Post-fire flash flood and debris flow assessment and monitoring

David Applegate
U.S. Geological Survey
NSTC Subcommittee on Disaster Reduction
December 13, 2016
USGS debris-flow models help answer key questions after wildfire:

**When?**
How much rain will it take?

**Where?**
What drainages are most susceptible?

**How big?**
How large will the flows be?

- 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.