Natural Hazards and Earth System Sciences Discussions

Nat. Hazards Earth Syst. Sci. Discuss., author comment AC4
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Reply on RC2

Rubén Giménez-García et al.

Author comment on "Chronicle of a forecast flood: exposure and vulnerability on the southeast coast of Spain" by Rubén Giménez-García et al., Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2021-134-AC4, 2021

Dear colleague Dominik Paprotny:

as indicated by my colleague Ramón García Marín, co-author of this work:

I reply to your comments briefly.

- EFFECTIVELY, IT IS A LIMITED CASE STUDY, BUT WITH GREAT REPERCUSSION THROUGHOUT SPAIN. THESE TWO MUNICIPALITIES, TOGETHER WITH ORIHUELA (A MUNICIPALITY IN THE NEIGHBORING PROVINCE OF ALICANTE) ARE EXPERIENCING FLOODS EVERY TIME HEAVY RAINS APPEAR, ALTHOUGH THESE RAINS ARE NOT EXCEPTIONAL.

HERE YOU HAVE A VIDEO OF THE FLOODS:

https://www.heraldo.es/multimedia/videos/nacional/los-alcazares-sufre-unas-inundaciones-peores-aun-que-las-de-2016/

SOME PRESS NEWS IN NATIONAL NEWSPAPERS:

https://www.eldiario.es/ballenablanca/crisis_climatica/inundaciones-gota-fria-medio-ambiente-agua-los-alcazares-murcia-cambio-climatico_1_1129921.html

https://www.elconfidencial.com/espana/2020-01-26/los-alcazares-pueblo-murciano-inundaciones-lluvia_2426712/

https://www.20minutos.es/noticia/4075991/0/dana-murcia-alcazares-inundaciones-calles-anegadas-desalojos/

AND GOVERNMENT AID FOR THE MUNICIPALITIES AFFECTED BY THE LATEST FLOODS:

https://www.chsegura.es/va/confederacion/prensa-publicaciones-y-difusion/noticias/El-Consejo-de-Ministros-aprueba-subvenciones-para-los-municipios-del-Mar-Menor/

https://www.abc.es/sociedad/abci-gobierno-impulsara-ayudas-para-evitar-inundaciones-municipios-cuenca-vertiente-mar-menor-202008260051_noticia.html

- There is no connection between the building exposure analysis and the historical facts discussed above. THANK YOU FOR THIS SUGGESTION. WE WILL INTRODUCE THIS IMPROVEMENT IN THE PAPER.

Can it be quantitatively demonstrated that losses in 2016 and 2019 increase with new construction? YES, THIS COULD BE DEMONSTRATED.

Or what past events led to restricting construction in flooded areas? THIS IS THE PROBLEM, THERE HAVE BEEN NO RESTRICTIONS FOR THE IMPLEMENTATION OF NEW BUILDINGS.

Are any of the flood hazard maps an approximation of past events? THAT MAPPING COULD BE DONE.

How relevant are exposure changes in relation to climate change? THIS IS A COMPLEX ISSUE, BUT WITHOUT DOUBT THE INCREASE IN THE EXPOSURE FACTOR HAS BEEN ACCELERATED IN RELATION TO POSSIBLE CHANGES IN THE CLIMATE SYSTEM.

- The study only analyses buildings and their area, without giving any consideration or providing the reader an idea as to the function of those, population living in them, their economic value or amount of economic activity taking place there, who built them or how flood management in the area works. Whenever such aspects are mentioned, there are taken from literature. THESE ASPECTS COULD BE DEVELOPED IN THE PAPER WITHOUT PROBLEM, BUT IT IS NOT THE FUNDAMENTAL ISSUE WE WANT TO DEMONSTRATE. IF ALL THESE ASPECTS ARE DEVELOPED THE PAPER WOULD BE TOO EXTENSIVE!

Consequently, the whole conclusion section has no relation to the paper. Just one most striking example: "The study carried out reveals how, in order to cover the growing residential needs of the tourist boom in coastal areas, San Javier is disproportionately increasing its real estate portfolio, spreading urban development over areas at obvious risk of flooding, which increases exposure and vulnerability of the infrastructure and population." But the study doesn't make any analysis of vulnerability (only exposure), doesn't mention infrastructure or population, doesn't show that residential or tourism-related building are the ones more frequently built on floodplains, and also suggests that the municipality owns and has built all buildings, thus showing no lessons were learnt from past floods. Similarly, the title or abstract has little connection with the actual contents of the paper.

