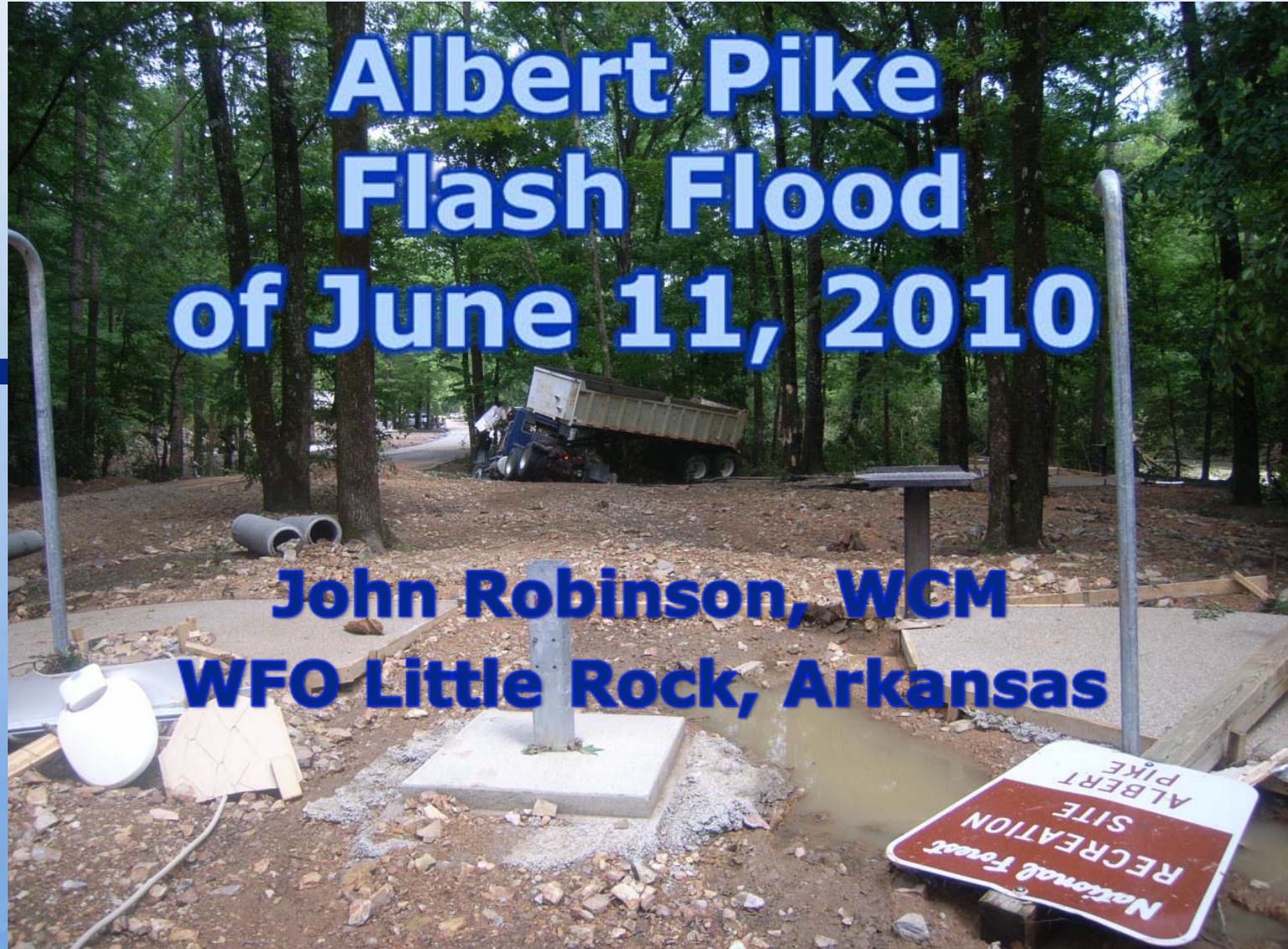




Albert Pike Flash Flood of June 11, 2010

John Robinson, WCM
WFO Little Rock, Arkansas





The Tragic Event



- Early on the morning of June 11, 2010, a devastating flash flood occurred at the Albert Pike Recreation Area on the Little Missouri River in the Ouachita National Forest.
 - 20 killed
 - 24 injured
 - ~60 rescued

