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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Dynamic maps of people exposure to floods based on mobile phone data" *by* Matteo Balistrocchi et al.

Martina Monego

martina.monego@distrettoalpiorientali.it

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The article presents an interesting approach to overcoming a traditional flood risk framework that does not consider dynamic flood exposure maps, depending on the dynamics of urban life. The methodology presented allows to consider the spatial-temporal distribution of human activities that exposes people to different types of flood hazards, generating different responses to a flood disaster. This can lead to an effective emergency plan, flexible in accordance with exposure that varies spatially and temporally (during the day and throughout the year, as highlighted by the article's results), which can better manage the few available resources (e.g. a conscious use of rescue teams, targeted evacuation plans, etc). The use of mobile phone data allows to overcome the limitations deriving from the exposure estimates based simply

on night time population density or official statistical inventories data, widely used as a measure of exposure to flood hazards in much research, and could have a potential in helping governments and flood risk management authorities in assessing risk, issuing warnings, and planning emergency responses to urban natural disasters. However, if the methodology proposed correctly identifies human positions and people exposure, it does not take into account human disaster response behavior (during floods daily activities can drastically change). Some modeling techniques, including agent-based models (ABMs), have been recently introduced to the ïňĄeld of flood risk assessment to simulate the dynamic distribution of the population during ïňĆooding, while still introducing inevitable simplifications of the human behavior patterns and disaster responses. For an integrated flood risk management in the future, it will be increasingly essential to consider the feedback between floods and people in a dynamic way and I suggest to give a comment on this issue. A minor comment: at lines 285-289 and 297-299 there are little mistakes.

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