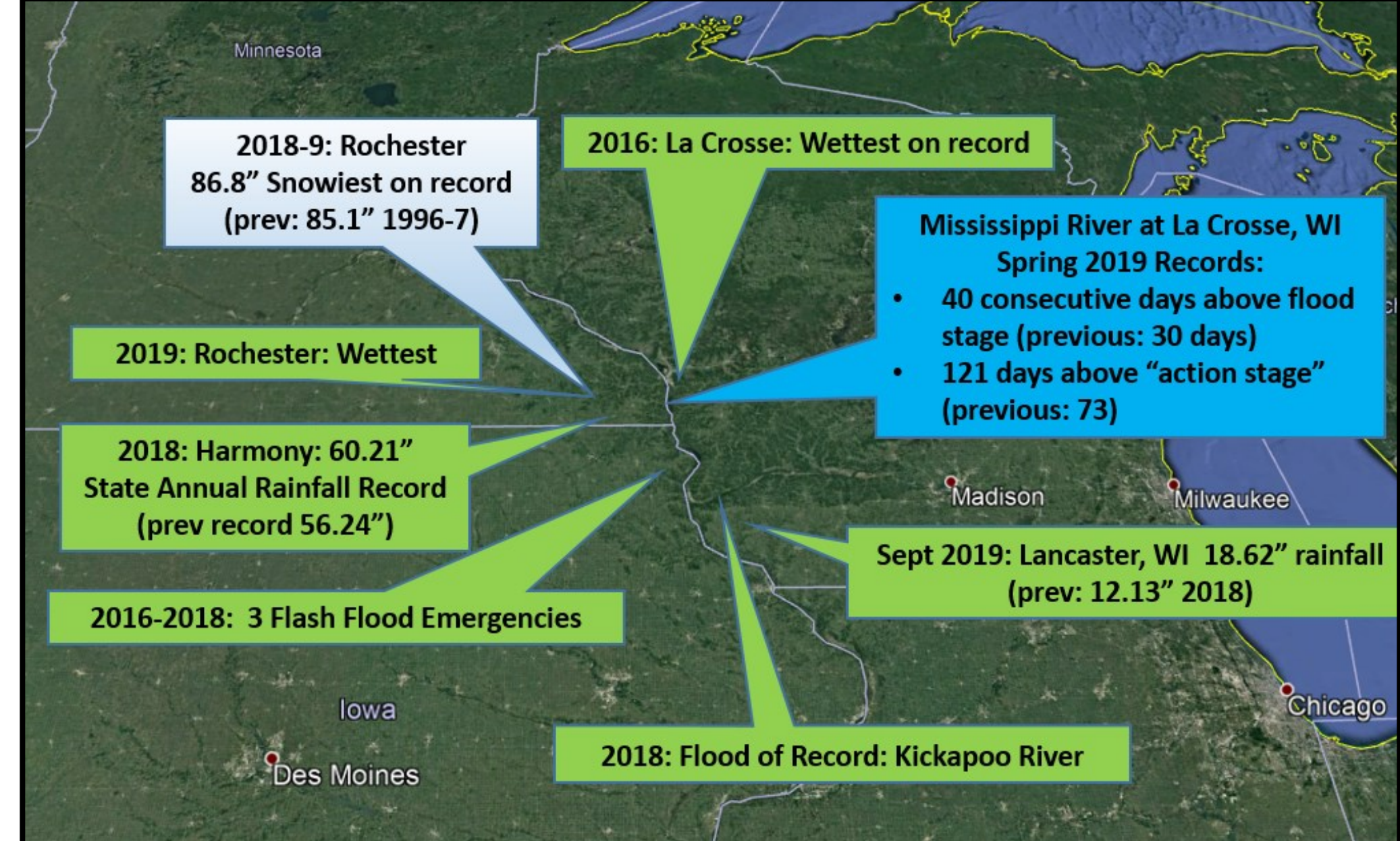


The Disturbing Recent Heavy Precipitation Trend across Parts of the Upper Mississippi River Valley

