Extreme Weather
2019 Midwest Flood Report

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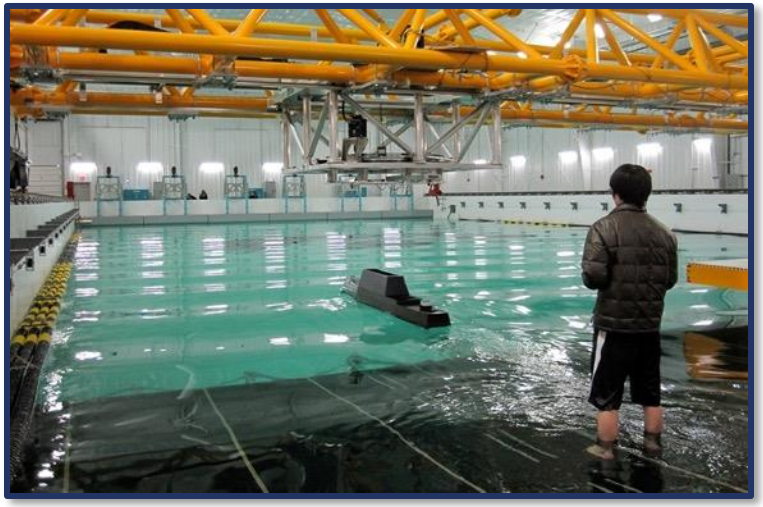
The University of Iowa
College of Engineering
IIHR Hydroscience & Engineering
Iowa Flood Center

IIHR—Hydroscience & Engineering



IIHR is a unit of the University of Iowa's College of Engineering. At IIHR, students, faculty members, and research engineers work together to understand and manage one of the world's greatest resources—water.

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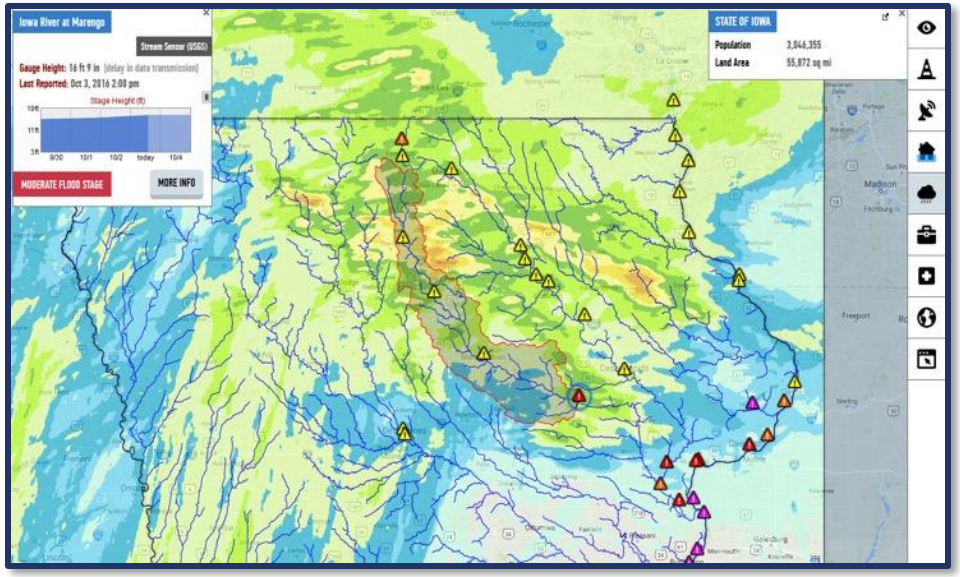

- Provide accurate, science-based information to help Iowans better understand flood risks
- Develop hydrologic models for physically-based frequency estimates and real-time flood forecasting
- Establish community programs to improve flood monitoring
- Develop strategies to mitigate and prevent future flood damage
- Develop Iowa's workforce in flood-related fields

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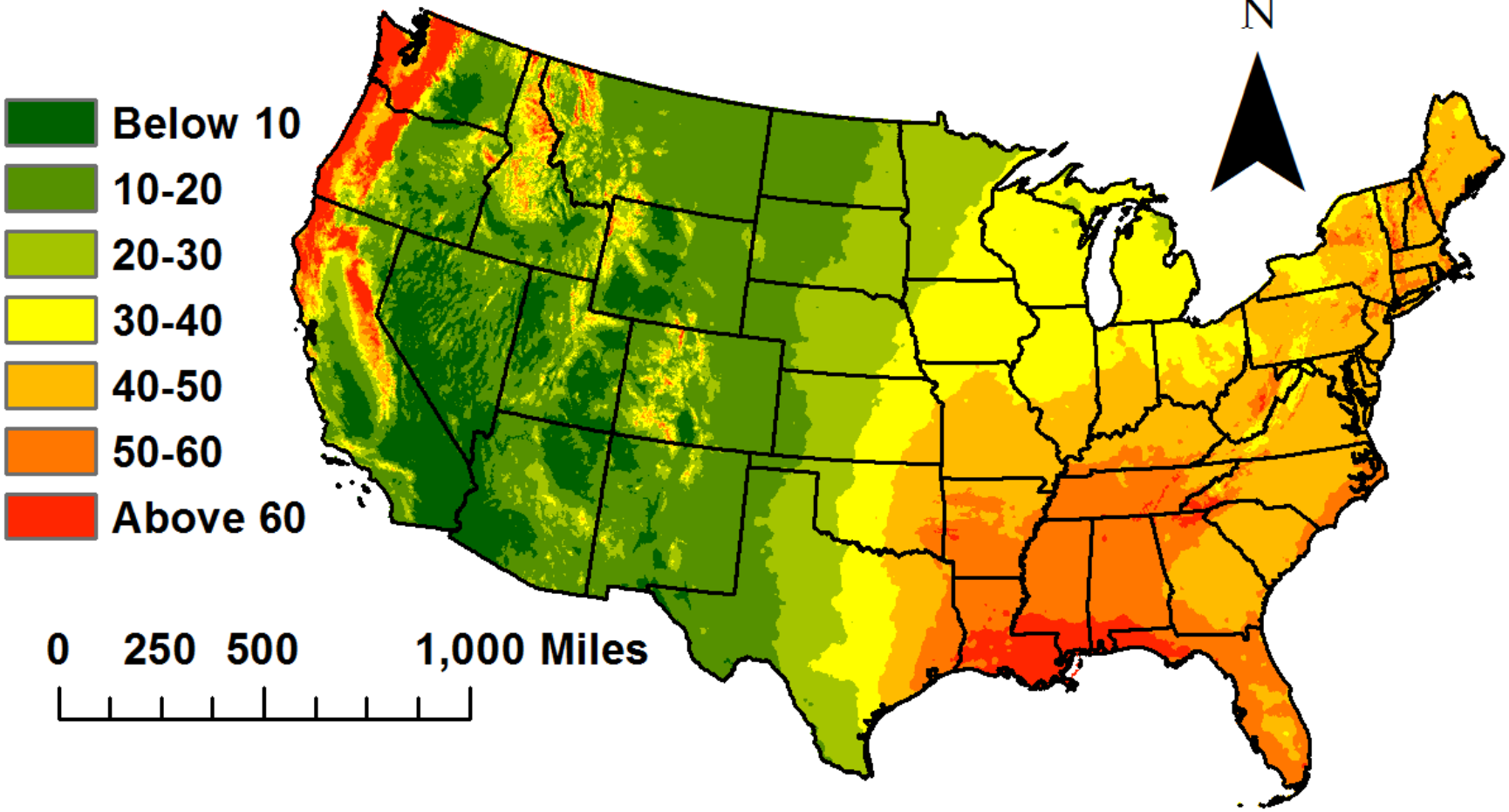
Average annual precipitation (inches). Estimates are based on the 30-year annual average (1981-2010).



