The study of the impacts of climate change on landslides is attempt-
ing to investigate and quantify even in a “stable” climate. Determining if and where landslide risk is increased adapting modelling, empirical, or combined ap-
proaches. Two groups of empirical approaches can be singled out. A first empirical approach (namely histori-
cal analysis) comparescatalogues of historical land-
slide occurrences with climatic records, chiefly rainfall data, to compare, for a few to many decades,
mainly in the last two centuries. A second empirical ap-
proach exploits environmental data to recon-
struct records of ancient landslides and to analyze peri-
ods of increased/decreased landslide activity.

### Changes in landslide hazard

We assume landslide hazard, as the joint probability of landslide size (HL) and of landslide spatial oc-
currence S:

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HL = P(AL) \times P(NL) \times S
\]

1) \( P(AL) \) will not change significantly in time (valid if the mechanical proper-
ties of the materials - particularly cohesion - remain con-
stant.)

2) \( P(NL) \) depends on the frequency of the triggers. The frequency of seismic

3) \( S \) depends on terrain conditions (elevation, slope, curvature) and climate

The influence of climate and its varia-
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climatic effects on land-
slide occurrence and hazard in areas ranging from a few hundreds to sev-
ed hundred years or centennial (a country, a broad geographical region).

Climate change will not change the probability of failure of individual landslides, but it will change the frequency of extreme events that are required to trigger landslides. This is particularly relevant for rainfall-induced landslides, which are the most investigated physiographic area.

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