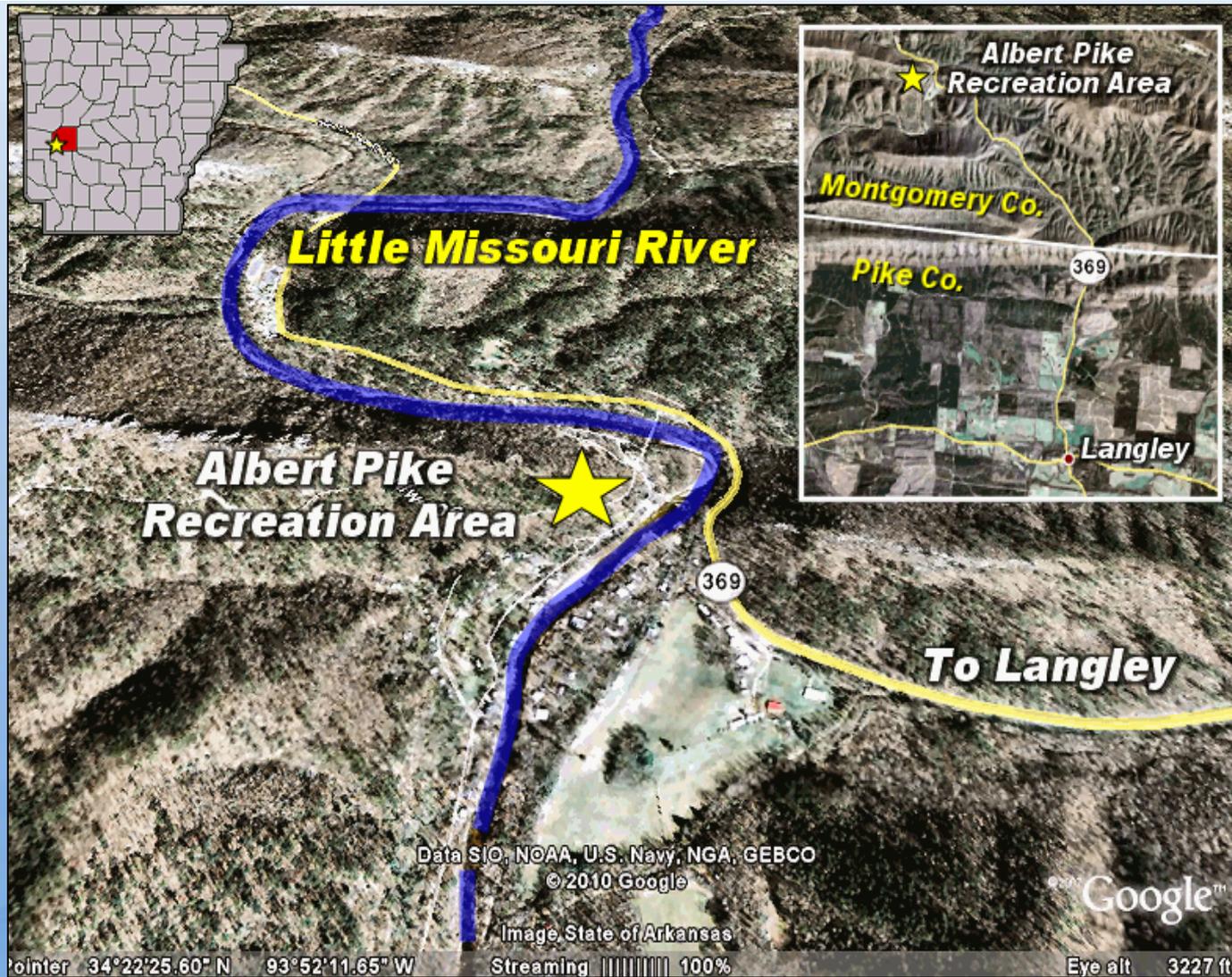


Cabins Built on Stilts?!