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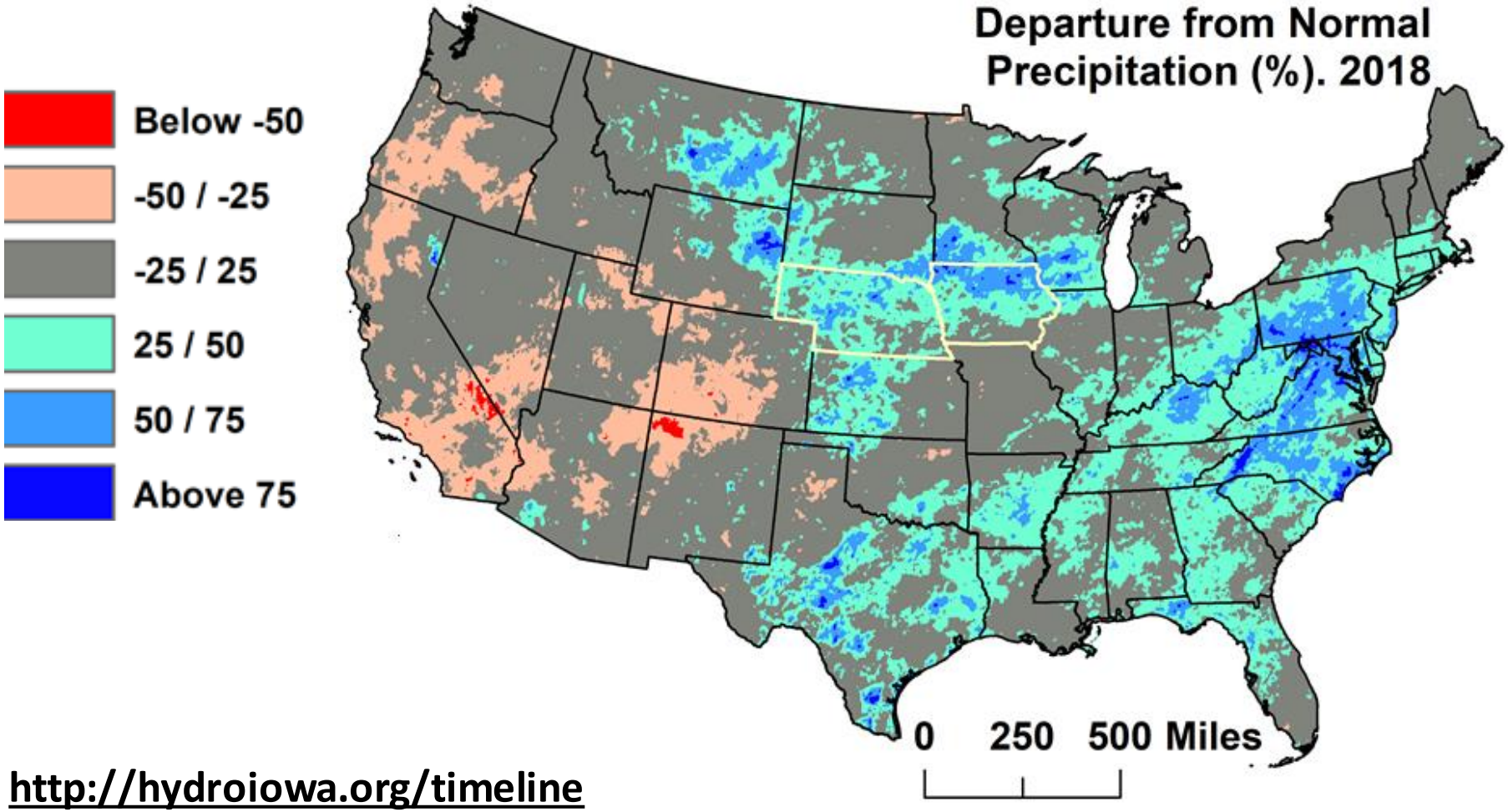
(Raw data source: http://www.prism.oregonstate.edu/)

Mississippi and Missouri Rivers



http://hydroiowa.org/timeline

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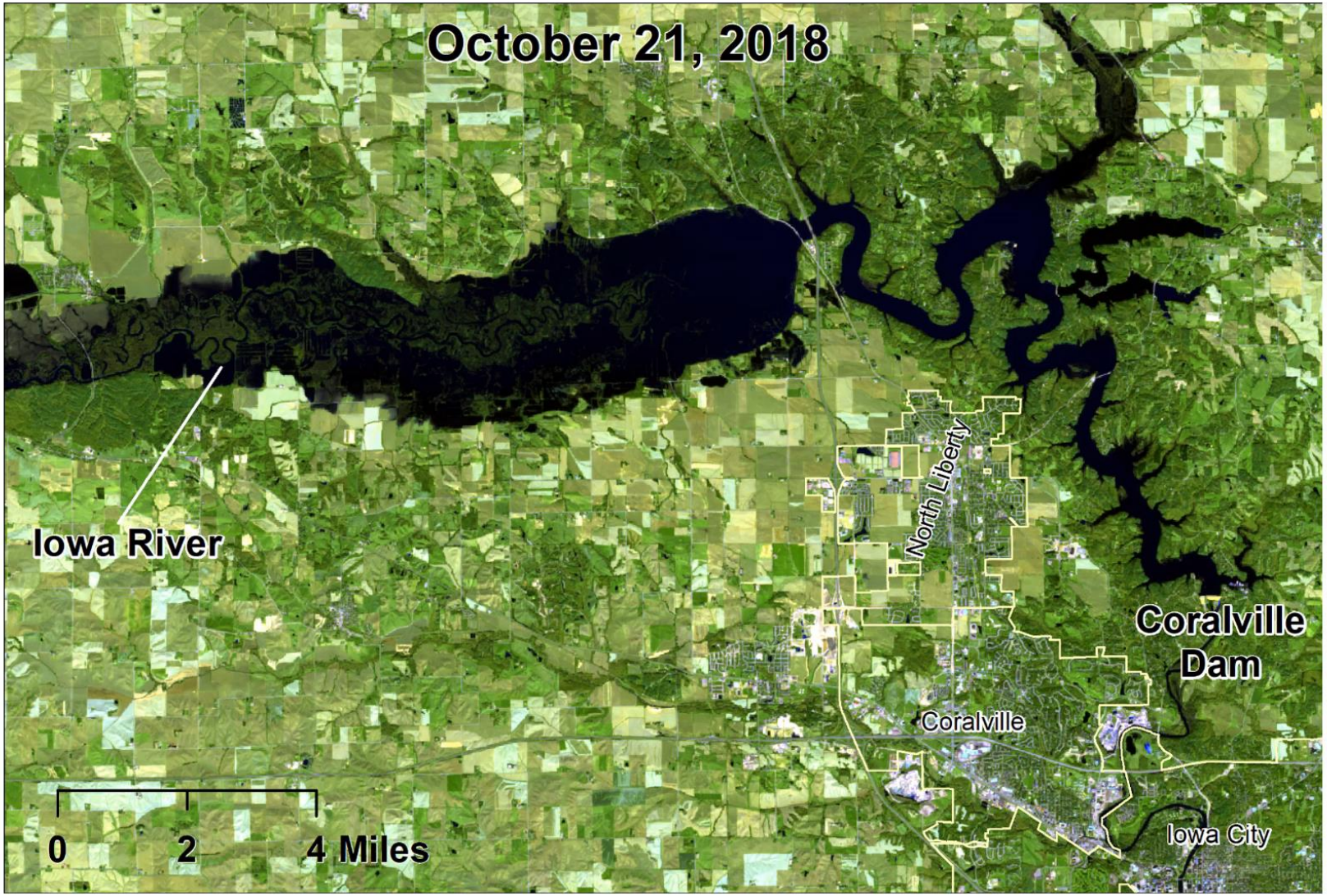

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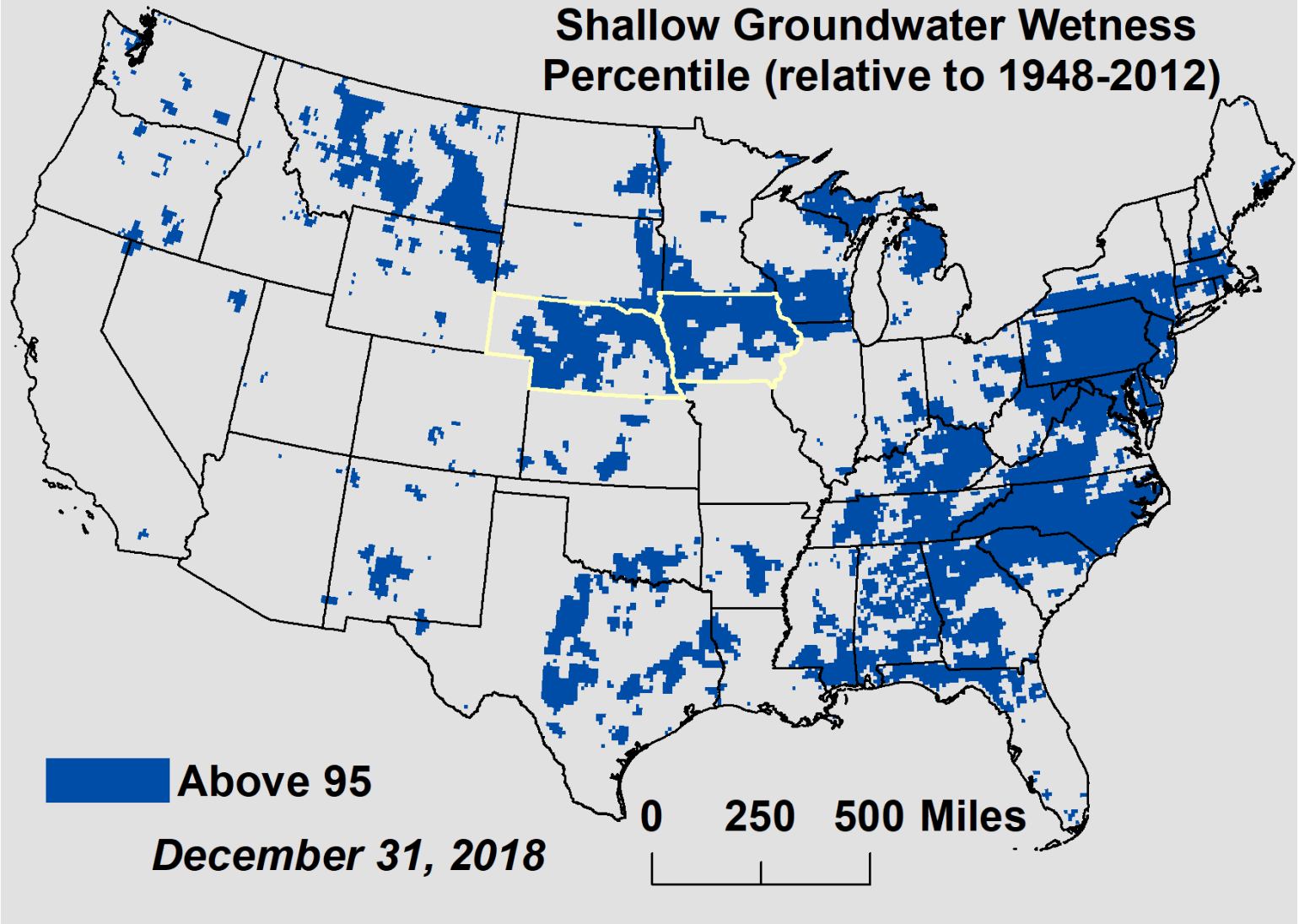

