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How plants control fire effects on soil and hydrology

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Fire can considerably increase the landscape's vulnerability to flooding and erosion, which is in part caused by fire-induced soil damage and hydrological changes. While it is known that plants can alter the fire environment, there is a major knowledge gap regarding the fundamental mechanisms by which vegetation mediates fire impact on soil physics and hydrology. In this talk, I will discuss how plants can effect fire impact on soil hydrology, focusing on two important factors in post-fire hydrology: soil heating and ash. Work is illustrated based on fieldwork in Portugal and in the Chuska Mountains (Navajo Nation, Arizona/New Mexico, USA) combined with laboratory burning experiments.