

# Reducing the Vulnerability of Disadvantaged Communities to the Impacts of Cascading Hazards under a Changing Climate

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There has been an unprecedented increase in the frequency and severity of wildfires in several regions. The escalating risk of wildfires and the associated cascading geohazards (e.g., debris flow, landslides) requires decision-makers, engineers, social scientists, and other stakeholders to work together to enable disadvantaged communities to better confront cascading hazards.

**Target Problem:** Reducing vulnerability of disadvantaged communities to the impacts of wildfire-related cascading hazards under a changing climate

**Test Site:** Lake County, CA

## **Main Activities to Date:**

- Identified 4 test sites for field instrumentation
- Modeled post-fire stability of hillslopes to landslides
- Studied snow-fire dynamics changes over the years
- Mapped the wildland-urban interface in California
- Developing sediment transport-based models
- Collected information for curriculum development
- Studied psychological consequences of cascading hazards
- Designed community survey and received IRB approval

**Broader Impact:** The work seeks to bridge the gap between the engineering, scientific, and social dimensions that have been striving to reduce consequences of cascading hazards, but are commonly evaluated in isolation of one another.

**Broader Impact:** We will equip decision makers and emergency planners with the knowledge and science-based human-centered tools needed to make informed decisions and reduce consequences of cascading hazards on disadvantaged communities.

## **Next Steps:**

- Continue field monitoring
- Conduct survey and focus groups
- Model debris flow and landslides
- K-12 curriculum development
- Study changes in snowpack-wildfires