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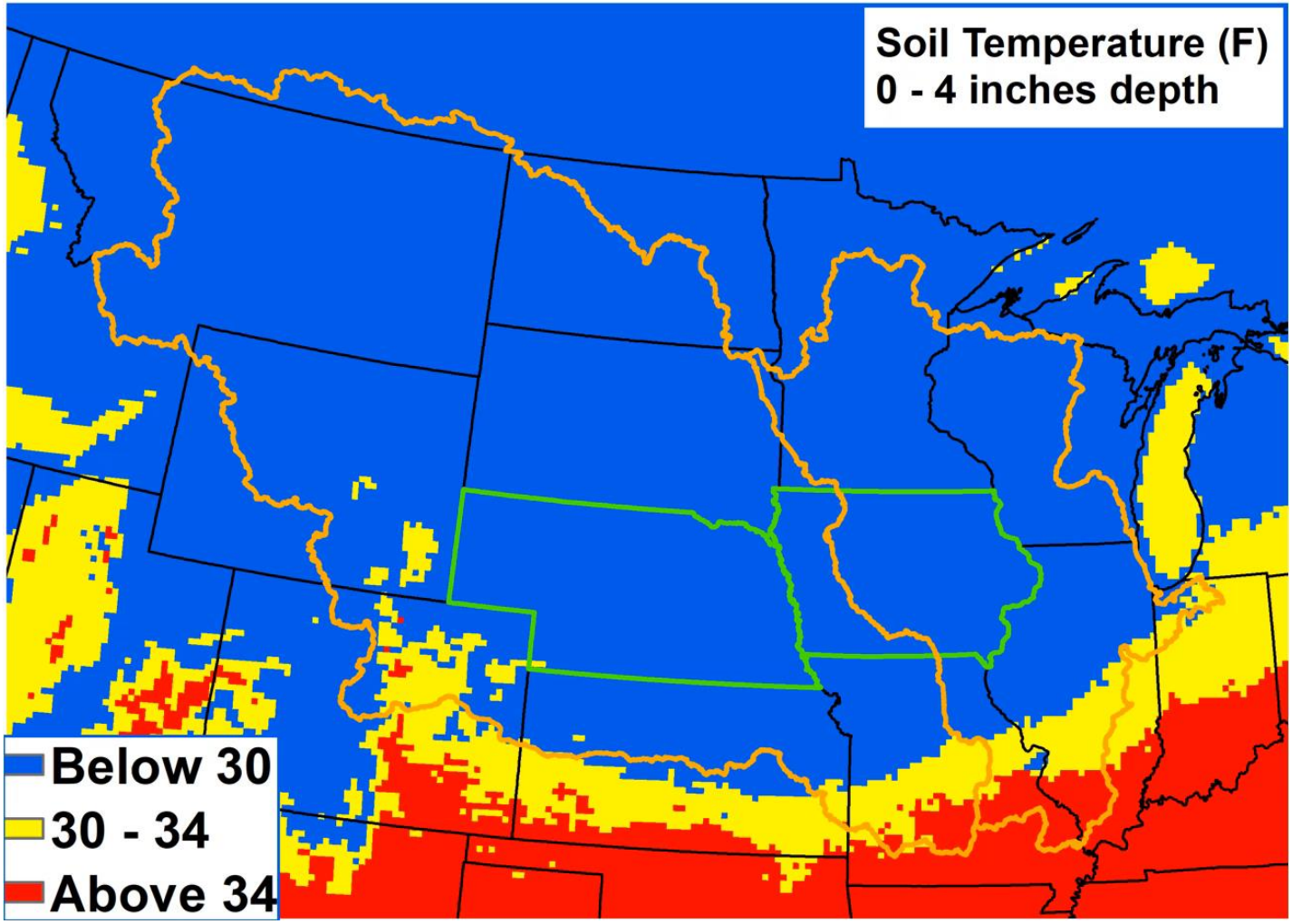
(Raw data source: https://nasagrace.unl.edu/)

Mississippi and Missouri Rivers

2/15/2019



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(Raw data source: https://nomads.ncdc.noaa.gov/data/namanl/)

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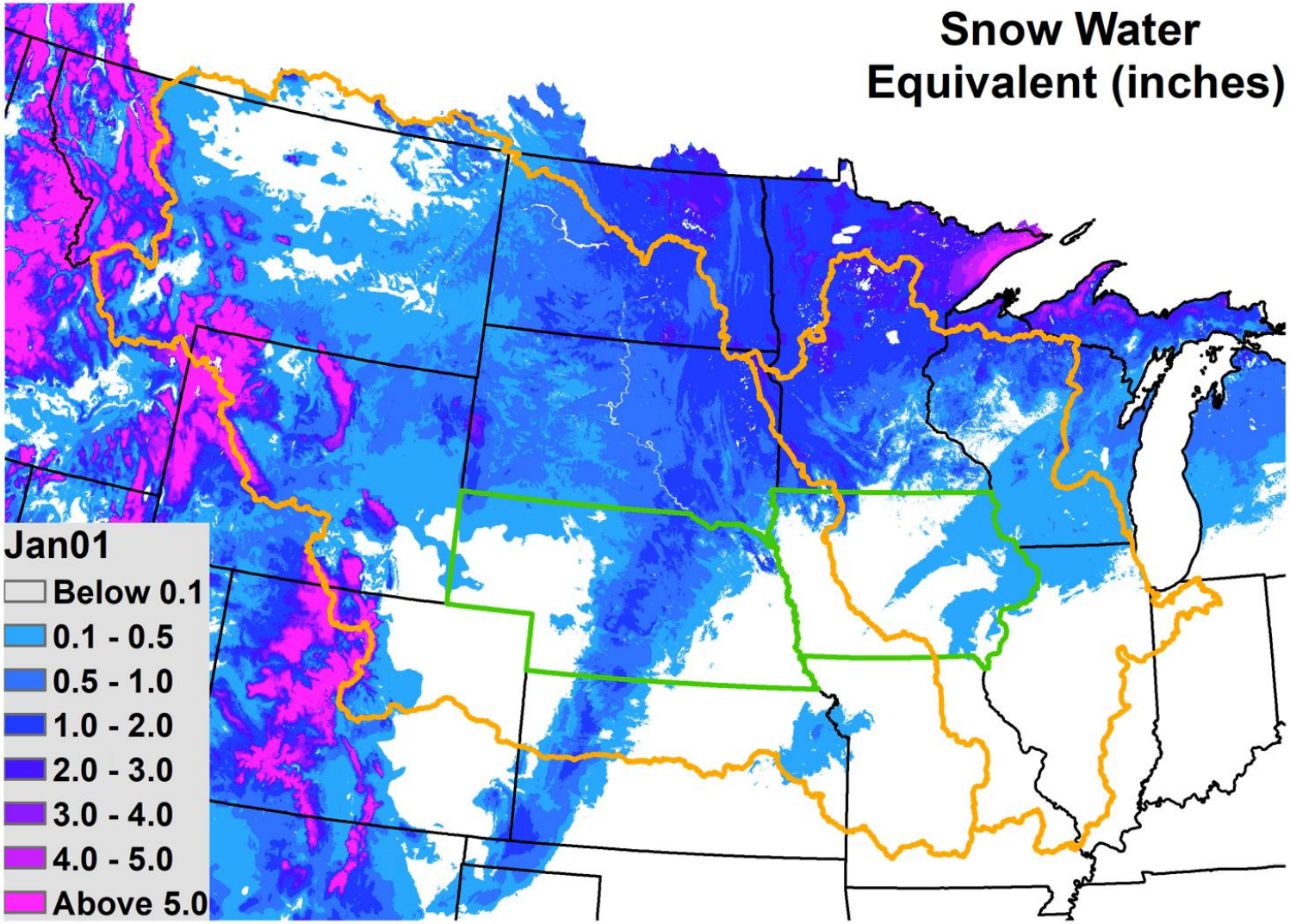

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(Raw data source: https://nsidc.org/data/g02158)

