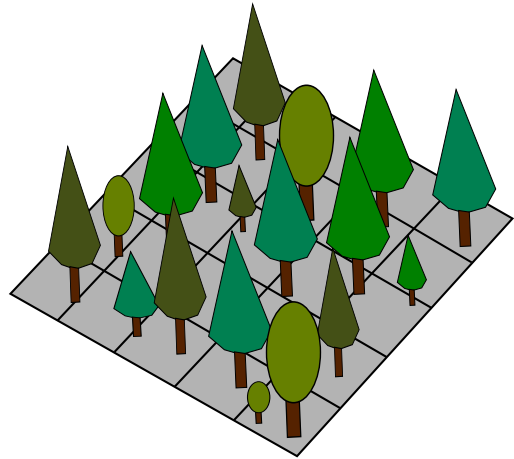# How to quantify the protective effect of forests against rockfalls ?

Alpine forests

3886 plots of the French forest inventory with information about:

- Forest structure
- Forest composition
- Topography : slope

Rockfall simulations

Without forest

Block release line

Covering of all the rockfalls trajectories

With forest

Simulations according to the caracterisitics of each plot

Definition of 3 indicators

Calculation of the indicators from the results of rockfall simulations

Rockfall frequency reduction X **Rockfall intensity reduction** = **Overall rockfall protection**

Prediction of the indicators directly from three forest characteristics:
- **Mean diameter of the stems**
- **Basal area**
- **Length of the forested slope**