Photograph of hillslope runoff in Fourmile Canyon, CO following a 2012 wildfire. Photo by J. Moody, USGS.

Title: Disturbance Hydrology

Abstract: Landscape disturbance increasingly impacts the watersheds we rely on for water resources, ecosystem services, and protection from hydrologically driven natural hazards. Abrupt alterations of hydrologic processes resulting from wildfires, urban development, resource extraction, deforestation, hurricanes, tsunamis, and landslides change the storage or buffering capacity as well as the hydrologic functional connectivity in watersheds. I will highlight some of the critical issues and major challenges to predicting disturbance impacts on water resources and natural hazards and outline some of the opportunities for improved mechanistic understanding of how disturbances propagate through landscape hydrological processes. The effects of the 2012 Fourmile Canyon wildfire on a watershed near Boulder, CO will be discussed as an example of the ongoing water resources and natural hazards issues associated with landscape disturbances. The foundation of the Fourmile Canyon project is the synergy between field measurements, laboratory characterization, and numerical modeling.