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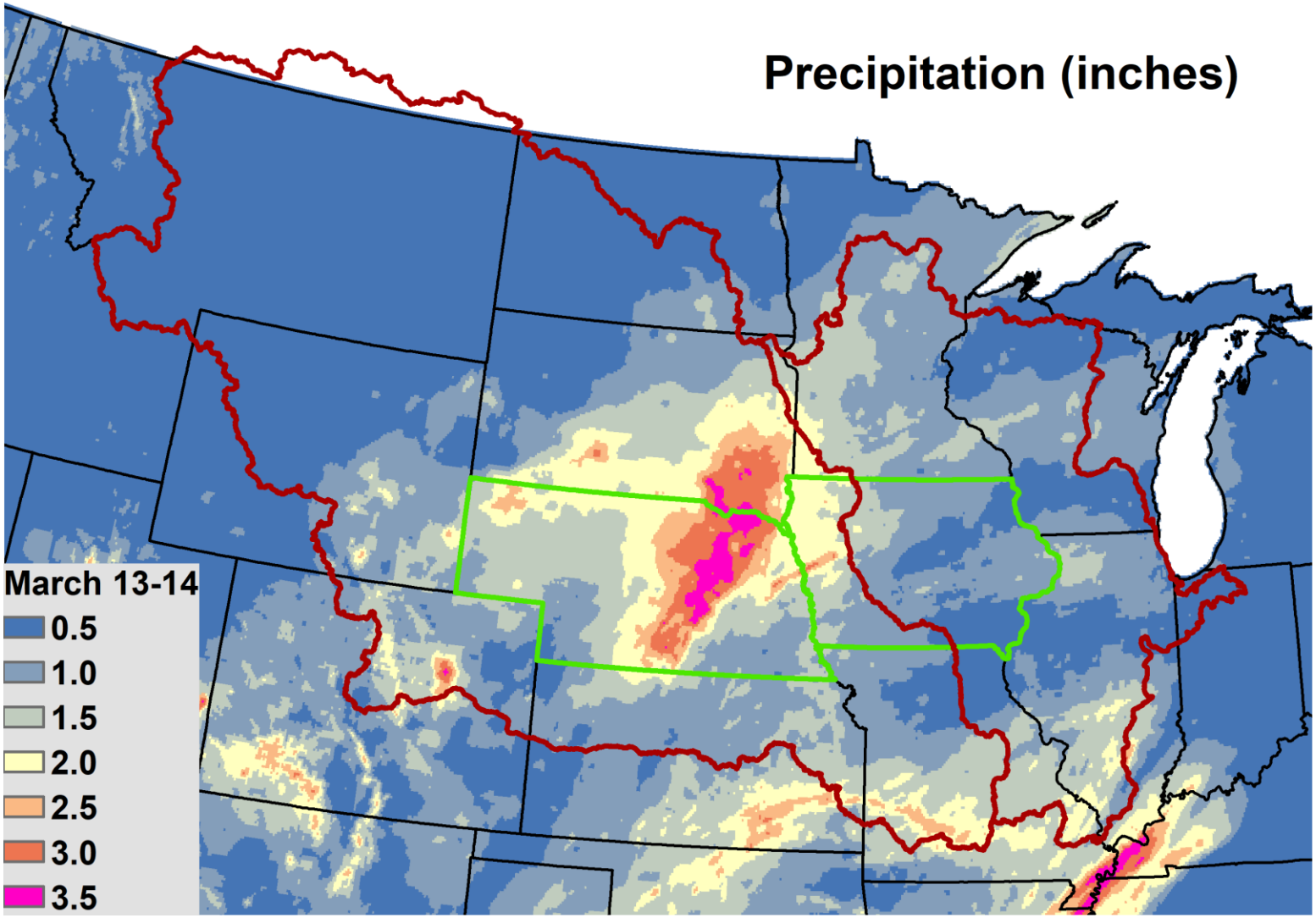

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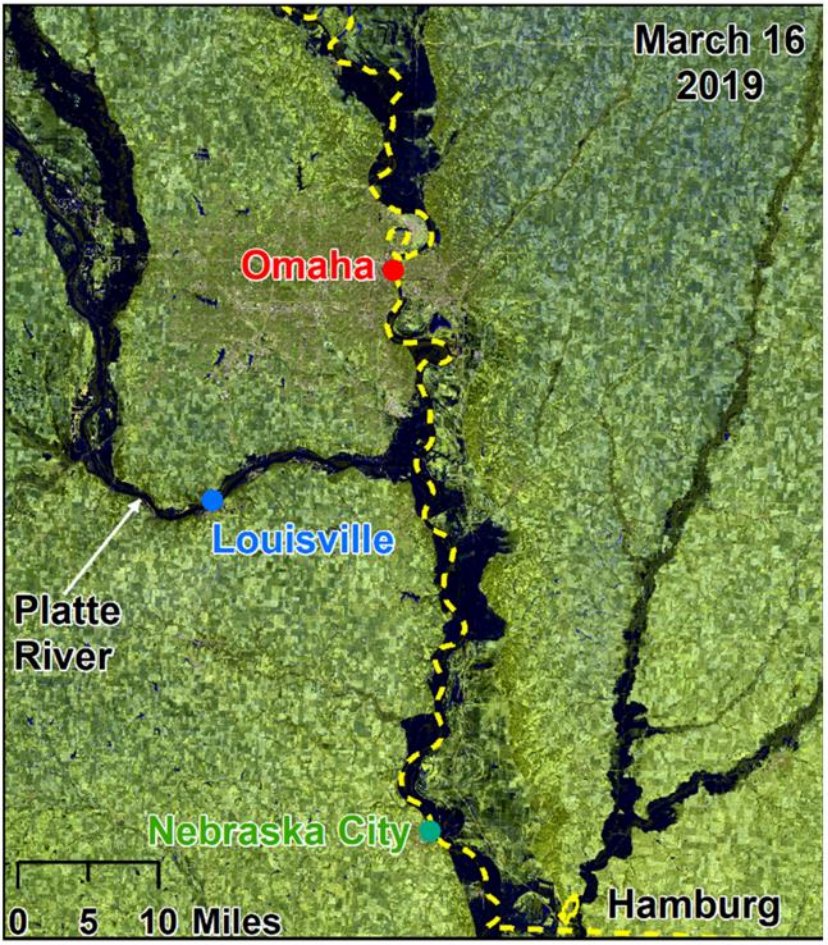

