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RockforNET: an efficient tool for quantifying the residual rockfall hazard of a protection forest

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More than 300 real-size rockfall experiments on a forest mountain slope in the French Alps have been carried out during the last years. During these experiments we registered rockfall trajectories, including impacts against trees, with high-speed video cameras. The obtained results have been combined and formalized in a publicly available internet-based tool called RockFor^{NET} (http://www.rockfor.net). This tool simulates the forest as being a spatially distributed rockfall net using simple stand characteristics. It allows quantifying the protective role of a forest against rockfall easily. The tool can be used for most slope types and all types of mountain forests. It provides information on the expected percentage of rocks that pass through a forested zone under a cliff face and the amount of energy that has to be dissipated by the forest. By using this tool we are able to assess, in quantitative terms, how different mountain forests perform their rockfall protective function. This paper explains the developed tool, how it can be used and the underlying theory. Rockfor^{NET} has been tested in many different sites throughout the Alps. Results suggest that the tool ism operational for engineers and forest managers to better take the forest into account while designing protective measures.