

essd-2022-267, by Esposito and Matano
Author Response 2st revision

Point-by-point response to the Reviewer #1

Reviewer comment: The authors have made thorough and useful revisions of their submitted manuscript. Most comments have been addressed properly in the author's reply and revised version of the manuscript. However, a few aspects still require improvement before the manuscript could be accepted for final publication.

Author response: We are grateful to the Reviewer #1 for his/her comments and suggestions which allowed us to improve the first version of the manuscript. Point-by-point responses to all the comments raised after the second-round revision are outlined below.

Reviewer comment: 1. The title says '...historical landslide events...' yet It seems to me that sections 4.1 and 4.3 are the ones that truly reflect the title of the MS. Sadly, the other valuable information that was presented in the earlier sections is not tied into the main logical thread of the MS, nor it is demonstrated how vital those may be to be used with historical landslide events. I mean the title of your article is historical landslides, but only 4.1 and 4.3 in the article really introduce the topic of historical landslides, not ask you to change the title!!

Author response: In the Campi Flegrei area, landslides are predominantly characterized by impulsive kinematic mechanisms and often they are not more recognizable along the slopes after a few years, because of erosion, vegetation recovery, or human interventions. At the same time, conditions that led the affected sites to be unstable remain through time. In the light of this, we remark that secondary information associated to the landslide events, and described in the sections 4.2 and 4.4, are essential to provide a complete knowledge about mass wasting processes in the area, as well as to understand the impact on people and property. From our side, hence, this information is not untied from historical landslides. In addition, in the revised version of the manuscript we have underlined that all the provided data coincide with inputs required by statistically-based landslide susceptibility models, namely “dependent” and “explanatory” variables respectively, clarifying thus their importance. This concept is well known to scientists that exploit landslide geodatabases for implementing numerical models aimed at hazard and susceptibility assessment. Our intention was hence to provide a dataset as much as complete, to be properly and widely used by other scientists.

Reviewer comment: 2. The presentation of the dataset is poor. I am missing at least one table/figure that really gives an overview on the whole dataset that is presented in the MS from the variables side. After all that is in the focus according to the title. The information provided in Sect. 2 is relevant, yet insufficient. The reader must get an overview on the dataset that is presented, before any detail on the measurements is discussed. It still doesn't seem to solve the problem.

Author response: In accordance with the Reviewer's suggestion, at the beginning of the section 3 we have added a new Figure (namely Figure 2) providing an overview of the information associated to each catalogued landslide event, together with a brief description into the text.

Reviewer comment: 3. I'm still confused. Is degree the recommended issue of data quality? How to check?

Author response: It is not clear to which degree the Reviewer is referring to. The data quality issue recommended by ESSD has been addressed into the sections 3.2 and 4.5. Specifically, spatial and temporal

accuracies have been specified for each event, as shown also in Table 1 (see “LOCAT_ACC” and “TEMP_ACC” entries) and extensively explained into the section 3.2. The most important limitations related to data quality are listed into the section 4.5.

Reviewer comment: 4. Can the data be updated?

Author response: The CAFLAG dataset has been already published on the 4TU.ResearchData web repository, and includes data until 2017. This data description paper is therefore aimed at describing such dataset only. However, we believe that updates will be possible in the next years with further research activities.

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Point-by-point response to the Reviewer #2

Reviewer comment: The manuscript has improved since the initial submission. However even after the revisions I have a hard time seeing the dataset is valuable to a broader landslide-geoscience community and thus the dataset/paper falls out of the scope of ESSD of "high-quality data of benefit to Earth system sciences" The dataset may still be of use in a more local application aimed at planning countermeasures for the landslide risk reduction as suggested by the authors but not of general/broader interest.

Author response: We disagree with the statement of the Reviewer #2 "the dataset/paper falls out of the scope of ESSD of high-quality data of benefit to Earth system sciences". In the revised version of the article, we have provided more than one reason explaining how the CAFLAG geodatabase can benefit the Earth system sciences community, in special way researchers working in the field of landslide susceptibility/hazard analyses. We have also provided clear indications about limitations affecting the geodatabase, as commonly reported in this type of papers. We would also to point out that the CAFLAG geodatabase refers to landslides occurred in an active volcanic area. This represents a further key aspect which could benefit also researchers working in multi-hazard domains, or those engaged in assessing the geomorphic evolution of volcanic landscapes.

