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## Erosion controls vegetation recolonization in Draix-Bleone badlands

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Vegetation and erosion interact with each other through a variety of processes, contributing to the formation and evolution of landscapes. The present work focuses on the humid badlands of Draix-Bleone observatory, in the French Alps. In this observatory, long-term records of hydrology and sediment fluxes are available for several catchments of varying size and vegetation cover. We aim to characterize and quantify the interactions between vegetation and erosion in these badlands.

On the one hand, we previously found that vegetation, where it is able to maintain, strongly limits badland erosion. On the other hand, vegetation recolonization has been observed over the last decades and we hypothesize that this growth is controlled by topographic and erosive mechanisms.

We use aerial images for several dates in the Laval catchment of size 0.86 km<sup>2</sup>. We classify each image to map vegetation cover and compare the extent of vegetation cover from one date to the other. We then extract the newly vegetated areas and search for environmental factors that can explain why these areas have been colonized rather than others. We combine factors such as slope and drainage area that are related to erosive processes, to biological factors that relate to the dispersion and colonization capacity of previously existing vegetation.

Preliminary findings indicate that vegetation has mainly recolonized areas that are in the vicinity of existing vegetation patches and with low to intermediate slopes. No effect of aspect is found. This suggests that recolonization is limited by erosive processes, but not by water availability.