

Post-fire flash flood and debris flow assessment and monitoring

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U.S. Geological Survey

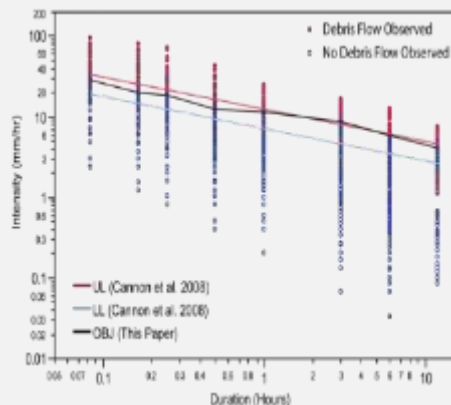
NSTC Subcommittee on Disaster Reduction

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USGS debris-flow models help answer key questions after wildfire:

When?

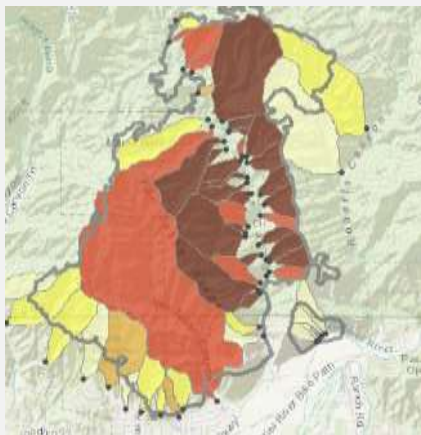
*How much rain
will it take?*



Rainfall Thresholds

Where?

*What drainages are
most susceptible?*



Probability model

How big?

