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Social impact analysis of two heavy rain events in Catalonia: 14th and 15th July 2001 and 3rd April 2002

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Requests received in Meteorological Services arising out of the damage caused by weather events can be used as a proxy indicator of their impact on society. This contribution aims to continue the work started by the Social Impact Research Group of MEDEX project, which suggested some criteria about how to analyse these requests, and followed into the Working Group on Social Impact of HYMEX. A cumulative index (CI) was built for heavy rain events considering the following factors: maximum precipitation in 24 h, population affected by rainfall exceeding 60 mm, length of the event and coincidence with a strong wind event. The events with a higher number of requests should have a greater CI. However, some of the events couldn't be explained only by those factors, as the number of requests was lower than expected considering their high CI, or on the contrary, the number of requests received was high compared to their low CI.

These incongruities suggest that some other factors have to be taken into account. To identify them, two of the events are analysed here in detail: 14th and 15th of July 2001, when the maximum precipitation in Catalonia was 98 mm, and the Servei Meteorològic de Catalunya received 129 requests, and 3rd of April 2002, when a maximum precipitation of 151.8 mm was recorded, but only 44 requests were received. For this purpose, a count of requests by municipality is carried out to obtain more detailed information. Therefore, this data is combined with population, precipitation intensity and total precipitation cartographies. One of the first results shows that in areas densely populated, the threshold used to define a heavy rain event has to be modified, mainly in cases of high intensity precipitation. This study could be a first approach to detect areas exposed to a higher impact.