



Landslide intensity measures calculated from multi-date inventories: the case of the Ubaye Valley, South French Alps.

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Landslide inventory maps are interesting products to analyse long-term landscape evolution or define intensity measures for hazard assessment at regional scales. A multi-date landslide inventory has been constructed for the Ubaye Valley, South French Alps, for the period 1950-2010, from the analysis of series of orthophotographs, geomorphological maps, reports of landslide events and field surveys.

The inventory consists in information on the type of processes, the evolution of the landslide boundaries and the evolution of important geomorphological features (scarps, lobes, soil surface state, etc) characterizing landslide activity. The uncertainties in the interpretation of the landforms (in relation to the scale of the source documents and the knowledge of the expert) are taken into account in the analysis.

Several morphological indicators are then calculated to describe quantitatively the evolution of the landslide (length, area, relative elevation, etc). A complete statistical analysis of this dataset is proposed and discussed. Runout distances are used to assess areal frequencies of landslide magnitude. Frequency-magnitude relationships are proposed by calculating the exceedance probability as a measure of the temporal occurrence of landslide (e.g. Poisson Model). Relations to climate characteristics are also discussed.