In natural hazard management and disaster risk reduction worldwide, but especially in the Alpine Space, forests are increasingly considered equal to technical or civil engineering measures.

**ROCK the ALPS** ([www.alpine-space.eu/rockthealps](http://www.alpine-space.eu/rockthealps)) is an Interreg Alpine Space dedicated to the enhancement of rockfall protection forest ecosystems service in risk management and prevention policy. Based on the capitalization of the current knowledge and the development of innovative concepts, tools and methodologies, the project consortium will provide the first Alpine Space regional rockfall risk zoning tool, as well as the first Alpine Space wide harmonized map protective forests against rockfall risks.

These innovative tools and maps will contribute to enhance the improvement of rockfall risk management with a realistic account taken of the mitigation effects provided by forest ecosystems.
FOCUS ON: the models ROCK-EU.
For achieving its key objective of mapping at the entire Alpine Space the protective forest against rockfall risks, a new model for regional mapping of rockfall probable propagation zones has been developed by the project consortium. This model, ROCK-EU map, has been built taking into account the main constraint generated by large scale mapping: comprehensive ground-based measurements are not available or possible for producing soils mechanical properties and forest dendrometric maps. To make up for this lack of comprehensive surveys, it has been decided to use the Corine land Cover European data set as a proxy for providing the required data for calculating the soil rebound coefficients.

These soil rebound coefficients input data are used in a 3D algorithm that statistically models the boulder rebounds and its lateral deviations. For each trajectory so calculated, its ending point is defined with the result of the statistical analysis of the project past events database. The energy line theory developed by the Swiss geologist Heim A. in 1932 has been used for defining this run out point model from this database. This theory states that 1) an imaginary line can be drawn from the release point to the maximal run out point, 2) this line represents the distance needed for dissipating the entire energy developed by the boulder, 3) this line is called the Energy Line and is expressed by its angle with the horizontal. An innovative combination of 2 topographic indexes has been successfully developed and used for this new model.

The model ROCK-EU map is dedicated to analysis at the scale of 1/25000. In addition to this new 3D statistical model, a 2D model has been developed on the request of the experts in rockfall risks zoning. This expert version, ROCK-EU expert, allows the experts to provide an analysis at the scale of a topographic profile that can be drawn with high resolution and accuracy data.

These models will be freely available by the end of the project via the download section of the project’s web site.
NEWS HIGHLIGHTS
The beta version of the model ROCK-EU has been successfully tested for providing the rockfall risk map of the French administrative departments of Haute-Savoie.

The project methodology and helping tool for decision making for rockfall risk zoning at a local scale have been successfully tested in situ with experts in the field of risks zoning.

UAV and Lidar surveys of new rockfall events have been conducted in Slovenia and Italy.

Lectures on protective forest against rockfall have been given to students in Italy and France.
SHARE & CONNECT

The download section of the project’s web site has been updated with the deliverables: State of the art in rockfall modelling, UAV added value to rockfall historic events survey and site monitoring.

Don’t forget: what about an international rockfall past events database?

We have to share our data for improving the knowledge and developing harmonized models. There is so a need to develop an international network and cooperation for building up an international rockfall past events data base.

We need you!

If you are interested please contact us.

For more information on the project please visit our web site www.alpine-space.eu/rockthealps and/or contact the project Leadpartner: frederic.berger@irstea.fr.

If you want to share your knowledges and data with us please get in contact with the project leadpartner.