



## **Analysis of the 12 September 2015 flash flood in Lodève (France): influence of karsts on flood characteristics**

Pascal Brunet

HSM (Univ. Montpellier, CNRS, IRD), Montpellier, France

On September 12, 2015, an exceptional rainfall hit the Lodève area (South Of France). The 24-hours cumulated rainfalls ranged from 300 to 350 mm in most parts of the Lergue watershed. At the hourly time step, an intense rain cell was observed over a restricted area, where rainfall amounts reached 85mm in 30min, 140mm in 1h and 220mm in 2h. The Lergue River recorded at Lodève its highest discharge since the beginning of the observations, more than 50 years ago. The Lergue watershed is characterized by karstic plateau upstream and by poorly permeable Permian sandstone downstream. Thus, it was possible to compare hydrological responses of both units. This flashflood analysis was based from operating gauging station (in Lodève), a post-flood survey and rainfall data from pluviograph and radar images. The watersheds affected by the rainy area (>250 mm) show very contrasted hydrological response depending on the geological units. Such differences show the ability of karstic watershed to reduce flashflood by lowering and delaying the peak discharge. Finally, these peak flow estimations were compared first to those obtained for other similar events in France, and second to those calculated by regional formulas of extreme discharge prediction or rainfall-runoff model, in order to validate/update such formulas and model.