

Interactive comment on “Snow cover thickness estimation by using radial basis function networks” by A. Guidali et al.

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We thank the anonymous reviewer for the useful comments and we reply to him (her) on the main arised points as follows:

1) Unfortunately, what they model is not snow cover thickness. ...

In the present work we address the task of snow cover thickness, modelling the solutions in terms of both function regression and classification tasks. In regression, RBFN's output layer has 1 neuron representing the predicted snow height value, in classification four output neurons are provided corresponding to snow thickness ranges (see section 6.1 and section 6.2). Only for validation purposes the results have been thresholded and reduced to absence/presence of snow.

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2) The authors seem unaware of the very vast body of methods to estimate snow cover thickness and snow depth...

The intimate aim of the work is to provide an experimental support to the growing interest to RBF networks in geospatial data analysis. The state of the art is then principally focused on the use of Neural Networks in Geoscience.

3) The reviewer was unable to see any advantage of the proposed method over more standard methods as multiple regression, generalized kriging..

Without providing a direct experimental comparison with standard methods, the authors have selected an experimental context with critical aspects originated by weak pattern description, incompleteness among data due to error measurements and low statistics that justify the use of alternative methods.

4) Only a much enlarged dataset (currently only one winter), improved comparison with other methods....

The present paper considers a large data set of 16 years of 64 AWS, but it apply the proposed model to 2 whole years (2002 and 2003) and not only to one winter as written by the reviewer 1. These 2 years were chosen because they were 2 years climatically quite different but above all, because large gaps were present in several AWS in the remaining dataset.

Interactive comment on The Cryosphere Discuss., 6, 2437, 2012.

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