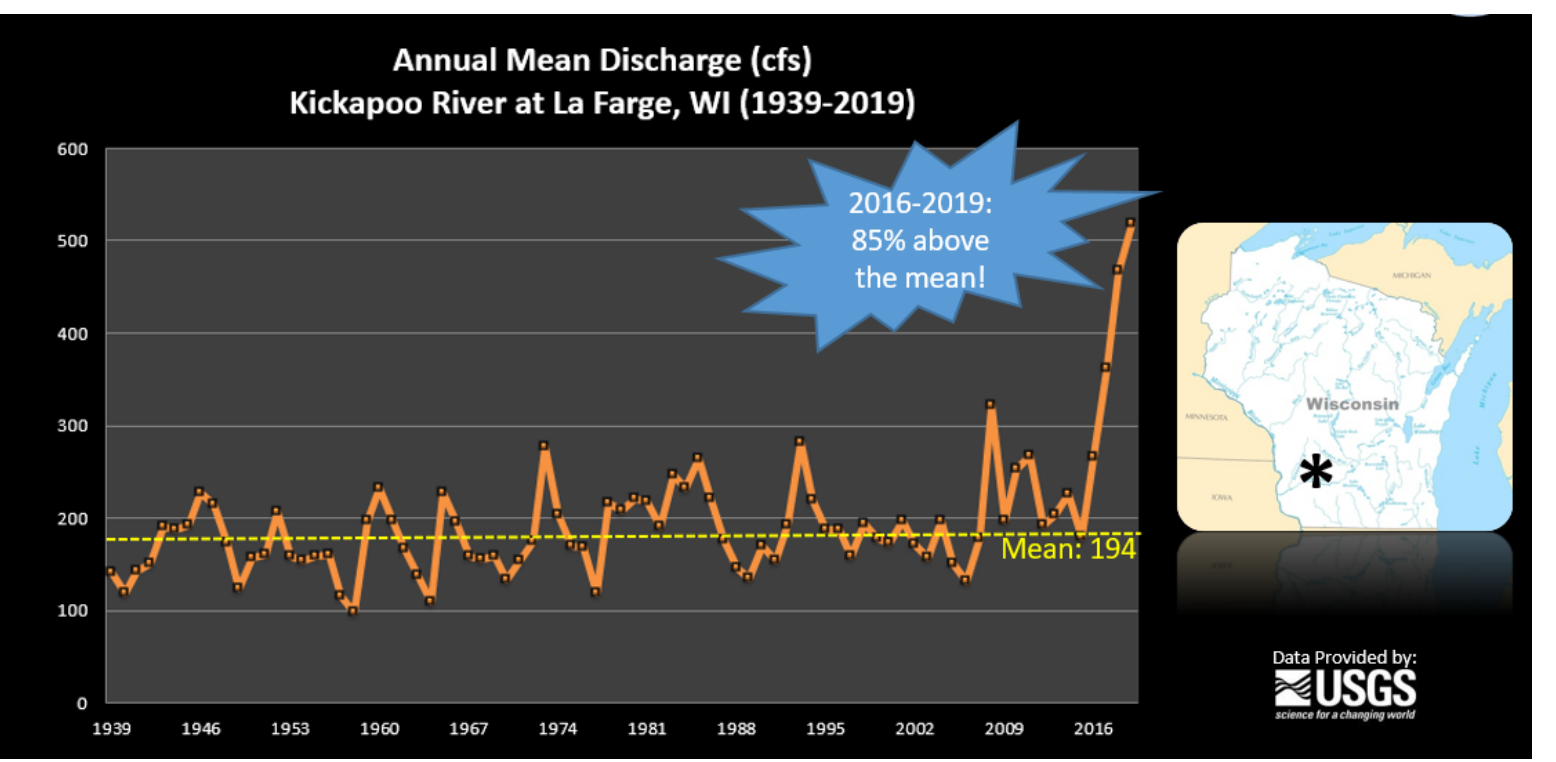
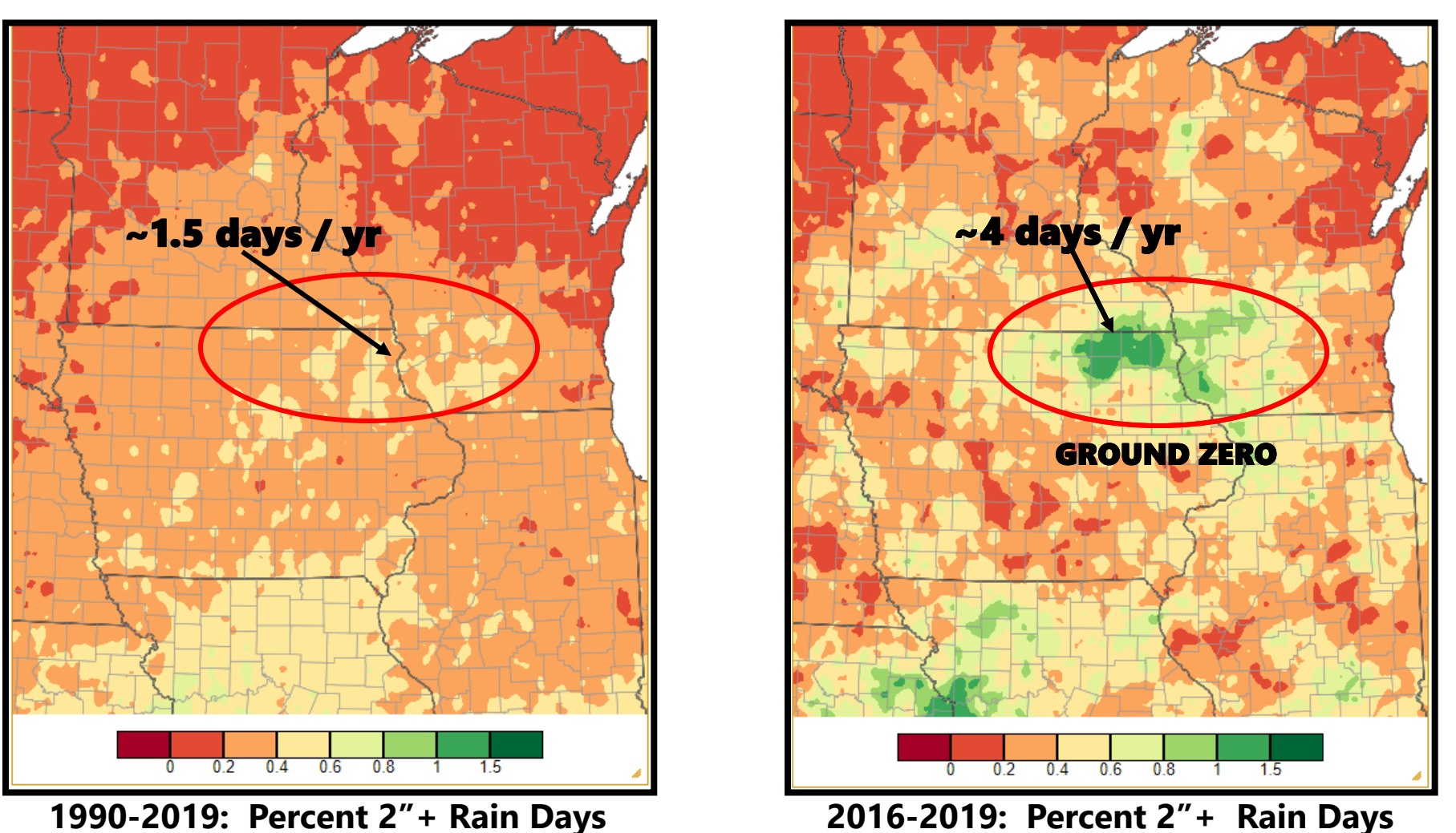
 Dan Baumgardt
NWS La Crosse, Wisconsin

