

Interactive comment on “Retrieval of snow grain size and albedo of Western Himalayan snow cover using satellite data” by H. S. Negi and A. Kokhanovsky

Anonymous Referee #2

Received and published: 13 July 2011

General comments: A very good research paper on retrieving snow grain size and albedo from satellite data. The paper is well written, with comprehensive discussion of the techniques and challenges of retrieving snow grain size and albedo from satellite data. Technical content is understandable, a researcher should be able to use or replicate the techniques. The reason for using ART as an alternative to spherical snow grains, is well presented. That the ART technique could be used for retrievals of snow grain size and albedo daily is an important factor for daily monitoring of snow cover. I think the work is a very good contribution and will be useful to many researchers.

Specific comments: The ground based measurements were not exactly matched with

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the satellite data acquisitions in time and space however the authors explained the reasons for that and gave a reasonable justification for using the ground based measurements to validate the satellite retrievals.

For future consideration/research: There will probably be a daily MODIS BRDF product, similar to MOD43 or MCD43, in the planned Collection 6 processing that could possibly be used for monitoring snow albedo.

Two DEMs were used in the study, did they have similar resolution and accuracy? Could DEM accuracy have an effect on results?

Pg 614, Why select the atmospheric model based only on surface temperature? The state of the atmosphere affects the model outputs. I'd like a reason/discussion of why only temperature was used instead of including aerosol climatology or... in selecting the model presented in the paper.

Technical corrections: Grammatically throughout the paper, check that the correct tense is used, since the work is done, past tense should be used when describing what was done.

Pg 607 line 16, can delete "initially"

pg 607 line 21, sentence that begins "They...": Who is they? Use the author(s) name and state what DISORT was used for. Could restructure sentence to "... absorption feature using the DIS..."

pg 611 line 9, replace observe with are

pg 611 line 12, replace a part with of a part of

pg 611 line 19, replace and with and is

pg 613 line 10, length is the word to use instead of height

pg 624 line 17, 1024 should be 1240

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Fig. 4 and 11, need better text quality for axis and legend

Interactive comment on The Cryosphere Discuss., 5, 605, 2011.

TCD

5, C671–C673, 2011

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