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Flash flood warning methods: how to evaluate them? An application in the French Southern Alps using the AIGA warning method and different rainfall input data.

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Because it is not possible to monitor every little river tributary, flash floods occur most often on small ungauged catchments. In this case, the development and the evaluation of a flood alert system are a real challenging issue, since no data is by definition available to validate results at the scale of interest. To try to solve this problem, the use of additional information simply saying “this area were flooded or not” can be of great help. By comparing on a continuous period (and not only for pre-identified events) the alerts emitted by the tested warning procedure and the damages locally reported, it becomes possible to get a more objective picture of the usefulness of the warning method.

The application presented in this communication concerns the evaluation of the AIGA flash flood warning method (Javelle et al, 2010, doi:10.1016/j.jhydrol.2010.03.032) carried out on a 10 000 km² mountainous area located in the South-East of France (region of Nice). Different rainfall input data (interpolated raingauges network and different radar rainfall products) are compared. The evaluation is carried out for the 2008-2010 period, using both gauged hydrological stations (15 stations) and flood damages reports made on ungauged locations by local authorities. The interest and limit of using this last data is discussed. The interest of using X-band radar data in mountainous areas for flood alert is also investigated.

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