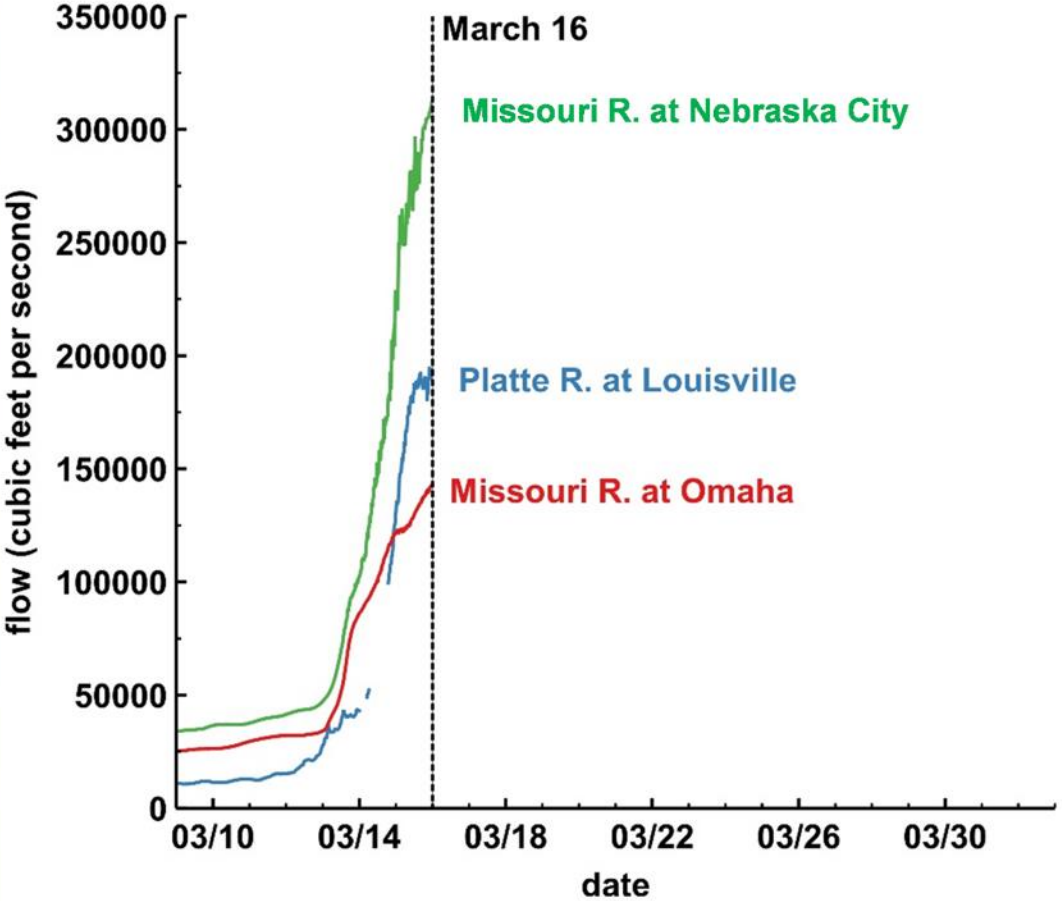

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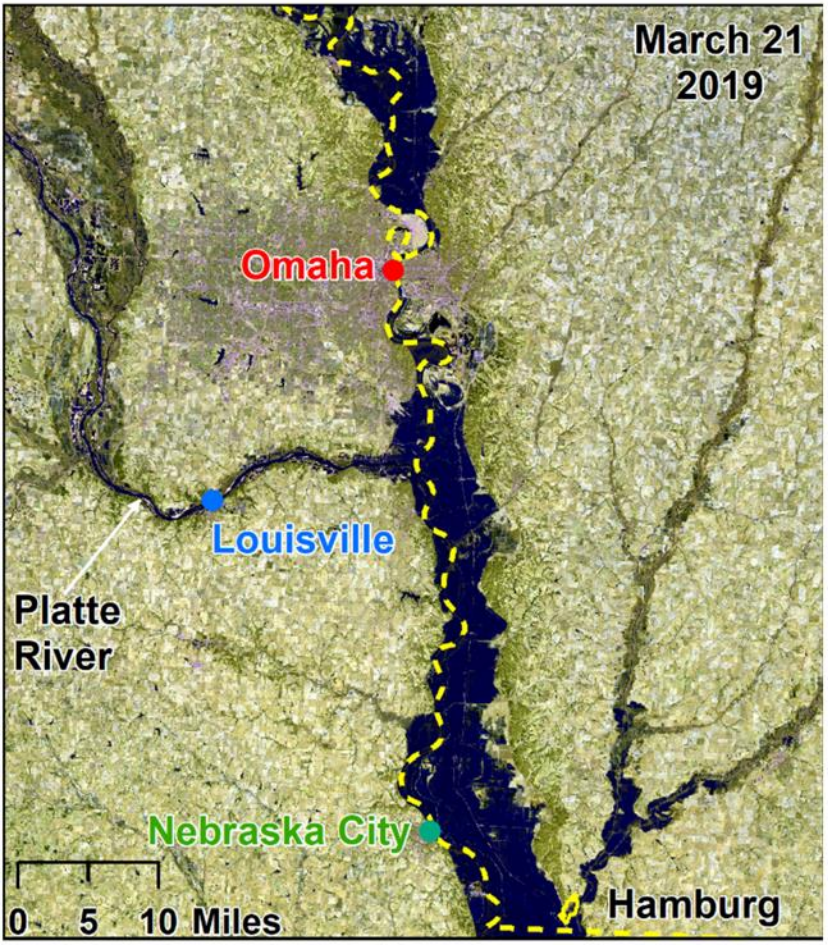

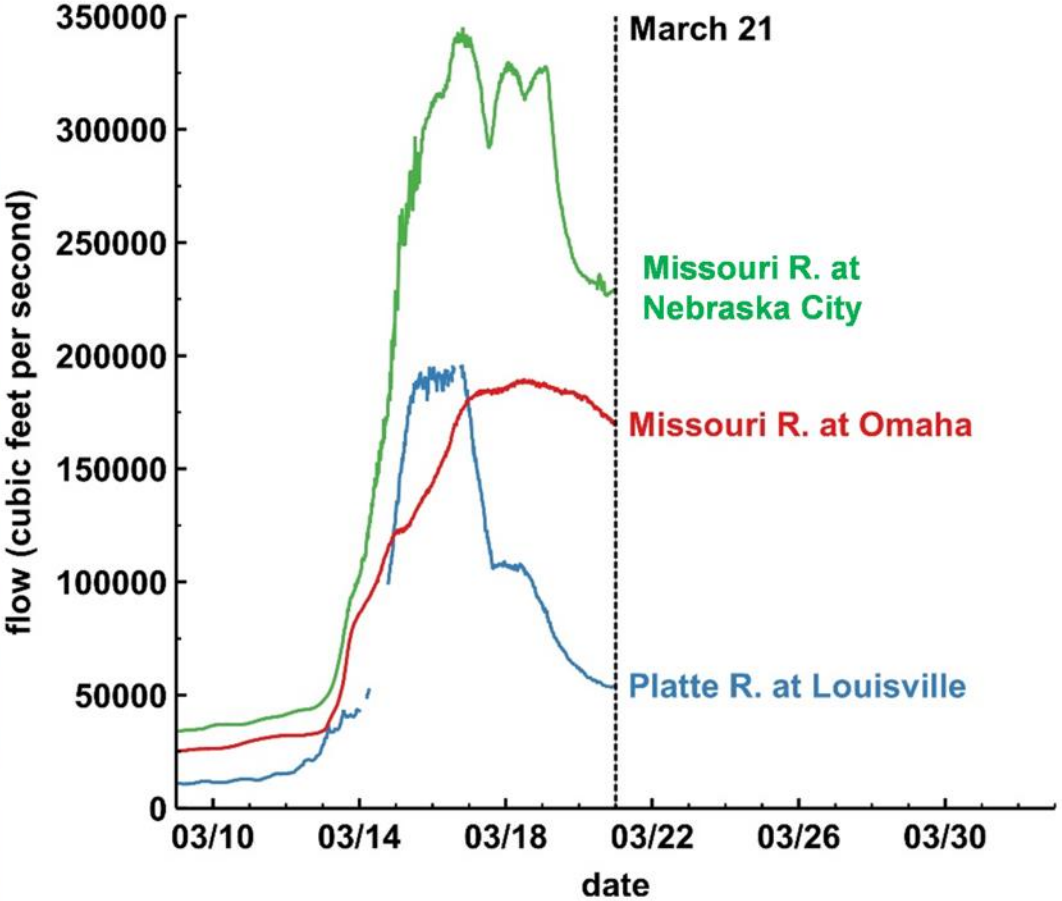

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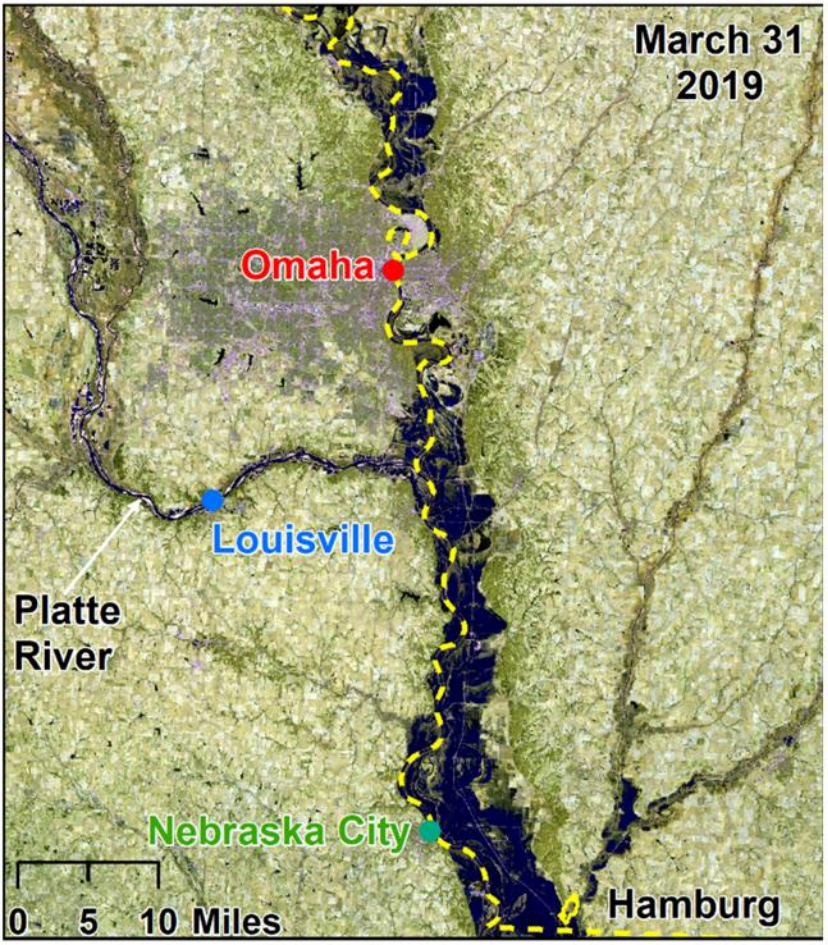

