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# Identification of the best predictors in the analogs method for severe rainfall in the Swiss Alps

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Statistical weather forecasting is under development for the Swiss Alps. It focuses on severe rainfall and will be a real-time forecasting tool for the upper Rhône catchment. The model is part of the MINERVE project, which aims to reduce the flood peaks of the Rhône by means of water retention in dams. The statistical forecasting should extend the information on which decision makers build up their choices.

The developed model is based on a statistical approach, which allows bypassing the modeling of physical processes generating the precipitation. The approach is mainly based on the analogs method, which is linked with other methods, like weather types classification. The different regions in the Swiss Alps are sensitive to drastically different meteorological situations. As a consequence, predictors vary from a sub-region to another. During the calibration of the method, in order to find the optimal predictors on different geopotential heights, it appeared that the locations having the best predicting capabilities did not necessarily include the Swiss Alps, but were located at a certain distance. It was found that those locations correspond to features in the patterns of situations giving severe rainfall, which vary from the average state. Some known spots were clearly identified, when for other locations understanding is still lacking.

As the known critical meteorological situations are properly typed for the Alps, this kind of approach shows a high potential of success.