

## ***Interactive comment on “Tsunami risk perception in Southern Italy: first evidence from a sample survey” by Andrea Cerase et al.***

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Anonymous Referee #2 Received and published: 24 May 2019

- Anonymous Referee 2 This paper is relevant and addresses an area where there is a gap of knowledge, in the Mediterranean and other places in the world, especially where tsunamis are infrequent, but could also be of high impact. I feel this paper provides the state of awareness of tsunamis in the region under consideration that would be helpful for implementing disaster risk reduction strategies.

The questions used in the survey should be included as a supplement.

- Authors response We agree and will provide both the Italian and English versions of the questionnaire as a supplement to the paper

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- Anonymous Referee 2 The section on Research Hypothesis with the two Research Hypothesis needs to be rewritten and stated more clearly.

- Authors response We will rewrite hypothesis 1 and 2. We better focused RH1. We accept referee's suggestion about RH2 to better focus the way tsunami risk is perceived in the different coastal areas, also considering the influence of the social demographic variables.

Authors' proposed changes (with line numbers) [Lines 227-231] RH1: Does people's perception in Italy about tsunamis rely upon media representations of catastrophic events such as those occurred in Sumatra and Japan? RH 2: Are there differences in risk perception related to different coastal areas and/or hazard level?

- Anonymous Referee 2 There is a reference to Mitigation measures, but the paper does not address the state of mitigation (preparedness) efforts in the region.

- Authors response We hold that at present the efforts to improve awareness and preparedness in the region are ongoing, but they are neither sufficient nor satisfactory, despite National Civil Protection organized a number of campaigns and drills. From a legal and institutional perspective, the Italian tsunami early warning system was formally established only in 2017, and although it is almost fully operating in tsunami assessment and spreading early warning messages, a comprehensive risk communication strategy has not been implemented yet within the Italian civil protection system down to the local (municipality) level and to people (last mile issue is critical for most Tsunami Early Warning Systems [TEWS], especially the youngest ones). Sample survey was initially designed to provide INGV and Civil Protection with scientific evidence to better address a sound risk communication strategy. We will provide a general description of the activity named “Io Non Rischio” (I do not take risks) coordinated by Italian Civil Protection. If necessary we may provide a brief general description of such a campaign, also providing a link to the related website.

- Anonymous Referee 2 In the interpretation of the findings, there is no reference to

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preparedness and education outreach activities that have been carried out and may lead to a different risk perception, in addition to the presence of the volcanoes.

- Authors response Research provides evidence of the minimal impact of institutional and scientific sources on people understanding of tsunamis, since previous outreach initiatives revealed to be neither numerous nor effective. Unfortunately, the number of interviewees who recalled the campaigns is too low to draw any significant statistical inference (N= 34/1021, i.e., about 3,3% of the sample). Moreover, "Io non Rischio" is a campaign conducted at municipality level and we have not enough answers to draw any conclusion at this level.

- Anonymous Referee 2 Need to fix numbering of the Figures and verify reference to them in the text.

- Authors response We agree and will fix the problem.

- Anonymous Referee 2 The map of with distribution of interviewees, needs to have clearly labeled the places referred to in the text. It would also be helpful to see on this or another map, areas that have been the source of have been impacted by previous events and are referred to in the text.

- Authors response We agree and will fix the problem.

- Anonymous Referee 2 I was very confused by what was lumped together under "other broadcast media" in figure 2 and Table 3 (which the first column is not added up correctly) - it does not match the narrative. Did the question on INTERNET, also include Social Media specifically?

- Authors response The notion of "other broadcast media" has been introduced to explain the consequences of different combinations of sources on risk awareness as these have been actually used by interviewees. The ways different sources are arranged into individuals' information gathering strategies provide different information with respect to the analysis of penetration rate for any single source. We will improve

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the definition of any single combination of sources. As far as it emerged from the background research carried out prior the survey, the number and the quality of available sources on tsunami risk on Italian coastlines were found to be unsatisfactory. A clear-cut distinction between different sources within the internet appears to be difficult, since same contents are frequently disseminated through different platforms, such as blogs, web sites, social media, etc. Furthermore, the percentages for the whole category "Internet" were lower than one would have expected, thus making difficult to provide robust evidence from a more detailed categorization, in which any category is doomed to result in a smaller number of cases for each item (see the motivation about the campaigns). We will therefore aggregate residual categories (less than 4%) and will also provide a clearer description of the categories as of both the most relevant results and implications for risk communication strategies.

- Anonymous Referee 2 For many Internet (web site) is very different from social media. I am surprised to not see a Social Media category.

- Authors response Same as above: the whole number of cases is not sufficient to make further distinctions.

- Anonymous Referee 2 In 5.2 and Figure 3 it is not clear to me the interpretation of neutral? In the text it says for this category respondent "had no idea about its probability", is this really the case, it seems to be that the intermediate between Quite Likely and Unlikely would be "likely" or does neutral mean "I dont know".

This is important because it affects the conclusion with regards to the state of perception.

- Authors response The suggestion about using "neither likely nor unlikely" rather than "neutral" is right. We will change it in the figure. With regard to the difference between "Quite Likely" and "Unlikely" it refers to Renzis Likert scales theory and applications, and it is to be considered as a generally accepted standard in social research (see Likert, 1974. A method of constructing an attitude scale. in *Scaling: A sourcebook for*

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behavioral scientists, 233-243.)

- Anonymous Referee 2 The Conclusion section needs to be rewritten and be more substantial with a focus on the findings from the survey. The authors go off on tangents, that are not related or a product of the surveys.

- Authors response We have modified the Conclusions eliminating some paragraphs, as suggested. We also added a final paragraph with some ideas for future research (see below).

Authors' proposed changes (with line numbers) [506—] This research is the first of this kind conducted in Italy. Its findings appear to be promising. Future analyses on this data set will probably allow us to better identify the main factors affecting tsunami risk perception in Italy, as well as to better understand the differences between different coastal areas. Future steps of this research include the extension to other contiguous coastal regions (namely, Basilicata, Molise, Sicily) which are most exposed to tsunami hazard, together with Calabria and Apulia.

- Anonymous Referee 2 One of the areas for further development would seem to be to integrate the perception of the tourists, which account for a greater number than residents.

- Authors response We fully agree on the need of specific research on this particular subject. Nevertheless, random sampling strategies are practically unfeasible with tourists. We also recognize the need and the opportunity to carry out a specific study to be administered with other techniques (e.g. focus group / random interviews).

- Anonymous Referee 2 It refers to focus groups as non standard, it was my impression (I am not a social scientist) that these were valid. Many of the social science studies our agency supports use focus groups. What is meant by "collection of biographies".

- Authors response We accept the solicitation: in Italian social science field the notion of standard / non standard methods and techniques refers to the difference between

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statistical intensive techniques and interpretive / qualitative methods and it has been first introduced by the Italian methodologist Alberto Marradi, who was also recalled in some papers published by NHESS. We will better explain this distinction, holding that although focus groups are widely accepted, they actually do not provide statistical evidence.

- Anonymous Referee 2 The English language is not of good quality in many sections, especially the Abstract.

- Authors response We will hire a professional proof-reader to check the paper before submission.

Please also note the supplement to this comment:

<https://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2019-97/nhess-2019-97-AC2-supplement.pdf>

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2019-97>, 2019.

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