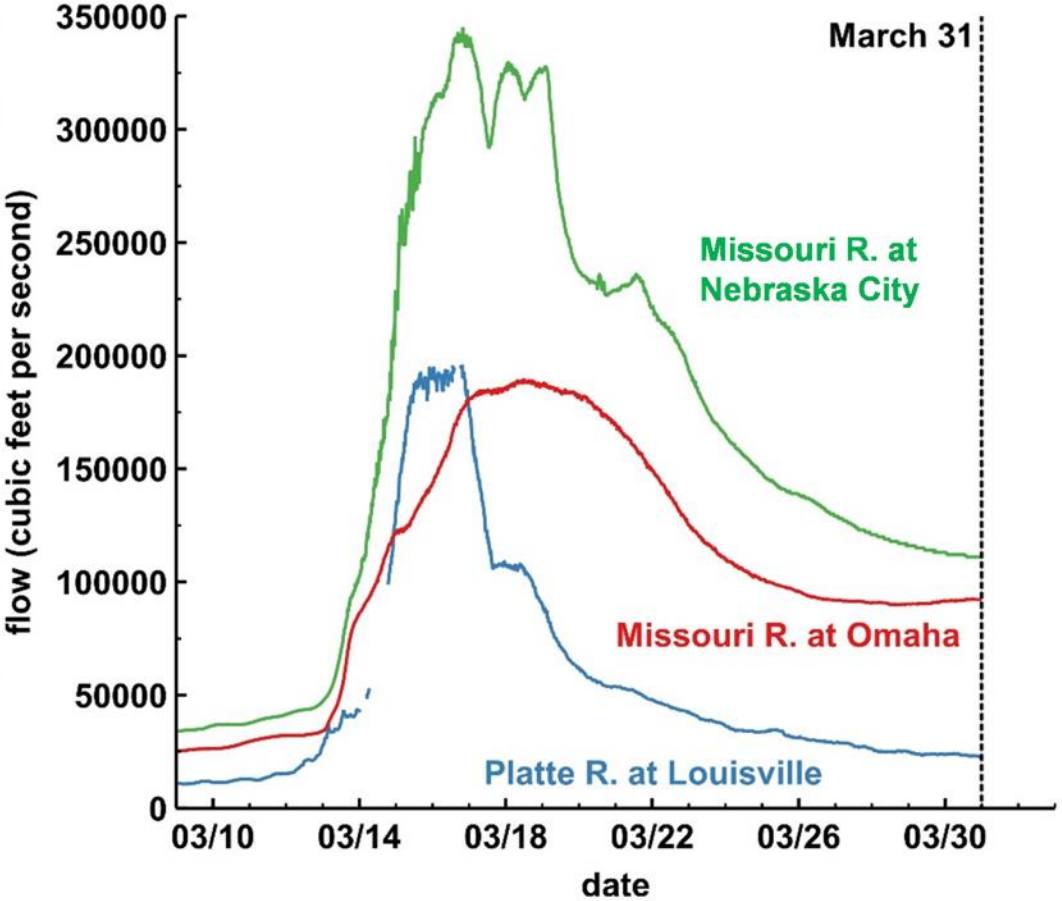

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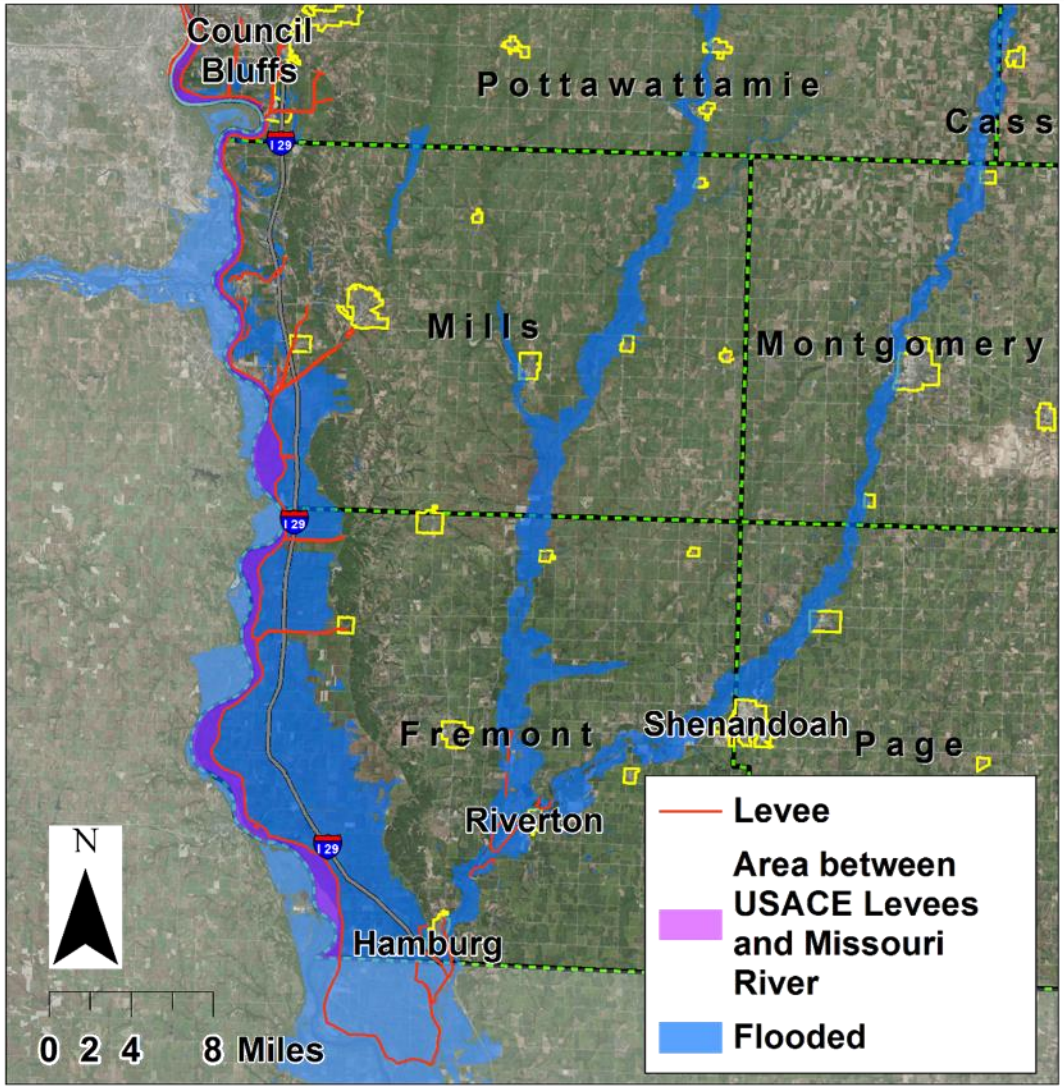

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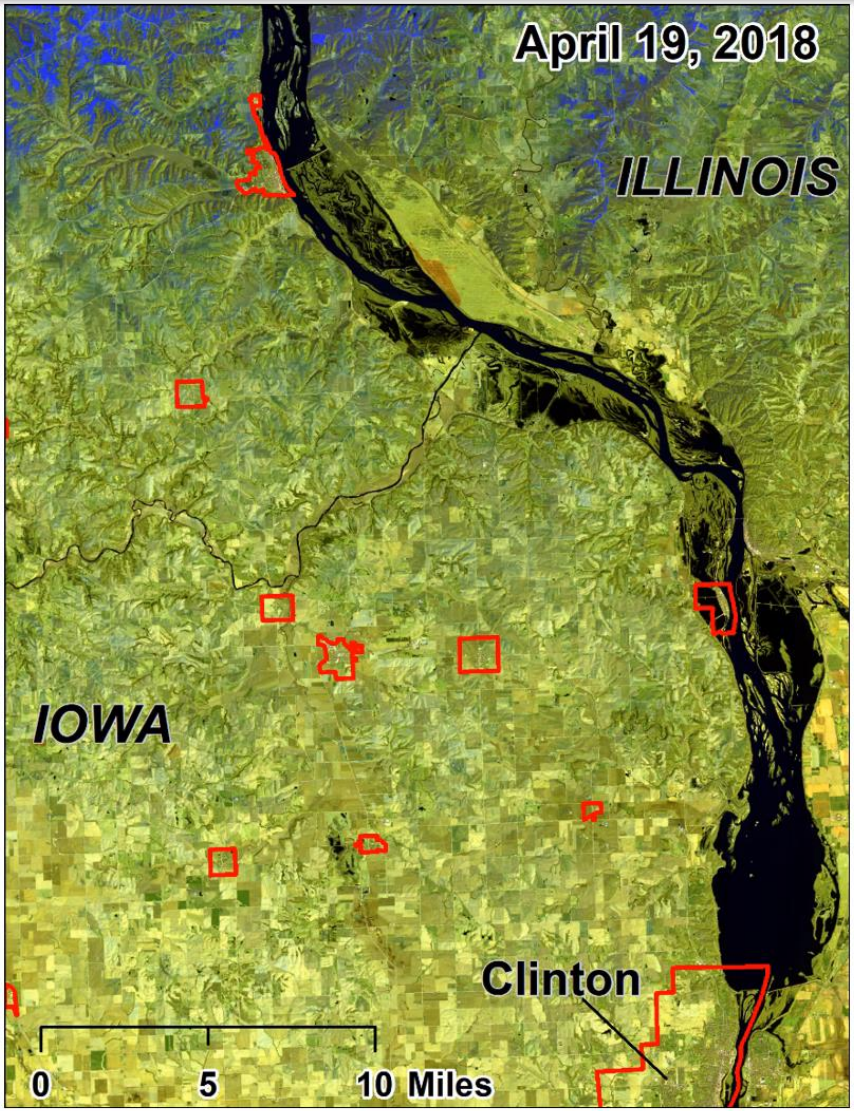

