OPERATING SYSTEM FOR THE DEFENSE OF THE ACCESS TO THE SOMPORT'S INTERNATIONAL TUNNEL, BARRANCO DE SECRAS AVALANCHE PATH, CENTRAL PYRENEES, SPAIN

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ABSTRACT: The operating system for the defense of the access to the Somport's international tunnel (Spain-France) in the Huesca Central Pyrenees is presented. The preventive triggering of the avalanche of Barranco de Secras path that threatens the tunnel mouth, based on different instrumentation and the decision of an expert, is the first of this kind in Spain.

The avalanche path starting zones range from 2200 m to 1650 m a.s.l., with total surface area of about 12 Ha and two main aspects with south and east orientations. The runout zone ranges from about 1250 m to 1170 m a.s.l., at the altitude of the tunnel mouth. Large avalanches occurred in 1916, 1930, 1944 (enquiry) and 1965, 1977 (vegetation criteria). The maximum accumulated snowfall in 72 h estimated at the starting zone is of 260, 207, 180 and 70 cm for return periods of 300, 30, 10 and 1 year, respectively. The operating system consists of 8 Gazex, 62 snow fences ("virevents"), 3 automatic meteorological stations located at a 1866, 2179 and 1194 m a.s.l., 2 flowcapts at 2175 m and 2032 m a.s.l., 2 video cameras in front and at the side of the path, and 2 seismic detection sensors at 1542 and 1423 m a.s.l in the track, and a local avalanche forecasting support system (NivoLog).

The management of the system before, during and after the winter snow storms is presented with the aim of evaluating the hazard, making the adequate decisions and optimizing the system capabilities.

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