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Contribution of a systematic and long-term observation method to improve the understanding of flood impacts

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Floods are the natural hazard that generates the most damage in the world, but many aspects of how this damage occurs are still poorly understood. Indeed, the impacts of floods can concern all types of stakes (dwellings, economic or agricultural activities, public infrastructures, networks, etc.), whether they are directly impacted by the flood or indirectly by the propagation of disturbances through society, or even in a temporal delay compared to the original event. Moreover, these impacts may differ according to the nature of the flood (e.g. overflow, runoff, salt water flooding). Finally, the impacts are the result of complex biophysical processes but also of protection, repair and adaptation actions implemented by affected people.

Our objective is to highlight the diversity of flood impacts, including the issue of their persistence. To this end, we propose an original method that combines post-flood observation surveys with long-term monitoring of individuals exposed to floods. This methodology is implemented in the framework of the system of observations of the impacts of floods (so-ii, <http://so-ii.org>) in the Greater Montpellier area coordinated by our team. For the quantitative surveys, based on our past observation and modelling experiences, we have developed questionnaires that aim to collect the impacts of flooding, following an event, in an exhaustive and cumulative manner.

These questionnaires were applied following a flood event that occurred on September 20th 2020 in the north of Montpellier. For long-term monitoring, we set up networks of impact observers (inhabitants and farmers for the moment), with whom we agreed to work over the long term (about fifteen years).

With these groups, we have defined an observation protocol, combining individual interviews to better specify each person's situation (e.g. individual vulnerability, characteristics of buildings) with participatory workshops to discuss the results, orient future work, and pool each person's experiences. In this paper we present the intermediate results of this ongoing research. We also discuss the relevance and limitations of such an approach to improve the understanding and assessment of flood damage.