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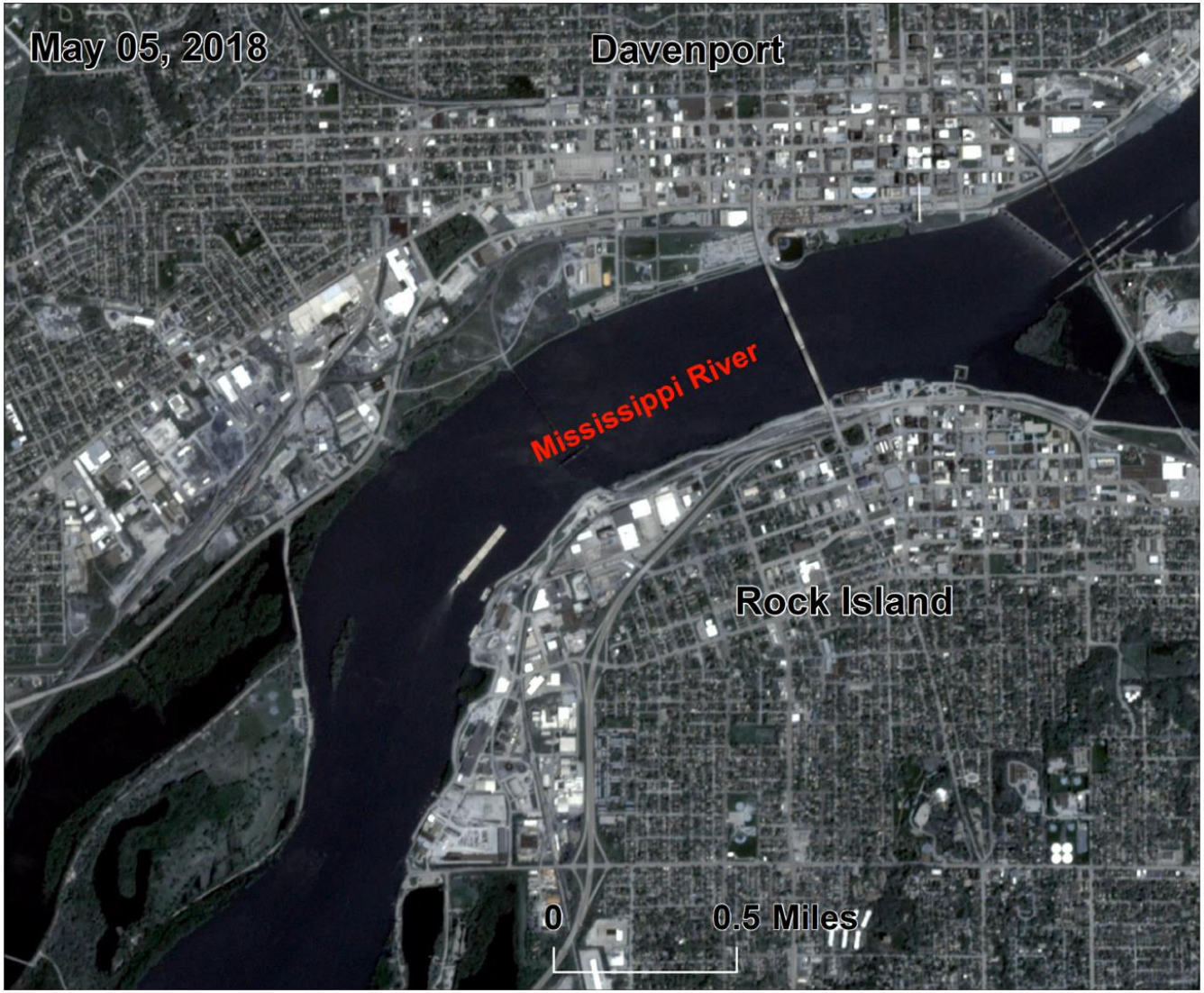

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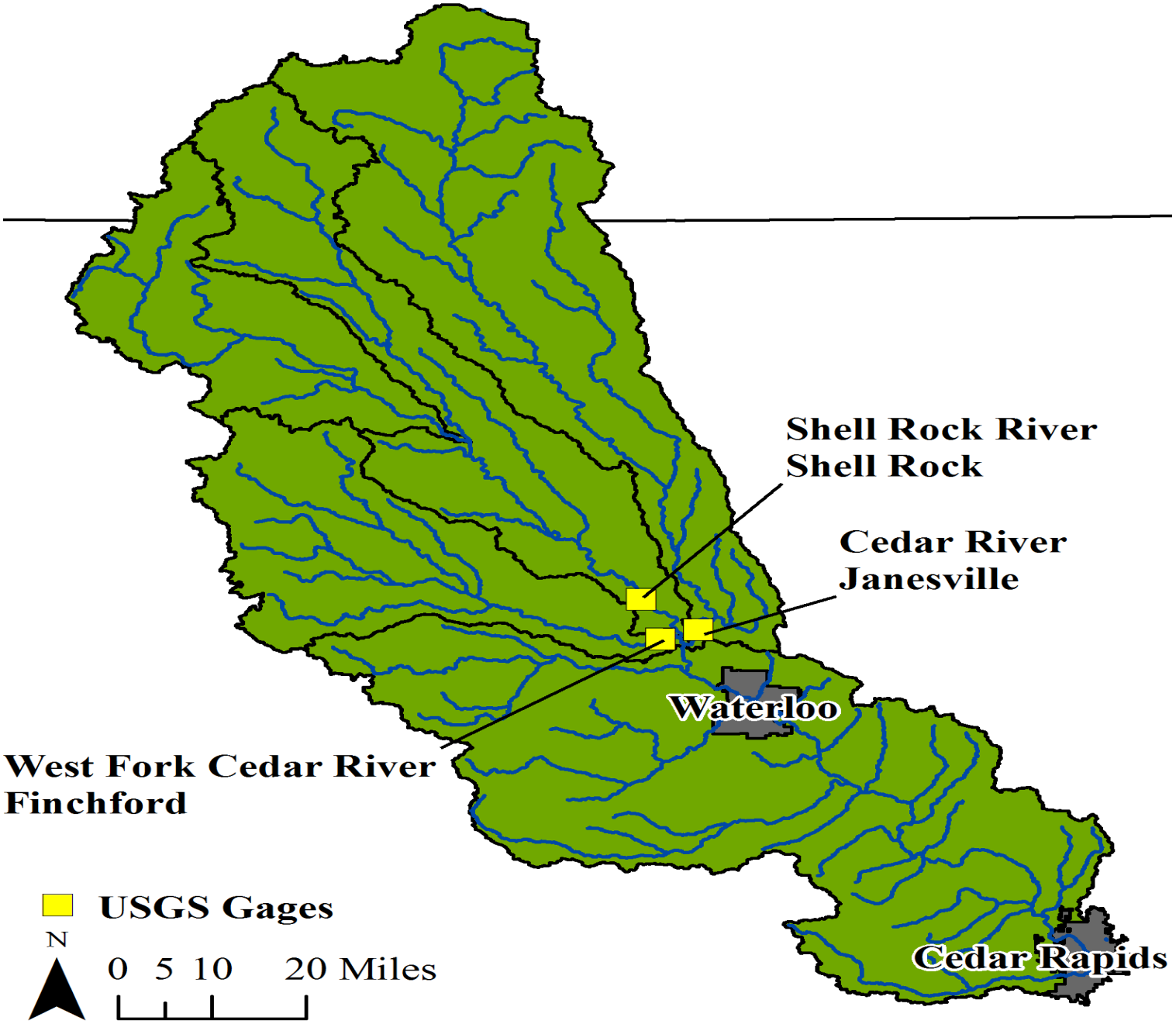
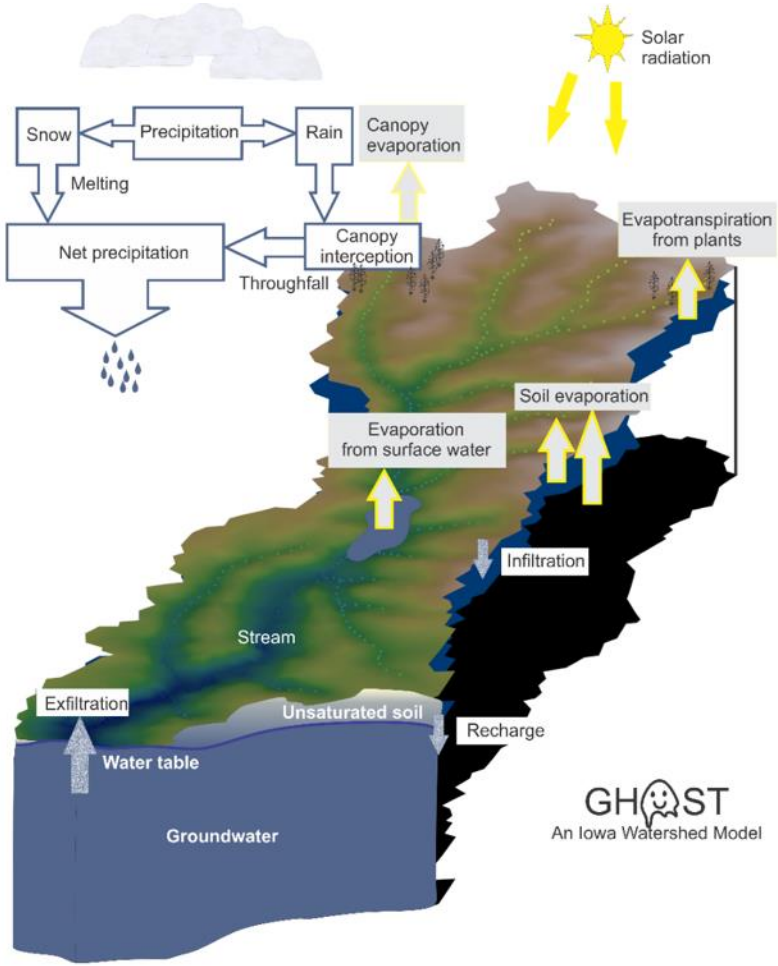
(Raw data source: https://www.planet.com/)

