Reply on RC1

Pablo Salazar et al.

Author comment on "Multi-station automatic classification of seismic signatures from the Lascar volcano database" by Pablo Salazar et al., Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2022-164-AC1, 2022

Referee 1:

Dear Referee 1, thanks a lot for your comments, we are prepared a new documents with all modifications:

"The abstract must be improved because the reader does not understand which signals the

Authors want to classify and what results they obtain in terms of method performance."

Answer: We add some comments in the lines 1-2; line 5, and lines 10-11.

"The labels of the figures must be larger (for example, Fig. 1, 2, 6, 7, 8, 9, 10, 11)"

Answer: We re-scaled the figures and labeled with an adequate font size.

"On lines 3, 48, 49 etc. "artificial data" should be replaced with "synthetic data"."

Answer: artificial data was replaced with synthetic data.

"Lines 107 -111 In principle, in step 1 you should first remove the average, then filter (a

10th order filter seems a bit strong to me as a filter for a fairly high frequency band such

as 1-10 Hz) and finally resample the series, however I think the ObsPy resampling routines apply an appropriate filter before resampling. Furthermore, looking at figure 2 you can see that tectonic events (TC) and tremor have a significant frequency content in the 10-20 Hz band (this is unusual for volcanic tremor which generally has lower frequencies, between 1 and 6 Hz), therefore, in the pre-processing step it would be more appropriate to filter in the 1 - 20 Hz frequency band."

Answer: We added to the routine process your advice. Lines 165-168. We also added a Table 6 that summarized all the results and presents some comments abouts these in the lines 275-278.

"Lines 117 -123 In step 3 to avoid the imbalance produced on the labeled data, the Authors could create a fifth dataset not applying the data augmentation technique, but selecting a subset of the data so that the amount of data that is selected for each class depends on the number of events in the less populated class; in particular the hybrid events HY class (213 events) that can be used as reference (the number of events for the other classes could perhaps be even slightly higher, for example 250 events for the other classes and 213 for hybrid events)."

Answer: This new experiment was created and discuss in the text, lines 243-248; lines 252-254; lines 261-262; lines 269-270; lines 295-298.

"147 see lines 117 -123"

Answer: The new experiment was added to the Results.

"Lines 152 -157 In this paragraph the authors should insert values of performance also in the text and not refer only to table 4."

Answer: The values were added to the paragraph line 250; lines 252-254.

"Line 202 "This will improve the understanding and evaluation of the hazards and risks associated with the activity of volcanoes." I believe this last sentence is not necessary."

Answer: This sentence was removed from the text, lines 334-335.

Please also note the supplement to this comment:
https://nhess.copernicus.org/preprints/nhess-2022-164/nhess-2022-164-AC1-supplement.pdf