

TESINA ENGINYERIA GEOLÒGICA: **Study on the avalanche risk in the C-28 road as it runs through the Port de la Bonaigua**

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ABSTRACT

The C-28 road, as it runs through the Port de la Bonaigua, is annually affected by several avalanches that affect and block off this road. When these avalanches reach the road, they may affect the passing-by vehicles and their occupants.

The objective of this study is to assess the risk on those vehicles and their occupants circulating along the road of the Port de la Bonaigua, starting from all the existing data, and to propose a series of alternative solutions to mitigate the risk.

The compilation of all the observations of avalanches registered in the Port de la Bonaigua, supported by the Map of Avalanche Zones elaborated by the ICC, the study of slopes, coasts and accumulations, as well as the reports on avalanche risks, allows to evaluate the importance of each one of these type of data for the current study. Furthermore, this compilation allows to obtain a value of the frequency avalanches reach the road, with validity for ten years.

Through the return period of avalanches affecting the road, and the length of the affected part of the road, it is possible to calculate the personal risk, in terms of annual victims, for each avalanche zone. Once obtained this risk, it is possible to determine which the most dangerous zones are, and thus establish an action priority when it comes to mitigating the risk.

In parallel, an inventory of all types of worldwide existing actions of defence against avalanches, with their advantages and disadvantages, is made. And finally this study proposes several possible actions whose objective is to reduce the risk at the road.