THE USE OF CITIZEN INFORMATION IN POST-EVENT ANALYSIS OF FLASH FLOODS IN CATALONIA

M. Llasat-Botija, M. Cortès, M.C. Llasat

GAMA, Dept. of Applied Physics, University of Barcelona, Spain, (mllasat@am.ub.es)

On 25th of September 1962 the most catastrophic flash flood in the history of Spain occurred in Catalonia. Due to the economic development of the textile industry in the region, exposure and vulnerability were very high. 815 people died in less than three hours as a consequence of the flash floods of the tributaries of the Besós and Llobregat Rivers, near Barcelona. The financial losses were estimated to be about €375 million (adjusted at 2000) and a lot of people losses their houses and jobs. On these years, there was no early warning available. In 1962, the weather forecast was based only on the synoptic maps developed by the German Weather Service. There was no Meteosat satellite in operation and only a few weather radars were available in Europe at that time. The tools were much more limited. Civil Protection did not exist and there were very few or inexistent prevention measures. Although some hydraulic prevention measures were applied after the event, there was not post-event analysis, and the only information available in those days was the news published in the press (i.e. 184 news in La Vanguardia). Fifty years afterwards, on 2012, thanks to a campaign developed to awake the historic memory of the event, hundreds of pictures and numerous testimonies were collected and published in different books and journals promoted by local or regional associations. This “post-event” information recovered 50 years afterwards has allowed reanalyzing the event.

A similar meteorological event was produced during the early hours of 10 June 2000, giving place to over €65 million on damages and five fatalities. The worst affected zones were the medium and low reaches of the Llobregat catchment and many of the coastal watercourses (Francés, 2000). In contrast with the 1962 event, the early warning system (supported by models, satellite observations and the first radar in Catalonia), and the INUNCAT Plan (Civil Protection Plan for floods; DGPC, 2012) avoided more damages. In this case, 59 news were published by La Vanguardia, and the post-event analysis was mainly carried out going to the affected places to see the damages, as well as scientific studies (this event was analysed in the framework of HYDROPTIMET, SPHERE, RINAMED and AMPHORE international projects). As in Spain there is not any tradition on post-event surveys to the population, all these analyses were focused on the meteorological and hydrological modeling.

Over the years there has been an increase in the events information, both in media and in Internet as well as social networks. Citizen has become from being passive consumers of the information to be active agents. An example is the snowfall event of 8th March 2010, which affected 67% of Catalonia territory, including Barcelona city, and caused more than €90 million in damages. In La Vanguardia 194 news related to the episode were published during the month of March. The contents in Internet increased exponentially, with more than 130 groups on Facebook or 750 videos on YouTube, for example. That is why it is called as The Snowfall 2.0. Since then and with the expansion of social networks and mobile phones, the potential role of the citizens has increased exponentially. A recent catastrophic flash flood event took place in 12-14 October 2016 that especially affected the Maresme county, a very populated coastal region. During the episode was recorded a total amount of 256,6 mm, a similar quantity that those recorded on the 1962 and 2000 events. A fatality was produced when crossing by car a stream, in spite of the prohibition made by the police. In this case stands out the large amount of information published in social networks with information and images in real time. As instance the FLOODUP platform collected more than 60 pictures.

50 years ago, was challenging and slow to obtain information about events, but nowadays it is almost in real time. This contribution discusses the role of citizen information in the post-event analysis and the improvement of population sensitization in front of flood risk through the return on experience. This work has been developed in the framework of the Spanish project HOPE (CGL2014-52571-R).