The wake-up call
WWA’s response to the 2013 Front Range floods
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The Event

Water vapor and atmospheric circulation at 11:15 pm MDT, September 11, 2013.
(Satellite image: CIMSS, University of Wisconsin)
CoCoRAHS total precipitation from September 9–15, 2013

Boulder

17”

Map: Colorado Climate Center, CSU
1,900 homes destroyed
16,000 homes damaged
>10 fatalities

>200 miles of major roads damaged
>50 bridges damaged

Total cost: ~$2 billion
WWA’s rapid response - 10 days

- 4-page preliminary assessment
- Released at briefing and panel discussion attended by ~100 on-site and ~200 online
- Media coverage by local papers, public radio, The Weather Channel, CS Monitor, USA Today
WWA’s not-so-rapid outreach response

• 4-pager revised and reprinted in CSU’s *Colorado Water* Dec. 2013 newsletter

• Presentations (2013-2014) to:
  • Colorado Association of Stormwater and Floodplain Managers
  • US Committee on Irrigation and Drainage
  • Ditch and Reservoir Company Alliance
  • Upper Colorado River Basin Annual Forum
  • City of Boulder Open Space & Mountain Parks staff
  • City of Boulder 1-year anniversary event (public)
Catalyst for engagement with new stakeholders

- Floodplain and stormwater planners and managers
- City, state, and federal emergency managers
- City, state, and federal hazard mitigation planners
Catalyst for research – specific to 2013 event

- High-resolution weather modeling of 2013 event and similar extreme precip events (K. Mahoney, 2013 - ongoing)
- Paper on climate-change attribution of the 2013 event (M. Hoerling et al. 2014, BAMS)
- Survey of local residents and public officials on “surprise” associated with 2013 event (L. Dilling et al., 2013-14)
Catalyst for research – broader scope

- Development of historical extreme events database for WWA region (CO, UT, WY) – 2013-ongoing

- Creation of new WWA research theme, “Extremes and Climate Risk Management” – 2014-ongoing

- Assessment of future projections of extreme precipitation events – 2015-ongoing
Parting thoughts

- Location strongly affected how we responded to this extreme event
- Climate-change attribution was not so important to our stakeholders
- We’ve spent more effort walking back the “1000-year event” meme
WWA’s water focus now
Was it really a “1000-year rain” event? Unlikely.

NOAA Atlas 14 - Observed rainfall (red) at Boulder for different periods compared to corresponding precipitation frequency estimates (black).