

Dear Editor Dr. Daniele Giordan and anonymous reviewer

Thank you for your comments, we addressed them in our resubmitted version of this paper. In this document, we put the point-by-point responses to your comments.

With all the best

Dr. Marcelo Somos-Valenzuela

Comments R3: Anonymous

General Comments R3 (GCR3):

GCR3_1:

The paper appears more as a technical paper describing and analyzing a case study than a research paper, and it should be presented as such, starting from the title. A possible suggestion would be for instance: The mudflow disaster at Villa Santa Lucía in Chilean Patagonia: understandings and insights derived from numerical simulation and post event field surveys

Response to GCR3_1:

We take your recommendation and now the title of the paper is “The mudflow disaster at Villa Santa Lucía in Chilean Patagonia: understandings and insights derived from numerical simulation and post event field surveys”

GCR3_2:

The topic and the contents of the paper are certainly of interest for the scientific community and deserve publication, but the paper should be shortened and should focus on its real core. Unfortunately, the paper is also written in an awkward English that does not help its understanding and clean reading. So the text requires substantial revision, possibly by a native speaker. I recommend a major revision, to be carried out also on the basis of the comments below.

Response to GCR3_2:

We appreciate that you considered that this work deserves to be published after the suggested corrections are made. We sent this document for professional English translation and editing. Which you can check in the modified document. We also modified the summary and introduction following your suggestion and Reviewer 1's suggestions. Please see **Response to GCR1_3 and Response to GCR1_4**

Specific comments R3 (SCR3)

SCR3_1: Abstract - I would suggest to shorten the abstract and focus it on the main content of the paper, which is the interpretation of the catastrophic event and its causes based on field survey and numerical simulation. The reader expects to rapidly find in the abstract information regarding the main content of the paper, more than general comments on the treated issues. I have also reported some possible corrections to the English language, which are not intended, however, to be exhaustive because the entire paper requires substantial revision, possibly by a native speaker.

Response to SCR3_1:

Thank you for all the suggestions to the original document, we have included them and also sent the paper for English professional revision. We also shortened the abstract please see **Response to GCR1_3 (response to general comment 3 from reviewer 1)**

SCR3_2: Introduction -The same shortening suggested for the abstract should be done with the introduction, that should expand the focus regarding the interpretation of the mudflow event and its causes through field surveys and simulation. For this purpose I would move lines 94-104 to the beginning of the introduction and then proceed with the other comments, substantially reduced.

Response to SCR3_2:

We added a short paragraph before the suggested place from Reviewer 3. We reduced the introduction from 947 to 345 words. Please see **Response to GCR1_4**.

SCR3_3: Methodology - The chapter should be restructured because it would be much better to have the content of the chapters 4.1 (Geotechnical results) and 4.2 (Soil Classification) presented all together in the chapter 3.1 (Fieldwork and Geotechnical sampling). This for two reasons: 1) the reader may have an idea of all the available geotechnical data collected in the field, finding them in the same place, without having to skip here and there in the paper 2) the reader would expect to find, within a chapter titled “results”, the output of the calculations of the mathematical modelling, not the data deriving from field surveys and tests which concern more data acquisition than results of analysis or calculations.

Response to SCR3_3:

We partially agree with this comments. Chapter 4.1 and 4.2 are part of the results of our work so we think that for that reason they belong to the result section. However, it is true that the paper looked disorganized since it provided bits of the same information in different sections which gets confusing. So we accept the suggestion and moved the sections 4.1 and 4.2 from the results to the methodology limiting the results section to the results from the modeling work

SCR3_4: *The titles of the chapters (or sub-chapters) should be restructured too: there are three chapters titled the same way, that is “numerical modeling”: 3.2 Numerical Modeling 3.2 Numerical Modeling 5.2 Numerical Modeling This is somewhat misleading and does not reflect an describe the real content of each of these sections.*

Response to SCR3_4:

Following the comment above (**SCR3_3**), we reduced the results section and eliminate the section 4.2 Numerical modeling. We also renamed the section 5.2 to “Back-calculation of the mudflow”

SCR3_5: Conclusions. This is the best written part of the entire paper. It is simple, clear, straightforward. It declares what has been done, without any general digression. The entire paper should be restructured to adhere and to reflect what the authors write in their final conclusions, which should appear as the final synthesis of what has been written and developed before.

Response to SCR3_5:

We hope that after the modifications the entire document reads as it does the former conclusion section.

Extra comments:

We also included all the English suggestions from the nhess-2019-419-RC3-supplement into the revised document that is included in a separate file.