# Modeling Post-Fire Hydrologic Response

In a recent years, wildfires have become increasingly common across the western U.S.; they also introduce major disturbances on ecosystems and the land surface. Vegetation disturbances can have significant effects on the water balance following a fire.

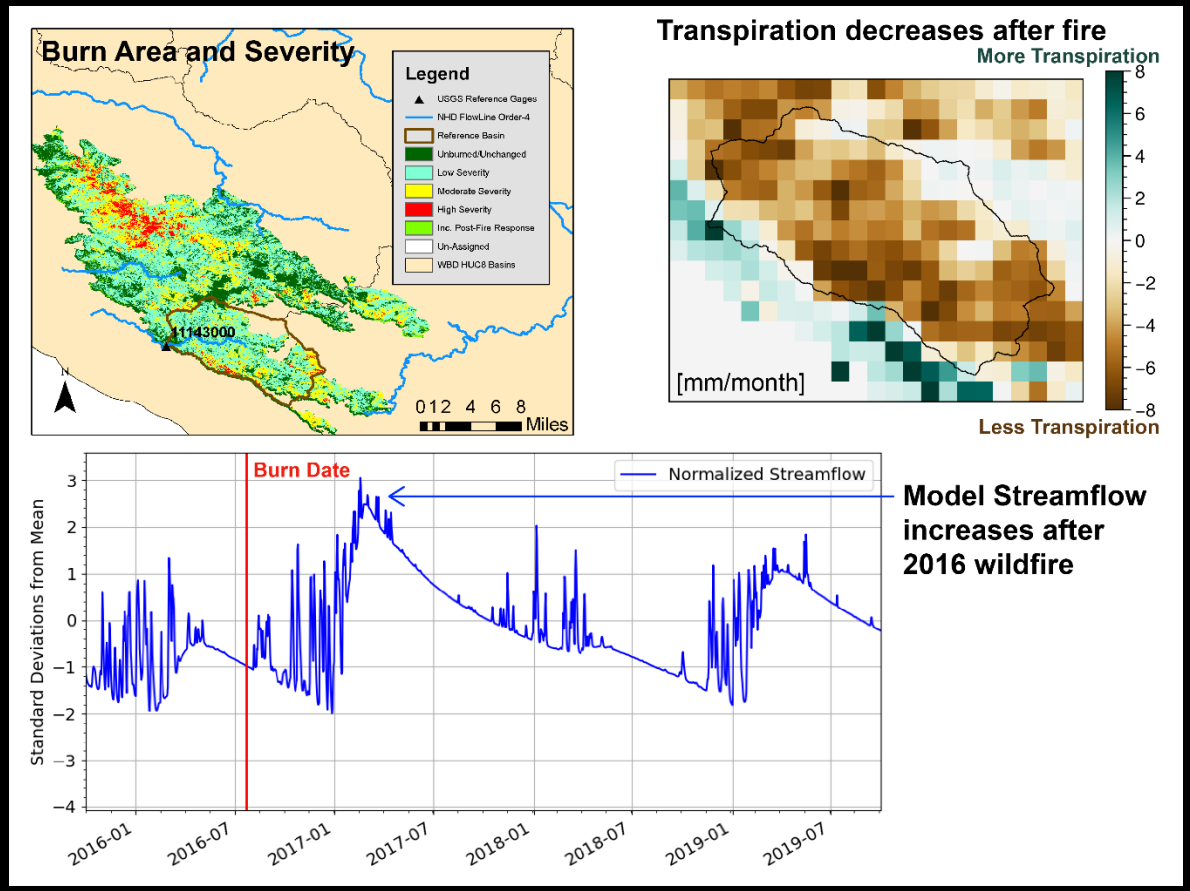
Fires can also change soil properties, causing reduced infiltration and promoting more surface runoff. Though both of these processes are reported in the literature, there is significant uncertainty about their precise and interlinked impacts.

The capability to combine remote sensing information with models is needed to simulate the impacts of wildfires on local hydrology and the chance for flooding.

With remote sensing information from the MODIS sensor aboard the Terra and Aqua satellites, Lahmers, et al., developed methods that account for the impacts of fires over time in a model that simulates different changes to land surface conditions (i.e., vegetation and soil disturbances) on the hydrologic response and fluxes (e.g., evaporation and runoff) for a defined area.

Using two fire case studies over central California, Lahmers et al. analyzed the relative roles of vegetation and soil disturbances on runoff and evapotranspiration.

Their results show the utility of remote sensing data and model parameter adjustments to capture the effects of fires in the post-fire hydrologic responses.




Top Left: Fire Burn area
Top Right: Impact of fire on modeled transpiration
Bottom: Modeled streamflow increases after fire

Paper: An Observation-Driven Framework for Modeling Post-Fire Hydrologic Response ...

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