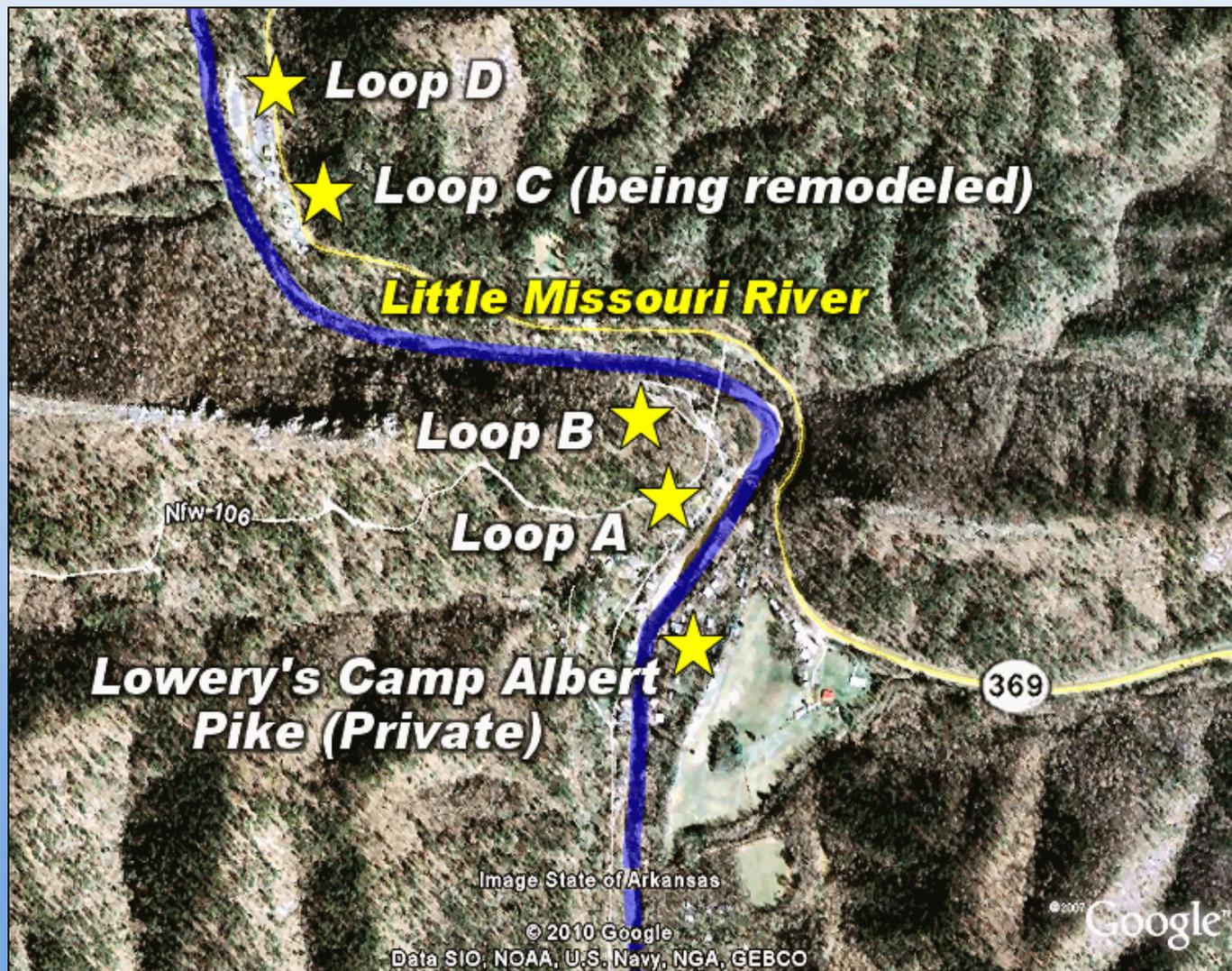




Albert Pike Area



Close-Up of Area



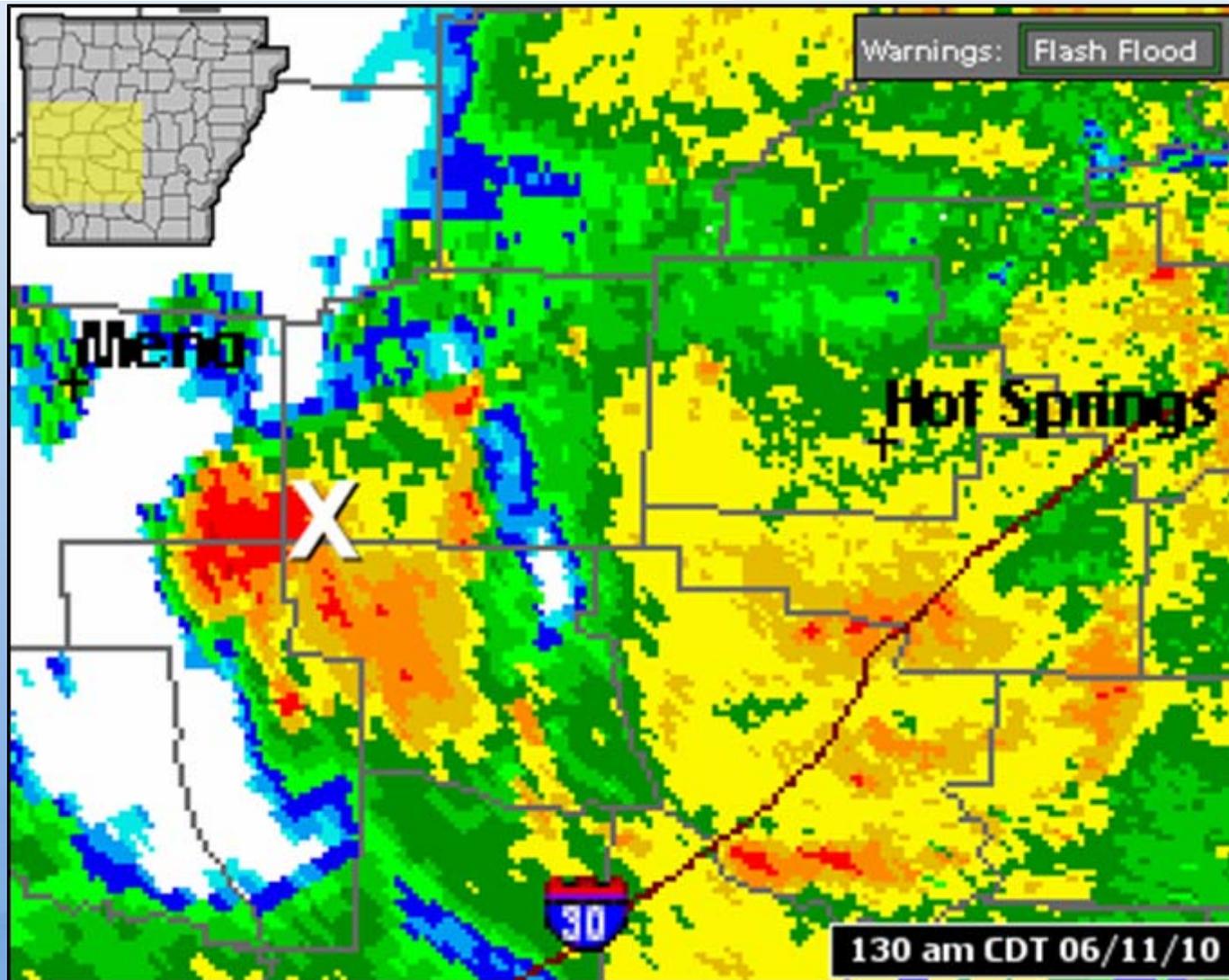
Factor #1: Terrain

Steep
hillsides –
Terrain rises
900 ft in
1.5 mi

River,
campground,
and road are
confined in an
area 125 yds
wide at
Loop D.

