



## **Tracing the sources of fine-grained sediment following a wildfire in British Columbia, Canada**

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Wildfires are a natural part of the behaviour of forest systems and are important for a variety of reasons. These include forest renewal and maintaining biodiversity. Wildfires are also important from a hydrological and geomorphological perspective, because they can alter soil hydrology and the rates of soil erosion, mass movement and channel bank erosion, which affect the delivery of water, sediment, carbon and chemicals to rivers. In turn, these changes have important implications for salmonid spawning gravels and other riverine habitats, and the chemical and ecological quality of freshwaters in forested catchments. This paper describes a study examining the potential of mineral magnetic, geochemical and organic properties to determine if a wildfire in 2003 in a catchment in British Columbia, Canada, caused a change in the sources of the suspended sediment transported in the channel relative to a nearby unburnt (reference) catchment. The results show that some of the properties offer the potential to determine sediment sources in the unburnt catchment. However, the 2003 wildfire modified the concentrations of some properties and this can either compromise or enhance their ability as tracers in the burnt catchment. This has implications for the use of certain properties as fingerprints and raises important issues about approaches to sediment source identification.