 3 and Fig.6. They mention that the values of  $B$  below 1.0 are not physical. The corresponding values above 2.0 are also hardly physical. The reason that the authors obtain too low or too high values of  $B$  is because they applied the retrieval algorithm at the conditions, where their theory does not work. 3. I suggest to make a reference to the following papers, where similar problems have

been considered: Kokhanovsky, A., 2013: Spectral reflectance of solar light from dirty snow: a simple theoretical model and its validation, *Cryosphere Discussions*, 7, 533-550 Kokhanovsky A. A., Breon F.-M., 2012: Validation of an analytical snow BRDF model using PARASOL multi-angular and multispectral observations, *IEEE Geosci. Rem. Sens. Letters*, 9, 928-932. Negi, H. S., Kokhanovsky, A., and Perovich, D. K.: Application of asymptotic radiative transfer theory for the retrievals of snow parameters using reflection and transmission observations, *The Cryosphere Discuss.*, 5, 1239-1262, doi:10.5194/tcd-5-1239-2011, 2011. Kokhanovsky, A. A., 2006: Scaling constant and its determination from simultaneous measurements of light reflection and methane adsorption by snow samples, *Opt. Letters*, 31, 3282-3284.

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Interactive comment on *The Cryosphere Discuss.*, 7, 2801, 2013.

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