

Post-Fire Flood History with Emphasis on Debris Flows and Landslide Dam Outbreak Floods, Southern Santa Barbara County, California

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Discharge of post-fire debris flows from Santa Ynez Mountain watersheds in southern Santa Barbara County devastated portions of the community of Montecito, and raised awareness of the hazards posed by debris charged floods. Funded by The Project for Resilient Communities, one of our team's objectives is to construct a historical inventory of flood events that records physical evidence of the relative severity of damages, inundation paths, meteorological conditions, and type of events to understand the history of flood events for the last 200 years. Our premise is founded on the principle: The Recent Past is the Key to Understanding the Near Future.

Research to date identifies thirty-six debris flow, debris laden flood, and landslide dam outbreak floods have occurred on the south coast of the Santa Barbara area. Ten landslides in the last 160 years blocked the main or tributary drainages in our watersheds and created debris dams that formed temporary lakes. The dams were overtopped or breached within 12-24 hours and produced amplified, debris charged outbreak floods inundating the downstream communities of the Santa Barbara area. This historic study along with preliminary studies of the western Montecito watersheds lays the groundwork for a community-wide study to identify high hazards areas and recommend mitigation methods to reduce the hazards for the community of Montecito.