Nat. Hazards Earth Syst. Sci. Discuss.,
https://doi.org/10.5194/nhess-2017-411-RC2, 2018

Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Regional landslide forecasting in Piemonte (Italy) and in Norway: experiences from 2013 late spring" *by* Davide Tiranti et al.

Anonymous Referee #2

Received and published: 2 January 2018

I have read and carefully evaluated the manuscript "Regional landslide forecasting in Piemonte (Italy) and in Norway: experiences from 2013 late spring", submitted to NHESS by Tiranti et al.

The manuscript describes a large cyclone system that struck two very different and distant test sites (Norway and northern Italy). Plenty of details are provided about the event, the related hazard and how it was managed in the two sites.

The topic is very interesting and completely centered on the scopes of the journal and of the special issue.

However, what we have here is more a couple of (interesting) event reports than a

"real" research paper. Since NHESS does not consider manuscript types such as reports, technical notes, event descriptions and so on, my recommendation is to perform "MAJOR REVISIONS" in order to better highlight and discuss the interesting scientific and research outcomes that I saw in the manuscript. I want to stress that I consider this manuscript a very interesting contribution and that it has a very good potential. It just needs to be put in the right perspective (research-oriented paper instead than an event report). My subsequent comments are aimed to this change of perspective. I encourage the authors to carry on and adjust the manuscript to make it become a high-quality research article.

GENERAL COMMENTS

1 The English is fully understandable and good (although I identified some minor errors). I am not a native speaker, however I suggest to check the text again and especially to split long sentences. They may be hard to follow.

2 The manuscript is very rich of details. At the beginning I was positively impressed, but after several pages it got quite boring: the description of the event and of the EWS infrastructures are very good but sometimes the scientific content and the research aspect were missing. And I think those are the main things that NHESS readers are expecting form a research paper. I suggest reducing the description (maybe using a few tables?) and to let research topics stand out from the text (see e.g. my following comments).

3 Another issue is that the two cases of study stay always kept separated. There must be a point in the manuscript when things are put together and a synthesis is made to highlight new findings of scientific interest. Maybe a discussion section? Or maybe the tables I suggested at the previous comment could be a synoptic table where differences and similarities from the two sites are highlighted (maybe also replacing long descriptions from the text)?

4a The idea of comparing the effects of the same perturbation system in two very

different places, very distant each other, is fascinating. This should be better stressed and discussed in the manuscript: if the authors go beyond a simple description, this topic has a good research potential.

4b Moreover, the analytic comparison of different EWS is a very interesting and quite unexplored topic in the international literature. To my knowledge, only a few works have been published on this topic (e.g. Baum and Godt, 2010; Lagomarsino et al., 2015; Zezere et al., 2015). This is something that should be stressed by the authors to increase the appeal of their work and to correctly place it in an existing reserach direction that certainly needs to be further expanded. Baum RL, Godt JW (2010) Early warning of rainfall-induced shallow landslides and debris flows in the USA. Landslides 7(3):259–272. doi:10.1007/s10346-009-0177-0 Lagomarsino D, Segoni S, Rosi A, Rossi G, Battistini A, Catani F, Casagli N (2015) Quantitative comparison between two different methodologies to define rainfall thresholds for landslide forecasting. Nat Hazards Earth Syst Sci 15:2413–2423. doi:10.5194/nhess-15-2413-2015 Zêzere JL, Vaz T, Pereira S, Oliveira SC, Marques R, Garcia RAC (2015) Rainfall thresholds for landslide activity in Portugal: a state of the art. Environ Earth Sci, 73(6):2917-2936. doi:10.1007/s12665-014-3672-0

5 A very interesting outcome I saw in your work is that many local or territorial EWS can be integrated in a network, thus providing some sort of a continental or global EWS. Hypothetically, if EWS1 issues an alarm, it could serve as a pre-alarm for EWS2 ... and so on. Your case of study seems to meet this hypothesis. Fom my point of view, this could be a relevant part of the work. Expecially if you connect it with the topicof the lead time (see specific comment.