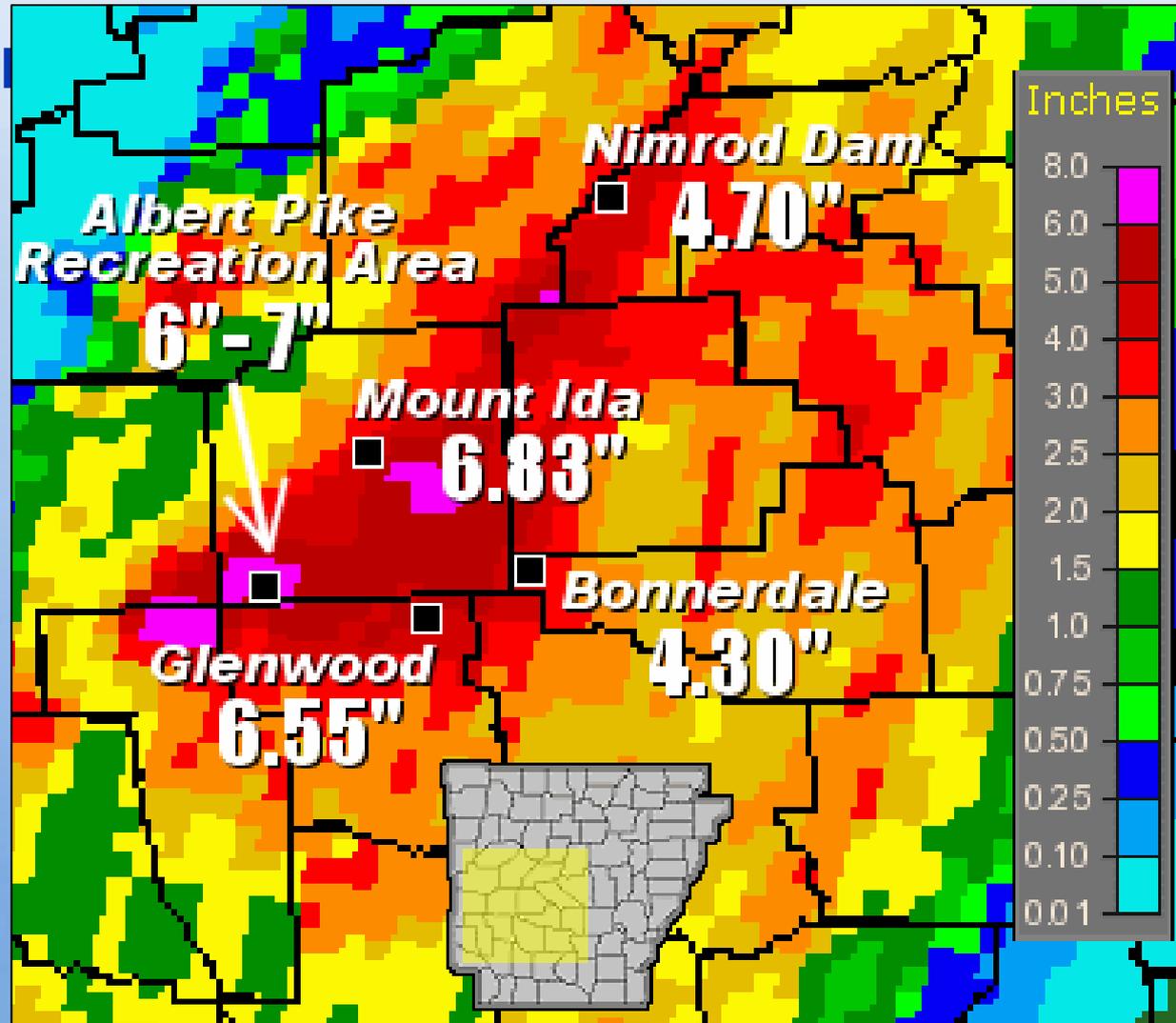


Radar Loop





24-Hour Rainfall



Factor #2: Rainfall

Rainfall rates were 2-3 in per hour for 2-3 hrs.



