



Reconstructing and analyzing the fire history in a continental valley of the Swiss Alps – a project outline

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Global warming is likely to change fire frequency and intensity at the regional scale. However, fire regimes are determined by many factors in addition to climate. Human activities, vegetation composition and structure, fuel load, and landscape patterns also have to be taken into consideration to determine fire risk. Understanding and disentangling the various factors that are crucial for shaping the current fire regime and for predicting the likely future fire regime thus requires a multi-faceted approach.

In a new project, funded recently by the Swiss National Science Foundation, we will analyze the past and present fire regimes of a region that is likely to become more fire-prone in the future, i.e., the Valais (Switzerland) - a dry, interior valley of the European Alps. Specifically, we will assess the relative impacts of climate, vegetation properties and human activities on the fire regime and its history. Despite a few preliminary studies, insufficient long-term data are available to elucidate the characteristics of these links.

This project is composed of three modules. We will (1) document the historical patterns of the fire regime in the Valais for the past 100-180 yrs, (2) perform an in-depth analysis of the changes of this historical fire regime in space and time as a function of climatic properties, vegetation patterns, and human activities, and (3) compare these results with the findings on the spatio-temporal change in the fire regime of the neighboring region with insubrian climate, the Ticino (Switzerland).