

Interactive comment on “Effective UV surface albedo of seasonally snow-covered lands” by A. Tanskanen and T. Manninen

Anonymous Referee #2

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MS-NR: acpd-2007-0010 Version: 1 Received: 12 January 2007, 9:39 CET Title: Effective UV surface albedo of seasonally snow-covered lands Author(s): A. Tanskanen and M. Manninen

General Comments

The manuscript addresses an important concern regarding estimation of UV irradiances by satellite-borne sensors. The paper is well written and forms a useful basis for applying improvements to the retrieval algorithm being developed by the OMI science team. The technique proposed to disentangle snow and cloud effects over vegetated surfaces is not an ideal solution. For example, no doubt the effective albedo will also be a function of snow depth; and not all vegetation covers of the same type will be

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homogeneous in practice, but will depend on other factors such as soil moisture and soil quality. However, the proposed method does represent an improvement over what is currently available. It will be especially useful if the correction method proposed for albedo effects can be applied retrospectively to data from the fore-runners of this instrument (e.g., the TOMS instruments).

One possible improvement would be to demonstrate the effectiveness of the algorithm by comparing the results with ground-based measurements of UV in various snow-covered locations with and without the proposed correction. Perhaps that will be the subject of a follow-up study, but even some broad statement here about its importance for retrieved UV would be useful.

I recommend publication in PNAS.

Specific Comments

P2882, line 11. I suggest replacing “Ě somewhat analog study using Ě” with “Ě a somewhat analogous study Ě”

In Figures 2 and 3, the histograms show frequency distributions, so the y-axes should perhaps be re-labelled “frequency” (or relative frequency) rather than being labelled as “arbitrary units”.

Other minor points have been adequately dealt with following the comments made in my initial review.

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 2873, 2007.

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