Little Missouri River



- ▣ **Factor #3: Very flashy river**
- ▣ USGS: Event exceeded 500-yr flood
- ▣ River gage near Langley
 - ▣ **2:00 AM: 3.81 ft**
 - ▣ 3:00 AM: 9.87
 - ▣ 4:00 AM: 17.70
 - ▣ 5:00 AM: 22.30
 - ▣ **5:30 AM: 23.39**
 - ▣ 6:00 AM: 22.40



Timeline



- June 9, early morning: Flash floods in central Texas
- June 10, morning and afternoon: Flash Floods in northeast Texas
- June 10, 11:58 AM: Flash Flood Watch issued for Little Rock CWA
- June 11, 1:57 AM: Flash Flood Warning for Montgomery and Pike Counties plus two others



Timeline



- ▣ **Factor #4: Time of the event**
- ▣ 2:38 AM: First 911 call
- ▣ 2:44 AM: Dispatch calls county fire/rescue
- ▣ 3:04 AM: 911 notifies FS LEO
- ▣ 3:05 AM: First report of flooding to WFO (forecaster called S.O.)
- ▣ 3:13 AM: Second emergency call (from off-duty state trooper)



Timeline



- ▣ 6:59 AM: Arkansas Department of Emergency Mgmt reports 2 fatalities
- ▣ 7:30 AM: State police troop still unaware of any fatalities
- ▣ ~8:35 AM: First media reports of fatalities
- ▣ **Factor #5: Very remote area with poor communications**



Emergency Management



- Dispatch took 26 min. to notify FS LEO
- Response delayed ~ 3 hours
 - Flooded roads and landslides
- County EMs not notified for almost 3½ hours
- Unified command not established
 - 4 separate command posts



Emergency Management



- Plenty of volunteers
- Extra state radios and site-on-wheels brought in
- Bodies of victims recovered much sooner than expected
 - Heat Index $\geq 100^{\circ}$ F
 - Snakes
 - Huge debris piles



Emergency Management



- Number of campers at time of flood was unknown
 - Campground registry washed away
 - Many campers not required to register
- June 11th: 16 bodies recovered
- June 12th to 14th: 4 bodies recovered
- Recovery operation ended June 14th



Emergency Management



- Nearby country church immediately set up operations to assist victims' families



USDA Report



All of the major bullet points in the following slides were taken from a USDA review prepared by a FS attorney and three FS LEOs

Reference: USDA Review Team Report
Inquiry Regarding June 11, 2010 Flash Flood Incident,
Albert Pike Recreation Area, Ouachita National Forest
Issued September 24, 2010



USDA Report



- Loop D built in 100-year flood plain
 - Should have been only “primitive use”
 - Loop D flooded 3 days after opening in summer 2004
- No flood hazard warning signs posted
 - Signs required by FS directives
 - Documented floods in 1940, 1961, 1968, 1975, 1982, 1987, 1990, 2001, 2004, 2005, 2006, and 2008



USDA Report



- Communications problems
 - No FS LEOs on duty late at night
 - No FS 24-hour dispatch center (dispatching is focused on fire season)
 - Ouachita Forest has no weather policy or weather warning procedures for the public, and no requirements to notify visitors of severe weather
 - FS radio repeater out-of-service



USDA Report



- Volunteer hosts not trained or prepared for emergencies
- FS employees had inadequate knowledge of FS directives and policies related to flood hazards and mitigation requirements
- No contingency plan for major flood at Albert Pike
 - No evacuation plan



USDA Report



- Given magnitude of flood, it is unclear whether any effort by FS to mitigate the disaster would have made a significant difference in preventing loss of life