Answers to reviewer Alexander Kokhanovsky:

Reviewers comments are shown in black, authors' answers in blue, and there the line numbers refer to the revised version.

The reflection of light from snow surfaces is inflenced by light scattering within snow layer and also by snow surface roughness. Usually the snow BRDF is studied using the radiative transfer theory for plane - parallel media and effects of surface roughness are ignored. The authors of this work propose a technique, which can be used to study the efefct of small-scale snow surface roughness on snow albedo and reflectance. The paper is sound and can be published subject to minor revisions.

My comments are as follows:

1). line 60: snowpack
Edited as suggested.

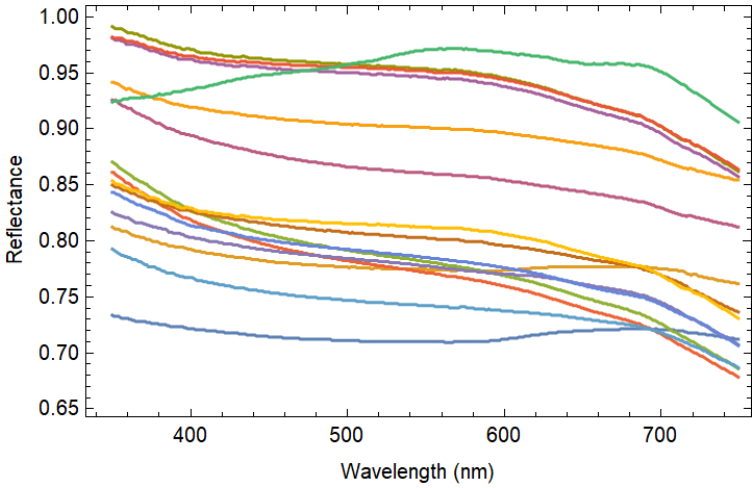
2) Eqs. 1, and 2: please, give more explanation on the meaning of x and L
The correlation length L is commonly used as one descriptor of surface roughness. And x stands for the length of the analyzed profile. It is intuitively clear that if one wants to describe the roughness of 1 m, 10 m and 100 m long profiles, one will get different numerical values for the roughness parameters, such as rms height, as no natural (or man-made either) surfaces are stationary. The text is slightly edited to make it clear that x is the distance for which the surface roughness parameters σ and L are calculated. This roughness analysis is more thoroughly already explained in the given references (Manninen, Physica 2003; Anttila et al., JGR 2014), hence repeating it again in an already long paper does not seem justified, but additional fundamental references are now included (Keller et al., 1987; Church, 1988) in line 134 and the text is slightly modified to help the reader to find this information.

3) line 166, remove '.'
Edited as suggested.

4) Eq. (7): define all variables
The missing definition of θ_i was added after Eq. 7. Also θ_o was added in the text.

5) please, check out the style of references (see, e.g., p.27)
The style of the references was checked and noticed discrepancies were corrected.

6) Fig.9: please, explain the minimum around 500nm for the case of April 22, 2009
The seeming minimum around 500 nm is a result of showing the minimum and maximum of the individual reflectance curves of 15 snow patches as one gray band. One increasing (dirty snow) and one decreasing curve just happen to cross at about 500 nm, see figure below.



However, after all the authors consider the ASD spectrometer measured reflectance values in the UV wavelengths in clear sky conditions unreliable. This results in increasing reflectance with decreasing wavelength at the UV range in the data of Fig. 9b. For very wet or dirty snow or vegetation this effect does not appear, nor for highly reflecting snow in cloudy conditions. Hence, the authors decided to remove the values measured below 500 nm (gray shaded area) from Fig 9b. In Fig. 9a below 500 nm values will remain. The best quality UV albedo measurements on 22 April 2009 clear sky conditions were performed using a Bentham spectrometer in one location besides an open field (Fig. 3 and Fig. 4 of Meinander et al 2013). In that paper the spectral albedo was discussed in detail for 300 -550 nm. The results of Meinander et al. (2013) do not support the general increase of albedo with decreasing wavelength suggested by the ASD spectrometer (the figure above). Rather, it was found that the spectral albedo generally decreased with decreasing wavelength in the 300-550 nm, and it also decreased during the day. These features can be ascribed to the increase of snow grain diameter during the day (from 0.25 to 3 mm; Table 2 of Meinander et al. 2013) and the effect of snow impurities (87 ppb black carbon and 2894 ppb organic carbon). These findings were consistent with the theoretical findings by Warren and Wiscombe (1980).

7) Figs. 8, 13: please, write 'broadband albedo' and not albedo along axis OY
Edited as suggested. Figure captions 10 and 12 were edited likewise.

8) Please, improve figure captions (e.g., you need to give units in Figs.14, 16).

The missing units were added to the labels of the axis of the figures.