In addition, we would like to remark that in the scope of ESSD there is no indication about the spatial extension of datasets to be published. This is confirmed by other landslide-related data description papers published on ESSD in the last years, which refer to both local and national scales, such as:

Ardizzone, F., Bucci, F., Cardinali, M., Fiorucci, F., Pisano, L., Santangelo, M., and Zumpano, V.: Geomorphological landslide inventory map of the Daunia Apennines, southern Italy, *Earth Syst. Sci. Data*, 15, 753–767, <https://doi.org/10.5194/essd-15-753-2023>, 2023.

Luetzenburg, G., Svennevig, K., Bjørk, A. A., Keiding, M., and Kroon, A.: A national landslide inventory for Denmark, *Earth Syst. Sci. Data*, 14, 3157–3165, <https://doi.org/10.5194/essd-14-3157-2022>, 2022.

Hao, L., Rajaneesh A., van Westen, C., Sajinkumar K. S., Martha, T. R., Jaiswal, P., and McAdoo, B. G.: Constructing a complete landslide inventory dataset for the 2018 monsoon disaster in Kerala, India, for land use change analysis, *Earth Syst. Sci. Data*, 12, 2899–2918, <https://doi.org/10.5194/essd-12-2899-2020>, 2020.

Fan Yang, Xiaojun Guo, Lanxin Dai, Chaoyang He, Qiang Xu, and Runqiu Huang: Two multi-temporal datasets that track the enhanced landsliding after the 2008 Wenchuan earthquake. Xuanmei Fan, Gianvito Scaringi, Guillem Domènech, *Earth Syst. Sci. Data*, 11, 35–55, <https://doi.org/10.5194/essd-11-35-2019>, 2019.

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Point-by-point response to the Reviewer #3

Reviewer comment: Line 19. was found. Word 'results' require the description of cause, not of the location.

Author response: We thank the Reviewer for this comment. We prefer to maintain the present tense, by substituting 'results' with the term 'concentrates'.

Reviewer comment: Line 20. ... from which most of the low-pressure systems come from. I expect you mean cyclones. but it is nor very clear.

Author response: In order to clarify this, we have substituted 'low-pressure' with 'storm'.

Reviewer comment: Line 180. 'This is visited' Better: Besides, it is visited

Author response: The suggested correction has been applied.

Reviewer comment: Line 221. 'involved in' or 'affected by'

Author response: In this case, 'affected by' is more suitable.

Reviewer comment: Line 305. lithoid rocks. I think better: solid rocks

Author response: The suggested correction has been applied here and at line 445.

Reviewer comment: Line 386. ot debris avalanches.

Author response: The suggested correction has been applied.

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Point-by-point response to the Reviewer #4

Reviewer comment: The paper entitled “A geodatabase of historical landslide events occurred in the highly urbanized volcanic area of Campi Flegrei, Italy” shows the results of a study aimed at properly collecting relevant data dealing with landslides occurred in an area of southern Italy where different natural hazards coexist. These data, freely available online, can be profitably used by other researchers working in the field of landslide susceptibility/hazard analyses. In my opinion, the paper may become acceptable for publication with minor revisions.

Author response: We are thankful to the Reviewer for his appreciation of our work, and for his constructive and fruitful comments that helped us to improve the article. Point-by-point responses to all the minor comments raised after the second-round revision are outlined below.

Reviewer comment: First, I personally believe that the structure of the article would improve if the presentation of the “Study area” preceded the description of "Data and methods". Therefore, I suggest moving the current Section 3 immediately after the Introduction (of course, the current Section 2 would take the place of Section 3 just before the presentation of results).

Author response: Thanks for this comment. The suggested correction has been applied.

Reviewer comment: In Table 1 I'm not totally convinced about the goodness of the range (7-150), expressed in meters, concerning the attribute named AVG_THICK (i.e., the average thickness of the pyroclastic cover). Please check.

Author response: Thanks for this comment. The correct unit is centimetres and not meters. This has been corrected in Table 1 accordingly. We would like to remark that thickness data have been collected by the local basin authority and not by us in the current study.

Reviewer comment: In Figure 9, the F-N curve concerning the Campi Flegrei study area shows some mistakes. Indeed, F-N points associated with N values equalling or exceeding 5 are aligned along a horizontal line. This cannot happen considering that F is defined as the annual frequency of events causing N or more fatalities. In other words, as N values increases F values should decrease. Please amend accordingly.

Author response: We agree with this comment. A mistake has been committed during the F-N curve calculation. The mistake has been identified and corrected, as shown in the new Figure 10.

Reviewer comment: Finally, in Section 6 (line 371) I would avoid the use of the term “vulnerability” if applied to “the rocky coastline” (where a danger might locate) because this term applies only to elements at risk.

Author response: In accordance with the Reviewer's comment, the term “vulnerability” has been substituted with “susceptibility”.