THE MUNICIPALITIES OF SAN JAVIER AND LOS ALCAZARES ARE TWO LOCALITIES THAT HAVE BASED THEIR ECONOMY ON THE CONSTRUCTION OF TOURIST RESIDENCES. THE EXPOSURE FACTOR INCREASES CONSEQUENTLY. AND THE INCREASE OF THE EXPOSURE FACTOR IS DETERMINED BY THE VULNERABILITY OF THE SOCIETY OR INVOLVED ACTORS: LOCAL AND REGIONAL GOVERNMENT, WHICH SHOULD LIMIT BUILDING IN DANGER AREAS. ALSO, VULNERABILITY IS DETERMINED BY RESIDENTS WHO PURCHASE HOUSING IN FLOOD AREAS BECAUSE THEY DO NOT HAVE AN EDUCATION OR AWARENESS OF THE DANGER. EXPOSURE AND VULNERABILITY ARE TWO INTIMELY RELATED CONCEPTS. VULNERABILITY IS A COMPLEX CONCEPT AND VARIED IN ASPECTS THAT COMPOSE IT. IN THIS SENSE, WE COULD IMPROVE THE TEXT AND OFFER THE READER THE TIMELY EXPLANATIONS THAT YOU REFLECT IN YOUR COMMENTS.

WE BELIEVE THAT THE CONNECTION BETWEEN TITLE, SUMMARY AND CONTENT IS TIMELY. WHAT WE PROPOSE IN THIS PAPER IS TO CHECK THAT THE INCREASE IN THE EXPOSURE FACTOR IN DANGER AREAS WILL LEAD TO A CATASTROPHE. AND THIS INCREASE IN THE EXPOSURE FACTOR IS DETERMINED BY THE LACK OF AN EFFECTIVE TERRITORIAL MANAGEMENT, THE LAST ONE DERIVED BY A VULNERABILITY ASSOCIATED

WITH THE LACK OF REGULATIONS AND LEGISLATION AND BY A LIMITED EDUCATION IN RELATION TO NATURAL HAZARDS. IT IS TRUE THAT WE COULD IMPROVE THE TEXT TO FACILITATE THE UNDERSTANDING OF THESE IDEAS. WE BELIEVE THIS PAPER IS OF INTEREST TO THE JOURNAL, ESPECIALLY AFTER THE FLOODS OCCURRED IN GERMANY, AND THAT IN A SOME WAY THE SPEECH IS SIMILAR TO THE ONE WE PROPOSED.

- The study doesn't mention at all any studies on the impact on growing exposure, many of which were carried out from local to global scales. Therefore, it is not possible to say if the area studied is in any way related to trends in exposure-adjusted flood losses in Spain or Europe. Below I list some literature that I suggested checking for context.

WE THANK THE REFEREE FOR THE BIBLIOGRAPHICAL CONTRIBUTIONS, WHICH WE WILL WITHOUT DOUBT READ CAREFULLY AND INCLUDE IN THIS PAPER.

- There is very little description of the data (including their quality), which is largely caused by the fact that the study is, in essence, a simple intersection of two datasets provided by government agencies.

WE CAN IMPROVE THE DESCRIPTION OF THE DATA. BUT WE ADVANCE THAT THE DATA IS OF THE HIGHEST QUALITY, THE BEST THAT WE CAN FIND TO PERFORM THIS ANALYSIS.

FINALLY, WE WANT TO ADD THAT ACCORDING TO THE SUGGESTIONS MADE, THIS PAPER CAN BE SUBSTANTIALLY IMPROVED, AND IT COULD BE PUBLISHED IN THIS PRESTIGIOUS JOURNAL. PLEASE, WE ASK THAT YOU CONSIDER TO OFFER THE OPPORTUNITY TO IMPROVE AND FOLLOW THE REVIEW AND PUBLICATION PROCESS IN NATURAL HAZARDS AND EARTH SYSTEM SCIENCES.

THANK YOU!

Rubén Giménez García