EGU2020-9734
https://doi.org/10.5194/egusphere-egu2020-9734
EGU General Assembly 2020
© Author(s) 2021. This work is distributed under
the Creative Commons Attribution 4.0 License.

Classification of Seismic Events with Deep Learning Strategies: Insights from the Moosfluh Landslide

Nadir Dazzi[1], **Andrea Manconi**[1], Nikhil Prakash[1], and Valentin Bickel[1,2]
[1]ETH Zürich, Chair of Engineering Geology, Earth Science, Zürich, Switzerland (andrea.manconi@erdw.ethz.ch)
[2]Max Planck Institute for Solar System Research, Goettingen, Germany

Rockfalls affect steep slopes in several geographic regions. Different systems from remote to in-situ instruments are used for their detection and study. In this scenario, seismic signals produced by the detachment, bouncing, and rolling of rockfalls are being increasingly used for the detection and classification of such events. This is typically done by using different manual, semi-automatic and/or automatic signal processing strategies. In this work, we applied a new Deep Learning (DL) algorithm in order to test the performance on the automatic classification of seismic signals. We applied the method to seismic data acquired by a low-cost Raspberry Shake 1D seismometer (sampling rate 50Hz) in order to discriminate rockfall from not-rockfall events occurred at the Moosfluh active slope region in Wallis (CH). Here we present the methodology and show the results obtained on a continuous record of more than 2-years of seismic data. The performance accuracy of the DL approach reached values larger than 90%. Our results show that the application of DL strategies in this context can be very useful and save time on seismic data classification.