

Interactive comment on “Communication strategies to address geo-hydrological risks: the POLARIS web initiative in Italy” by P. Salvati et al.

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The paper is well written and very understandable. It presents an interesting tool (POLARIS) to inform the mass media and citizens on landslides and floods. For this reason, this paper is appropriate for the journal NHESS. Explanation of the website information architecture is well done. The analysis that is done and the results are interesting and show the interest of this study. Figures are of good quality and well explained. For me, this paper is a first analysis of POLARIS site.

We thank the reviewer for this comment.

We logically expect a second paper which will give more results, for example with concrete feedback about the influence of this type of site on the resilience society during a hazard event.

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We accepted this interesting and challenging suggestion for the future of Polaris. After two years from the first analysis of the risk perception of geo-hydrological risk by the Italian population carried out in 2012 and 2013, we are testing once again the risk perception through an on line survey (<https://goo.gl/6cetpm>) addressed at the schools (students, administrative and technical staff, teachers, parents, etc.) in the Umbria region in Italy. This will help to assess the possible change in the public perception concerning geo-hydrological risk. We plan to publish the results in a new paper.

Thus, in this paper it would have been well to develop a little more discussion and what is planned to do next.

Suggestion accepted, we integrated the manuscript with a new chapter where some discussion are reported and where we added our plans for the future. The text reads (lines 374-381): "For this purpose, we are going to evolve the Blog section of Polaris which is the most relevant for stimulating public participation at any moment. In particular, we plan to integrate other relevant social media, such as Instagram and Pinterest, stimulating the sharing of images and videos and the associated tags and comments. For encourage more resilient behaviours during the occurrences of hazardous events, we would stimulate the usage of video through the YouTube and Vimeo channels that we can comment for feedback and/or advices. Finally, we are going to create new synergies with the "I do not risk" campaign and website of the Italian Department of Civil Protection, which will increase traffic, information exchange and, as such, strengthen the risk perception by the Italian population". Moreover, it lacks a discussion on comparison with what is done and achieved in other countries.

We accepted the suggestion. We integrated the manuscript adding a new chapter titled "2. Background in risk communication and perception", where we also reported briefly what was done in other countries concerning communication of natural hazards. The text reads (lines 89-134): "Extensive discussions have been occurred in the past about the most appropriate ways to manage the potential consequences of natural hazards (Scolobig et al. 2015), and governments began to institutionalize disaster risk

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management processes and practices (McEntire, 2006). More recently, an integrated approach to risk management processes is emerging, encompassing in a coordinated way activities needed to preserve a level of safety with regard the risk posed by natural hazards (<http://www.climchapl.org/>). Initially associated with environmental management, public health, and emergency management matter, risk communication aims at informing people about a potential hazard and the associated harms (Steelman and McCaffrey, 2012). In the last decade, the relevance of communication is increasing in response to the changes affecting risk governance (Höppner et al., 2010). Accordingly, communication must serve multiple purposes spanning all phases of risk management (Renn 2005) enabling more effective decisions, knowledge-based actions (Höppner et al., 2010), and addressing the exchange of knowledge and attitudes between all the involved actors (i.e., public bodies, private sectors, third sector, citizens). In this context, public participation is crucial, and defined as the co-decision in planning processes designed by others, where the central elements of the participation concept are influence, interaction, and information exchange (Bostenaru, 2004). Starting in the 1990s, extensive public consultation and participation in risk management have focused on re-establishing public trust (Rowe et al., 2004). The appropriate transfer of knowledge between experts and the broader public can be facilitated by effective communication strategies and programs, at national or local level, to align the views of the public with those of the experts (Frewer, 2004). More recently, the increased attention of public institutions to stimulate the participation of citizens in the definition and delivery of public services is leading to the adoption of a citizen-centred risk management approach which takes into account social concerns and the citizens' perception about risks. Risk perception is also important to determine the attitude towards risks and, when information campaigns and risk communication strategies are designed, the public perception should be known (Plapp & Werner, 2006). Risk perception is a subjective assessment of the hazard occurrence's probability and people's feelings of the consequences (Posner & Armas 2014). A gap between the public's perception of their own responsibility, and that of authorities in terms of risk reduction was found by

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Fernández-Bilbao and Twigger-Ross (2009) who, working in England and Germany, found that the public did not perceive that reducing flood risk was their responsibility. Plattner et al. (2006) highlighted a systematic discrepancy between the individual subjective risk evaluation (perceived), and formal risk evaluation procedures. Similarly, in Italy two national surveys conducted to measure the public perception of landslide and flood risk confirmed that in most of the Italian regions the observed perception of the threat did not match the long-term risk posed by landslides and floods to the population (Salvati et al., 2014). If it is globally accepted that risk perception has strong implication for the success of risk communication. It is also expected that effective risk communication shapes risk perception (Höppner et al., 2010). There are many studies trying to establish which formats of communication may be most effective (e.g., Faulkner and Ball 2007; Fernandez- Bilbao and Twigger-Ross 2009; Kashefi and Walker 2009; Bier 2001). Three phases of risk communication were identified by Leiss (1996) in the USA, including one-way communication, persuasive communication, and two-way communication. As Höppner et al. (2010) reported, the first is primarily used to convey probabilistic information, educate the public at risk, and to gain consent over risk management practices, whereas the second is thought to change people's risk related behaviours. In the latter phase, all actors should engage with, and learn from each other (Renn, 2005). Risk communication is a complex activity moving from the one-way distribution of information towards a two-way exchange of knowledge and more participatory approach (Höppner et al., 2010). Despite this latter communication approach seems to be more effective, in the review work conducted by Höppner et al. (2010) between all the communication practices posed by governmental authorities, national and local agencies, the majority resulted one-way efforts, focused solely on improving hazard knowledge or raising risk awareness, mostly regarding flood hazard".

Finally, it is important to give the prospects of this study: a Computer-Assisted Telephone Interviews was conducted in 2012 and 2013, is that an investigation is planned? POLARIS website, has been helpful? It would be nice to do this analysis at least in areas where has increased site traffic. This would verify the effectiveness of the site

for information to the public

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POLARIS website was published in 2014, after the surveys that we conducted in 2012 and 2013 using a Computer-Assisted Telephone Interviews. The two surveys were executed in collaboration with DOXA, a leading Italian company operating in the field of statistical research and opinion polls. The survey results were published in a paper (Salvati et al, 2014 Perception of Flood and Landslide Risk in Italy: a Preliminary Analysis. *Nat. Hazards Earth Syst. Sci.*, 14, 2589-2603,) and in a dedicated focus on Polaris (<http://polaris.irpi.cnr.it/la-percezione-del-rischio-da-frana-e-inondazione-in-italia/>). Findings from the analysis of the perception of the Italian population motivated our purpose to increase the awareness of the Italian population and influenced the structure of the content of Polaris. We are now testing once again the risk perception through an on line survey (<https://goo.gl/6cetpm>) addressed at the schools (students, administrative and technical staff, teachers, parents, etc.) in the Umbria region in Italy. Our idea is to propose the same survey to other Italian regions. This will help to assess the possible change in the public perception concerning geo-hydrological risk.

Please also note the supplement to this comment:

<http://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2015-354/nhess-2015-354-AC2-supplement.pdf>

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