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Challenges in rockfall modelling for roadway management

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Rockfall modelling draws on the experience of researchers, geologists, engineers and authorities to provide protection solutions for rockfall hazards. Decision making when dealing with rockfalls is aided with sophisticated rockfall models. While there are a number of modelling tools available. The ability to make informed decisions on appropriate protection measures is dependent on the user, available data, scenario setting and post processing of simulation results. Despite the advances in the capabilities of rockfall models, there is often disparity between the state of the art in research and rockfall management in practice. With the use of a series of case studies along roadways in Switzerland, we explore some of the issues and challenges in modelling rockfalls. From defining initial conditions for rockfall simulations, the use of simplified empirical methods and advanced modelling techniques and the need for probabilistic data for design decisions, we provide insights into the application of rockfall modelling in practice.