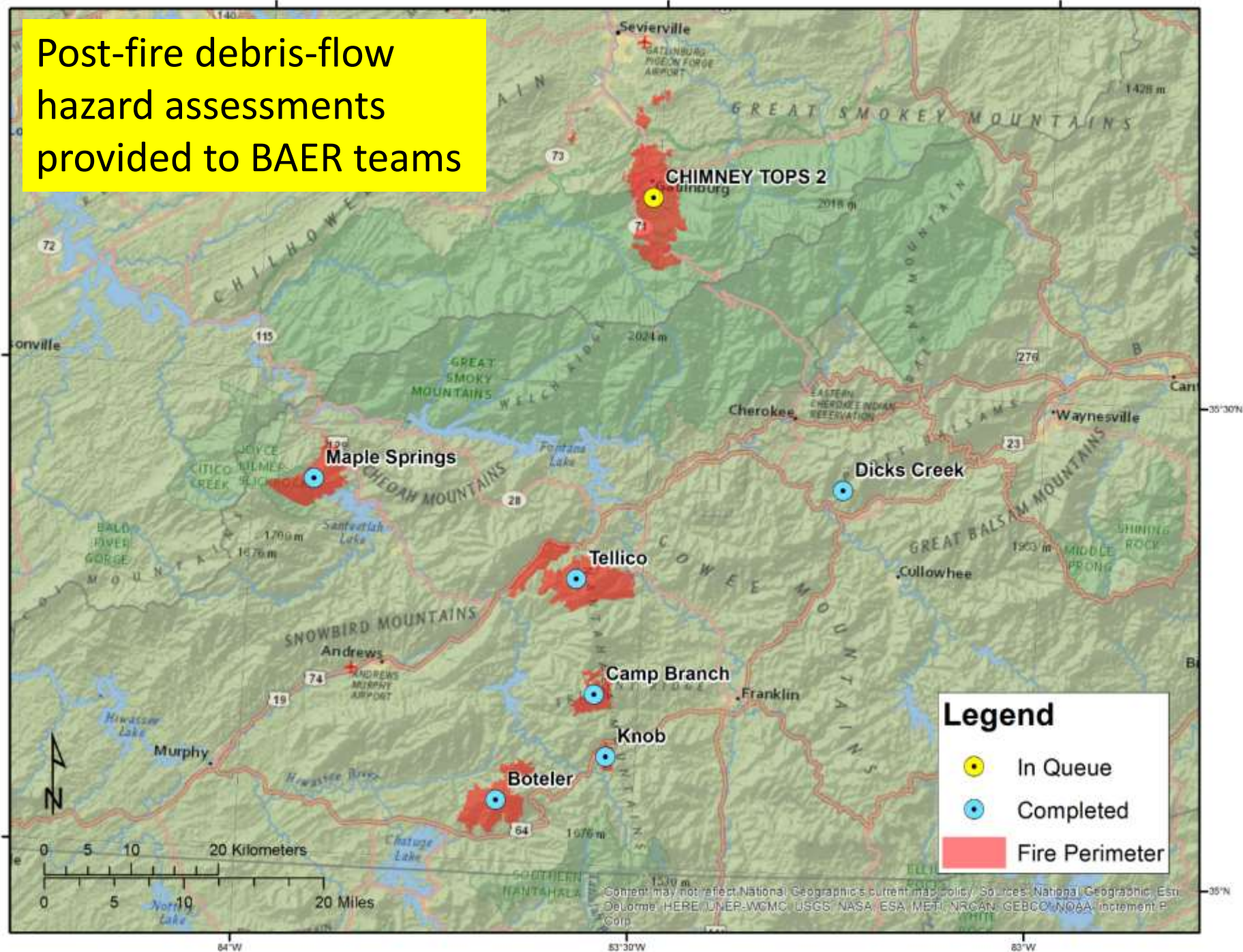
*How large will
the flows be?*



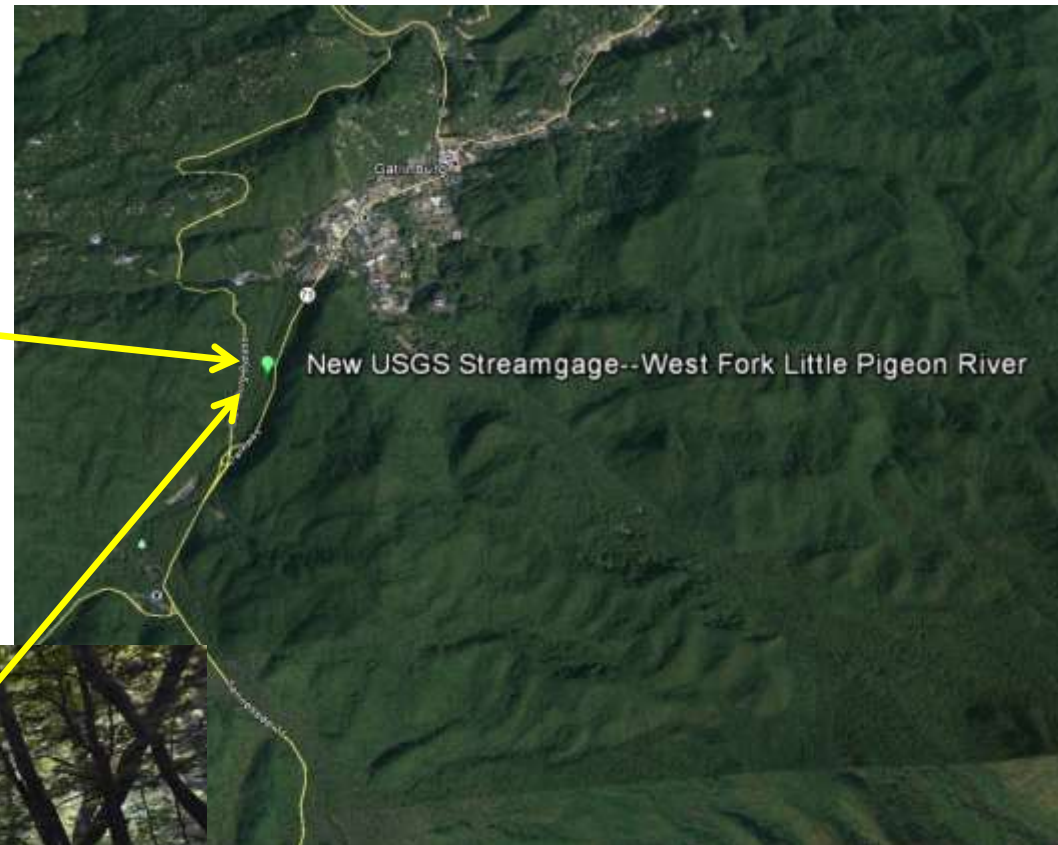
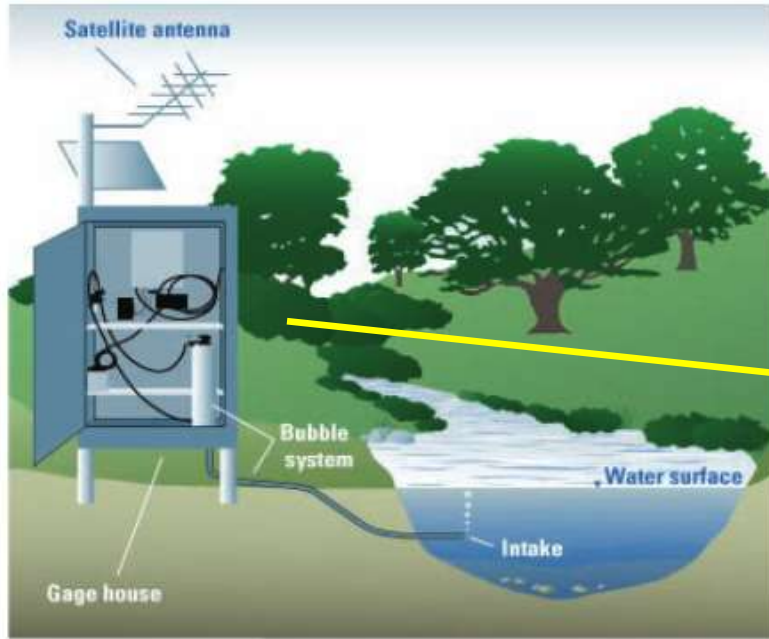
Volume model

