

Interactive comment on “A module to convert spectral to narrowband snow albedo for use in climate models: SNOWBAL v1.0” by Christiaan T. van Dalum et al.

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The paper is aimed at the description of the module to convert spectral to narrowband snow albedo for use in climate models.

I have the following comments:

p.3 TARTES is based on a simple approximation. Therefore, it should not be a problem to run it for multiple wavelengths. Please, give the estimation of time needed to produce the spectral albedo as shown in Fig.1. Please, explain in the paper why you need to make the calculations of snow albedo at hundreds to thousands wavelength using

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TARTES. I guess, the spectral snow albedo as shown in Fig.1 can be calculated on a fixed spectral grid (say, 30-50 wavelengths) and supplemented with a simple interpolation routine to derive it on yet another grid needed for the integration with the solar irradiance as shown in Fig.1. Could you show errors of this simple approach suggested by me in the paper.

p.5 Please, change: 'geometric asymmetry parameter' to 'geometrical optics asymmetry parameter' (see also p.21). To be more clear, please, acknowledge in the paper that the total asymmetry parameter $g=(1+g_G)/2$ for nonabsorbing particles. Please, explain in the paper why $B/(1-g_G)$ must be equal to the corresponding value for spheres.

p.19, Fig.11, TARTES albedo drops at high SZA. Please, explain the reason for this. I guess, this is not a correct behavior. Are you aware of experimental results which confirm such a drop in albedo? I would suggest to make a plot of BBA as function of $\cos(\text{SZA})$.

p.21, Please, change 'assymetry' to 'asymmetry'

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