Extreme precipitation webinar series

- Sep 10: regional extreme precip climatology and trends (Laurie Agel and Jonathan Winter)
- Sep 19: Projections of precipitation data (Matt Barlow and Art Degaetano)
- Oct 3: Distinguishing extreme precipitation and flooding (Glenn Hodgkins and David Vallee)

Recorded webinars available at: http://www.nrcc.cornell.edu/services/precip/precip.html
Extreme precip climatology and trends

- Extreme precip can occur anytime throughout the Northeast, but:
  - Frequency peaks in spring and late summer/fall for coastal areas
  - Frequency peaks in late summer for inland areas
- Most Northeast extreme precip is related to extratropical storms, but storm tracks and dynamics (e.g. fronts, convection, warm conveyor belts) can differ from inland to coastal areas.
- Extreme precip (defined as amount that falls on 99th percentile wet days) has increased by 53% since 1996, relative to 1901-1995.
- Primary trend driver is tropical cyclones, likely attributable to warmer SSTs and enhanced water vapor.

(NOAA Fisheries)
Extreme precip projections

• Extreme precip very likely to be more intense and more frequent

• Understanding and projecting extremes is a rapidly developing area

• Estimating the probability of future extreme precipitation events requires numerous assumptions

• Current climate models suggest that by 2050 the annual probability of the heaviest rainfall events will nearly double from that expected in 2008, making the old 100-year storm more like a 50-year storm

More of this: Oct 2016, Worcester

Photo: WBZ
Distinguishing extreme precip and flooding

- Northeast flood peak increases over last 50 years generally less than heavy precip increases (minimally impacted basins), likely because flood peaks are influenced by storm-event precip AND antecedent basin moisture, snowpack, and other factors.

- Urbanization and reservoir regulation strongly affect peak flow trends.

- Increased flood frequency across much of the Northeast, especially in small watersheds and basins that have experienced substantial land use change.

- Increased annual precipitation (approx. 1" in 10 years in the I-90 corridor/coastal plain) and frequency of heavy precipitation (e.g., events >/= 1" in 24-hours).
Break out group discussions

- A webinar (two talks) for each table
- Discuss and record these things:
  - key points *you* identified
  - key questions you still have
  - further science you would like on the topic