New georreferenced avalanche accidents database of Andorra

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Abstract. Although avalanches have long been a natural hazard in Andorra, the first fatality officially recorded by rescue services occurred in the winter of 1964. Since then, avalanches have claimed the lives of 21 people and injured at least 35 others. Andorra Research + Innovation has compiled records of avalanche accidents in the country from 1964 to the present, drawing on diverse sources such as newspapers, reports from Andorran fire and police mountain rescue teams, and, more recently, user-generated content shared on social media. As a result, the dataset is highly heterogeneous.

This work presents the first comprehensive geo-referenced database of avalanche accidents and incidents in Andorra, covering a total of 108 documented incidents. While this is a relatively low number of cases for statistical analysis, the spatial dimension of the data allows for novel insights into terrain characteristics and accident patterns that had not been considered in previous studies. However, the dataset has several limitations, including underreporting of non-severe accidents and a lack of detail for older incidents. These biases must be considered when interpreting the results.

Future work will aim to explore relationships between avalanche size, hazard level, and meteorological conditions. Additional efforts are also underway to analyze the specific causes of death in fatal incidents. In the long term, there are plans to integrate the Andorran database with the avalanche accident database from the neighboring Catalan Pyrenees. A combined dataset will offer a broader perspective on avalanche accidents in the eastern Pyrenees and contribute to more effective prevention and awareness strategies.

Keywords: Avalanche accidents, avalanche database, Pyrenees.