- Models developed with data from the western U.S.
- Applicable to debris flows triggered by short-duration, high intensity rainfall
- This is the first time the models have been applied in the eastern U.S.

Post-fire debris-flow hazard assessments provided to BAER teams

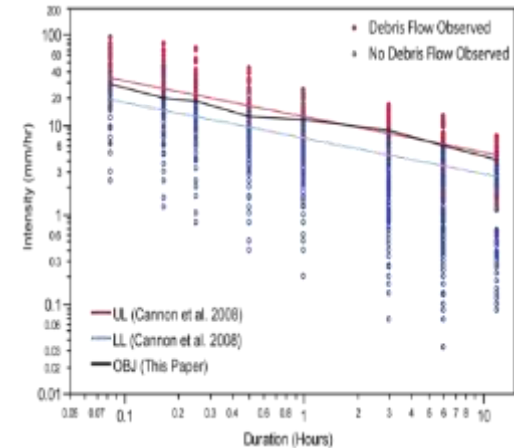


Streamflow and Flood Monitoring Above Gatlinburg



USGS streamgage will have real-time telemetry which can be used by local, state, NPS, and NWS officials for flood warning and water quality monitoring, as well as to provide data to monitor post-fire restoration and remediation

Conduct follow up research in the years after the fire:



- USGS and North Carolina Geological Survey operate three landslide monitoring sites in unburned areas of North Carolina.....but little is known about landslides after wildfire in Appalachia.
- Collect post-fire data at select sites and assess how well current tools answer the When?, Where?, and How Big? landslide questions.
- Data will be used to improve models and rainfall thresholds for Appalachian burn areas if necessary.