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On the comparisons between two Snow Cover Area satellite datasets and the LISFLOOD model snow

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Using reliable observed data is important for performing real-time flood forecasts or hydrological simulation. Observed data are necessary for calibrating or updating many variables of the models. Satellite snow data can be one of these data, since snow is a water reservoir with a high impact on the quality of discharge simulation.
The satellite Snow Cover Area data are known to be of good quality and are regularly used for studies in the meteorological and hydrological fields. However, for an operational application, the quality of the real-time satellite data is poorer than the re-processed historical dataset usually used for research studies. This is why in this study the quality of a real-time one-year Snow Cover Area dataset (the EURAC dataset, which is based on the NASA MODIS satellites) is studied and compared to the classical MODIS data and to the simulated Snow Cover Area of the hydrological model LISFLOOD. The aim of this study has hydrological purposes; we do not aim to perform a validation or exhibit weak points of the algorithms used to produce the satellite SCA data.
These real-time data shows an overall good performance compared with the classical MODIS data, and a good agreement with the LISFLOOD simulated snow for the hydrological year 2005-2006. Furthermore, the influence of forest cover and altitude is evaluated. Characteristics of differences between the datasets will be shown for 10 of the main river basins in Europe. Statistical tests were used to assess the significance of the differences of scores between the datasets.