BACKGROUND: Extreme rainfall and flooding is on a disturbing trend upward, stressing communities, destroying infrastructure, and threatening lives and livelihoods.



METHODS AND DATA:

- Rainfall data was acquired from NOAA/NWS Volunteer Cooperative Observing Network records, interpolated to a 5km grid (1950+), and NOAA National Centers for Environmental Information.
- River stages and streamflow data were acquired from USGS historical records.

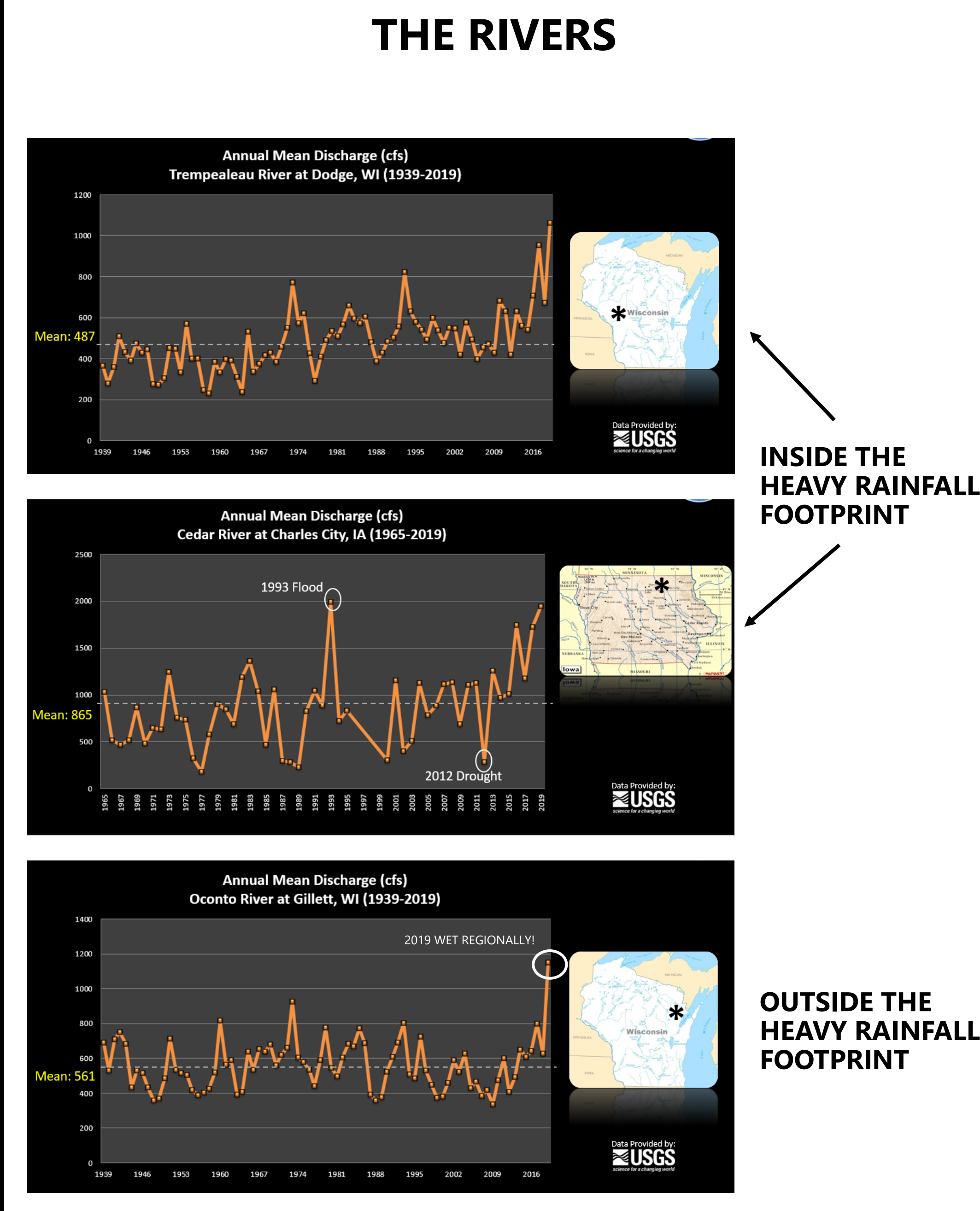
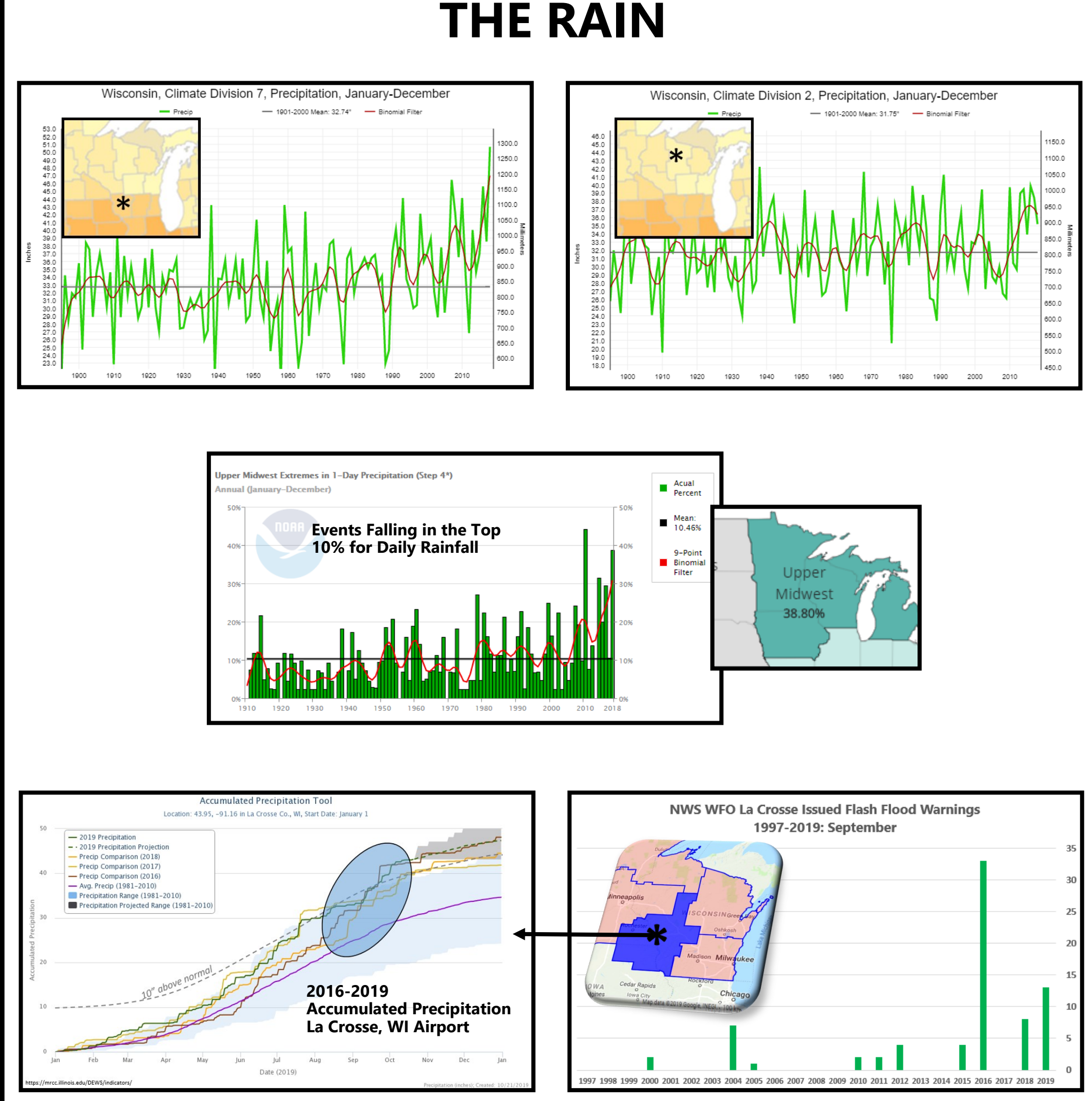


RESULTS: Since 2016:

- A 4-year sustained wet period was observed.
- 2"+ rainfall events have increased 400% (300% over 1970-1999 (1990-2019) normals).
- Rivers have averaged 85% above the 80-year mean historical streamflow at ground-zero.
- Flash Flood Emergencies are ~1 per year.
- August and September heavy rainfall events are more common.



Recent extreme rainfall events have been observed *4 times* as often as pre-2000 normals.



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