



## **Achievements and challenges for flash flood warnings: the French experience with the Vigicrues Flash system and the AIGA method**

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To better anticipate flash floods (FF) events and mitigate their impacts, the French Ministry in charge of Ecology has launched in 2017 a national FF warning system: Vigicrues Flash. This system ingests real-time radar-gauge rainfall products at a 1-km<sup>2</sup> resolution from Météo-France and issues automatic flood warnings based on the AIGA method at small un-gauged catchments (greater than 10-km<sup>2</sup>). AIGA aims to characterize flood hazard at any point along the river network by comparing in real time discharges produced by a simplified distributed rainfall-runoff model (GRD) to reference flood quantiles obtained using the same model and a continuous radar-gauge rainfall re-analysis.

Different research activities are carried out in order to improve the quality and usefulness of the Vigicrues Flash warnings. This presentation focuses on the following challenges:

- How to improve the GRD model, in particular its consistency across temporal and spatial scales?
- How to account for the meteorological and hydrological forecast uncertainties using ensemble prediction and data assimilation techniques?
- How to assess flood exposure in order to produce flood risk warnings based on both flood hazard and flood exposure levels?

Examples from a retrospective run of the warning system over the last 10 years will give an insight about the system performance for the main flash flood events that occurred especially in the Mediterranean region.