6 Following my previous comment and comment #3, you could add a figure showing the timeline of the cyclone. That is, a horizontal line representing time, and bars and signs of different colors showing the temporal evolution of: 1- the rainfall event; 2- the effects to the ground in terms of hazard (floods and, above all, landslides); 3- the alarms issued in the two cases of study. Something like that would strengthen the idea

that the two cases of study are deeply linked and an integrated hazard management is desirable.

SPECIFIC COMMENTS

ABSTRACT

The abstract should be revised. Usually abstracts are used to summarize what the article is about. Form this abstract it clearly stands out that this article is about describing an event, not about presenting a relevant research outcome. I suggest to perform all due modifications to the text and then to change the abstract reducing the description of the event and to better stress the research outcomes of the manuscript.

Line 14-15. I think that in Italy every region has a “body” in charge for the hazard assessments. In some regions it is ARPA, in other it may be another institution. Please also note that this kind of detail is better placed in the test site description or EWS description, not in the Abstract.

INTRODUCTION

In my opinion, the authors should identify a gap in the existing state of the art and declare how this work fills the gap and which contribution is provided. Another approach could be to review the literature, to formulate a hypothesis and to check if it is met in the two cases of study.

Line 21 . . .system is operational since 1994. . .

Line 32 “the same meteorological condition” is not exact in my opinion. How you described later, the meteorological conditions varied from Italy to Norway. Maybe “struck by meteorological events belonging to the same perturbation system”?

SECTION 2

LINE 3: I suggest rephrasing with “In particular, Central Europe. . . are sources of . . .”

SECTION 3

Fig.2. In the caption, use Fig. Instead of Figu. And consider explaining that “TO” stands for “Torino”.

SECTION 4.2

I think there is a little confusion. I understand that this is a complex system but it is not clear how you combine very different inputs (thresholds, meteo observations, susceptibility maps, models and expert knowledge) before arriving to the hazard assessment.

Line 11. How you observe rainfall conditions? Radars like in the previous test site or rain gauges?

Line 13. Which models?

Line 19. Maybe this is the name of the threshold system or the warning system, rather than the name of the threshold?

Line 21. Which threshold? Can you provide a threshold equation like you did in the previous test site?

Line 31. Twice a day

SECTION 5.2.1

Page 16 lines 7-8: please check the sentence.

SECTION 5.3

Line 8: please check the sentence.

DISCUSSION

The paper misses a discussion of scientific aspects. That should be the core of a research paper. In the discussion section all data gathered and showed in the previous sections should be put together to highlight new findings (if any). Which lessons have

been learnt? How the results of this work can be used by the scientific community? Which advances to the state of the art have been achieved?

CONCLUSIONS

Lines 9-11. To be honest, it is not completely clear to me how the Norwegian forecasting service works. Especially in the Norwegian case study, it is not clear which models have been used, how they are integrated together, what is automated and what is left to expert judgement. Of course, references have been provided, but I think it is better to have a few more details to understand the scientific base of the tools operated here.

Page 26, line 2. “susceptible to that”. I suggest rephrasing.

Line 6 “back analysis”. The paper does not present a back analysis (i.e. the modeling of a past event), just a description/report of the event.

Lines 8-9. This is one of the most interesting findings of you work. There is a constant struggle in the scientific community to increase the lead time of forecasting systems. Here you show that you can increase it enormously by putting different forecasting services in a network. You should set the stage properly to this sentence, touching this issue in the abstract, in the introduction and in the discussion. Also lines 22-26 are connected with this point.

REFERENCES

This manuscript has a very large number of references. But I see many references that are not “robust” references e.g. they are written in Italian or Norwegian, they are reports or conference abstracts. I suggest limiting this kind of references to the essential ones and to give priority to peer-reviewed articles written in English and published in international journals.

In addition, consider adding references to papers contained in the same special issue and already published in NHESS or in NHESSD: some of them are very well connected with your case of study or with the topic of your manuscript.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2017-411, 2017.