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Hydrology and Earth System Sciences Discussions

Interactive comment on "An algorithm for generating soil moisture and snow depth maps from microwave spaceborne radiometers: Hydroalgo" *by* E. Santi et al.

Anonymous Referee #2

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Review of 'An algorithm for generating soil moisture and snow depth maps from microwave spaceborne radiometers: Hydroalgo'

This is an interesting paper which reads very pleasantly. The paper demonstrates the use of ANN for deriving maps of snow depth and soil moisture from AMSR-E data. I believe this paper deserves to be published, however, some remarks should be taken into account.

1. Page 3853 line 7: "the only way to break this vicious circle is to perform in-depth studies . . .": this is not true: studying the environment will not solve the problem! I agree

that we need to know more, but breaking of the circle requires a changing attitude of the human population, this is (unfortunately) much harder than increasing knowledge . . .

2. Page 3860, lines 5 and 7: “Lat” instead of “Latd”

3. Page 3869, eq. 5 and 6: what was the R^2?

4. Page 3871, eq. 10: is there a reference to this inequality? + Couldn’t this be dealt with by the ANN? The ANN could be trained such that it allows for determining whether or not snow is on the ground.

5. Page 3872, line 9: “comparably”: give the exact size.

6. Page 3872, line 19: how much is R^2? (rather than stating it is > 0.8)

7. Section 5: This is a very weak section. It is only demonstrative and does not contain any validation. I would suggest removing this section from the paper. I believe that the paper would benefit much more from an expansion on the fitting of the ANN, a detailed analysis of the errors made (where are they made, and why does the ANN make the error?): now, only regressions are made, and statistics of the errors are given. But does the retrieval suffer from errors under specific circumstances, and if so, what is the problem? How could it be solved?

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 3851, 2012.