

## Plant species and vegetation communities as indicator of soil instability

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The tight link between spatial distribution of plant species and patterns of soil characteristics has still been demonstrated (Braun-Blanquet & Jenny, 1926). However, there are few studies on the relation between geomorphological processes and vegetation. Recently, Cannone and Gerdol (2003) showed that the distributional pattern of vascular species in rock glaciers could not be directly related to surface instability but depended on a combination of substrate texture and movement intensity. No study has investigated the potential relation between soil instability and plant species distribution.

In this work we used the landslide of “La Glaivaz” (Ollon, VD, Switzerland) as a model and 36 forest plots from Delarze (1978) and the cantonal inventory as datasets (Fig.1). Plots were all done before the last landslide activity (1998). They are located on the landslide area or just outside to allow direct comparison vegetation. Detailed maps of geomorphology and landslide activity reveal a typical scar with outcropping gypsum and an accumulation zone in the study area.

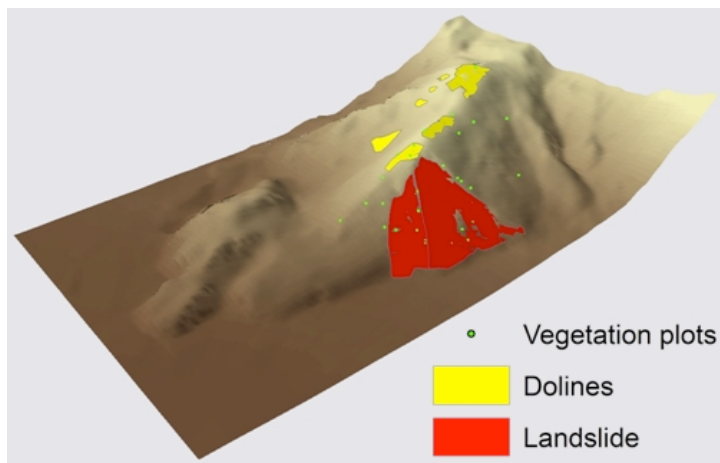


Figure 1 3D view of the study area

Preliminary results showed that a Correspondence Analysis (CA) on the 36 plots allowed discrimination of the vegetation on the landslide and on the gypsum substrate from the off-landslide plots (Fig.2).

Further investigation should allow us to identify particular growth forms of plant species on the landslide and to isolate species and vegetation units that could be strictly related to soil instability.

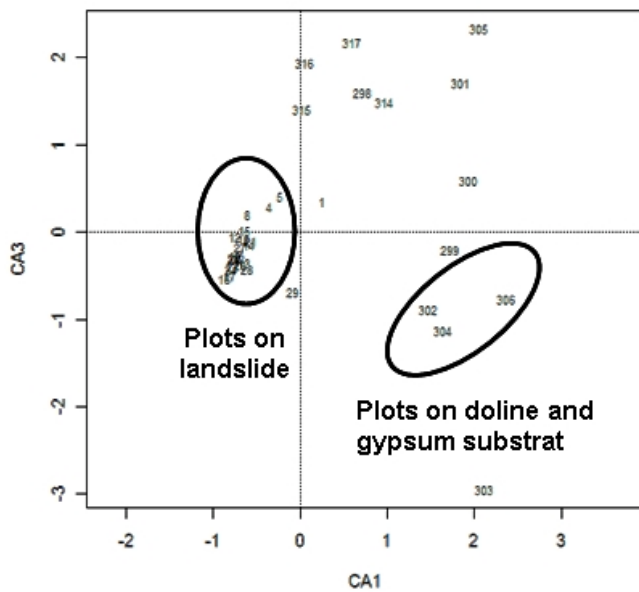


Figure 2 Positions of the vegetation plots CA plot (axes 1 and 3). The vegetation on landslide and on gypsum substrate are differentiated.

#### REFERENCES

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