Soil **P**ost-fi**r**e **E**rosion and **A**ccumulation **D**ynamics – **F**rom **I**ndividual **P**oint to a novel **R**egional **E**valuation (SPREAD-FIRE)

Among the most significant ecological disturbances are wildfires, which can drastically alter how water, sediment and carbon move through landscapes, often increasing runoff, erosion, and sedimentation processes. Understanding erosion response to wildfires requires a watershed-scale perspective, as soils response is not uniform across burned areas. To measure the soil response to wildfires, soil erosion/rates at the plot and watershed scale must be assessed. So far it is unknown how soils and landscape react as a function of time after a wildfire. To optimally address the research questions, river sediments (main catchment and tributaries) of the Maggia River and tributaries near Locarno and small creeks using a space-for-time approach ("chronosequence" in the context of fire events) will be used.

Areas where forest fires have occurred will be evaluated by their temporal occurrence and location. In general, the following periods will be of interest: 1975 – 1990; 1991 – 2005; 2006 – 2020; younger than 2020.

We developed a new technique that allows for a fast evaluation of erosion rates at the watershed scale. We would like to test and apply this technique (by using $^{239+240}$Pu) to fire affected sites in the Ticino near Locarno and in the Centovalli.

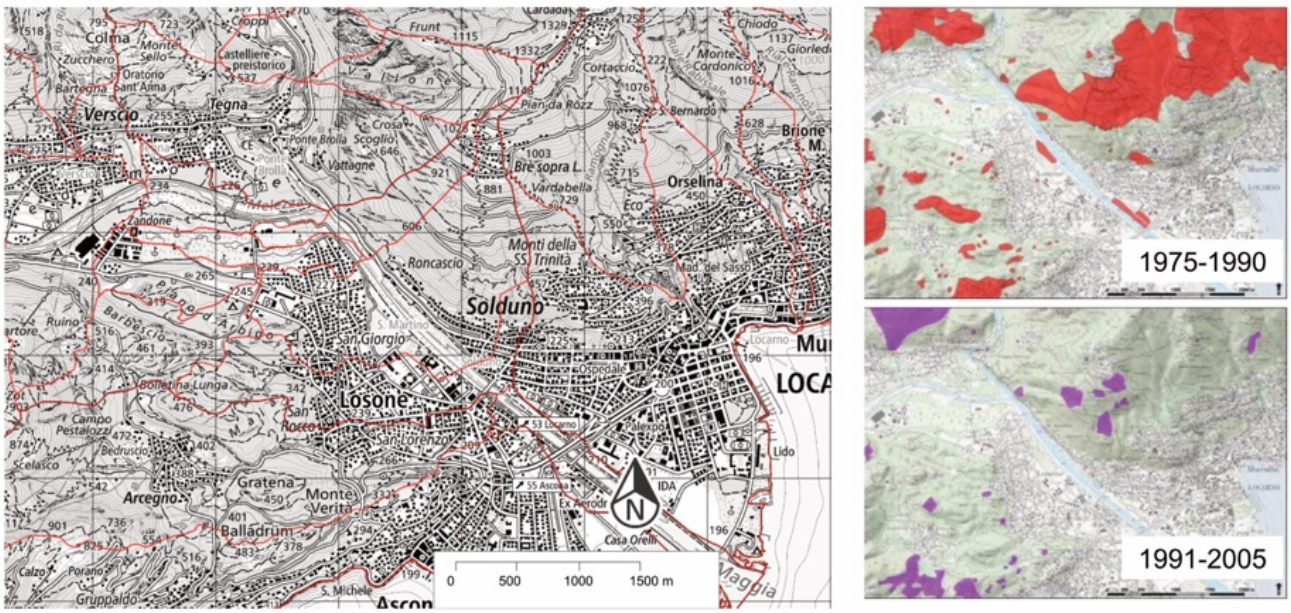


Fig. 1. Foret fires in Switzerland (top) and their frequency. In general, the forest fire density is highest in southern Switzerland. Subdivision of watersheds (left, bottom) and occurrence of forest fires in the region of Locarno for the years 1975 – 2005 (right, bottom; data from The Swiss forest fire database Swissfire**).**

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