

Geosci. Model Dev. Discuss., referee comment RC2
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Comment on gmd-2021-182

Ghislain Picard (Referee)

Referee comment on "SNICAR-AD v3: A Community Tool for Modeling Spectral Snow Albedo" by Mark G. Flanner et al., Geosci. Model Dev. Discuss.,
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The paper entitled "SNICAR-AD v3: A Community Tool for Modeling Spectral Snow Albedo" describes a new version of the well known SNICAR model to compute snow albedo. This article is motivated by the numerous scattered updates to the model performed since the initial release a decade ago.

The paper provides a very clear and comprehensive description of the model with numerous references on all the inputs used to parametrize the model. This is an impressive encyclopedic work that will benefit to the future users. The results section illustrates model capabilities in a few selected situations but does not provide a complete validation and does not highlight the challenges to conduct the simulations. Whilst I expect that most of the error comes from the input parameters uncertainties in most common cases, it would have been interesting to show the model intrinsic accuracy in the corner cases, for instance when using a 0.25mm thick layers or when using the model with 89° solar zenith angle.

The paper is in a perfect form, I recommend the paper to be accepted as it.

Ghislain Picard

A few points:

L80: "<http://snowtartes.pythonanywhere.com/>" has moved to <http://snow.univ-grenoble-alpes.fr/snowtartes>

L82: "<http://snowslope.pythonanywhere.com/>" has moved to <http://snow.univ-grenoble-alpes.fr/snowslope>

L287: "one size fits all". Better to avoid this (any) idiomatic expression.

L 372: add a reference for the Bruggeman mixing approximation.

L469: I don't understand "shape-preserving extrapolating functions".

