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# The October 2015 flash - floods in south eastern France: first discharge estimations and comparison with other flash-floods documented in the framework of the Hymex project

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On the 3rd of October 2015, an outstanding hydrometeorological event hit the Mediterranean coast in the Alpes-Maritimes region in south-eastern France. Despite this rainstorm event was very short in time (approximatively 2 hours of intense rainfall), it caused a large rainfall accumulation reaching up to 180 mm. Intense flash floods were observed on all rivers of the affected area, including mostly small watersheds of less than 60 $km^2$. They caused 21 fatalities and particularly high damages because of the density of urban areas located in the downstream coastal part of the affected area. The towns of Mandelieu, Cannes, and Antibes were particularly affected. On several watersheds, the reported floods seem be the largest observed from human memory, and may therefore become reference events for flood risk prevention.

A post event survey was organised in the framework of the Hymex project in order to document the characteristics of the floods which occurred in a large majority on ungauged rivers, and also destroyed some of the existing stream gauges. A total of 36 peak discharge values were estimated, enabling a detailed description of observed hydrological reactions. This dataset confirms the very large peak discharge values, which remain however significantly below the magnitude of other recent floods observed in other regions of France, and below the existing envelope curves. It may also be observed that the magnitude of this new event is relatively close to what was observed in june 2010 in the nearby Var region. These two events, both being among the largest observed locally from human memory, suggest that the position of the envelope curve should be lower in this eastern part of the French Mediterranean coast, if compared to the Cevennes region which fixes up to now the position of the envelope curve for the whole French territory.

A rainfall-runoff analysis of this flood is now in progress to confirm that the runoff rates are not particularly high if compared to what is generally observed in natural watersheds. This should confirm that these floods are in a large extent "natural" floods which affected particularly exposed and densely populated areas located in the downstream part of the watersheds, even if local surface runoff has also probably contributed to the damages observed in these dense urban areas.

The proposed communication will include the presentation of the characteristics and consequences of the flood event, the peak discharges dataset obtained from a post-event survey, the results of the rainfall-runoff analysis, and the comparison of this event with existing envelope curves and other recent flood events observed in France, illustrating the regional contrasts which appear based on these datasets.