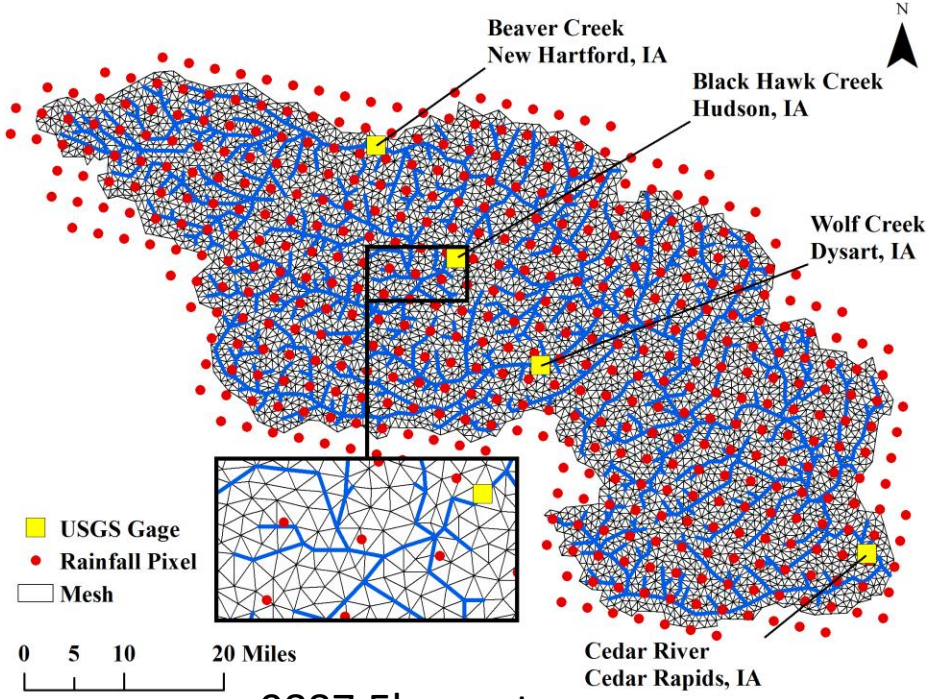
STOP


Shell Rock River
Shell Rock
Cedar River
Janesville
Waterloo
West Fork Cedar River
Finchford
Cedar Rapids
USGS Gages
N
0 5 10 20 Miles

Storm Transpositions Applied to GHOST

Politano: https://iowawatershedapproach.org/resources/ghost/

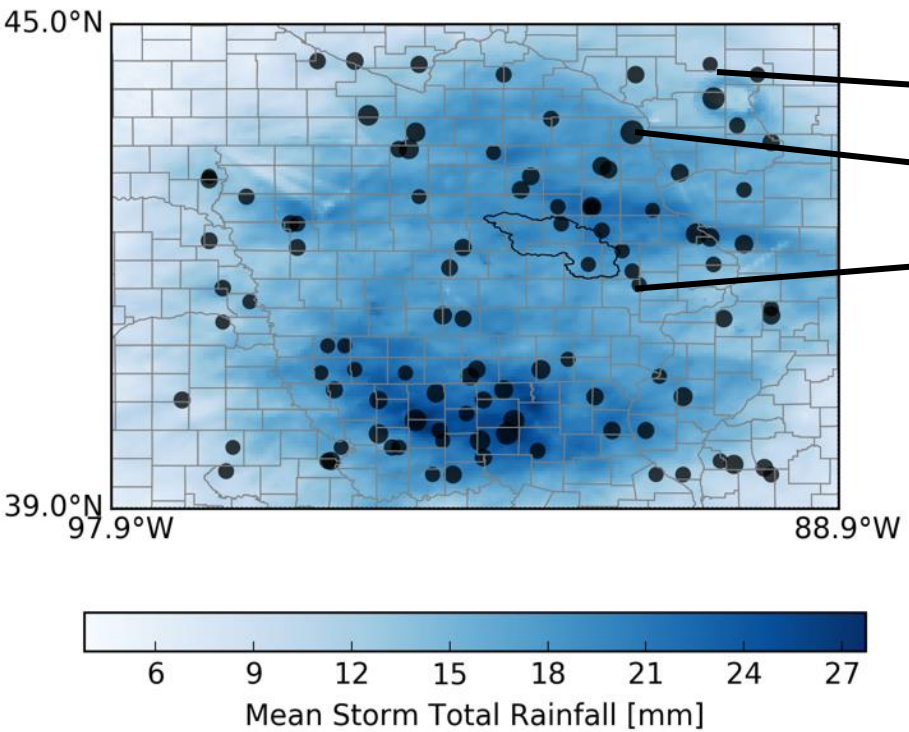


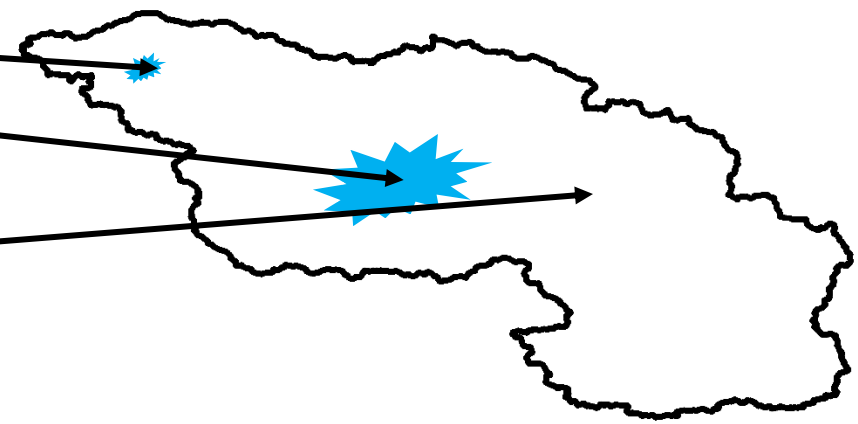


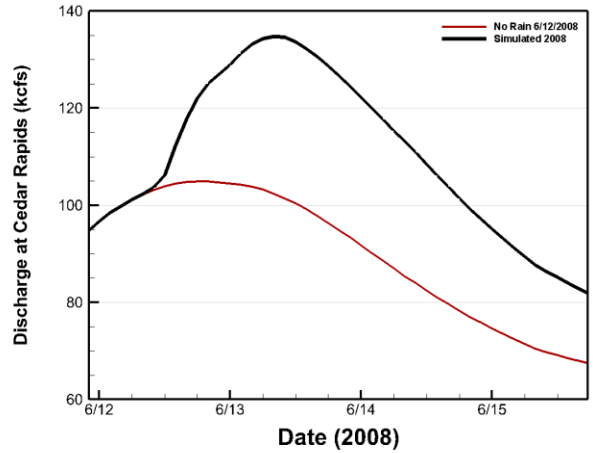
9887 Elements

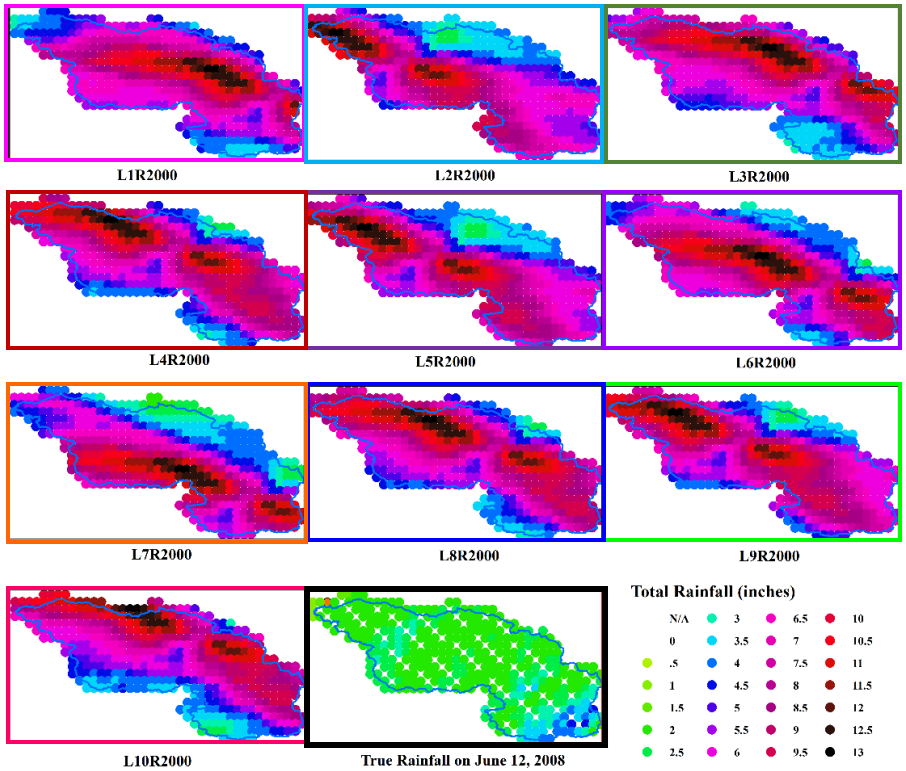
506 Rainfall Inputs

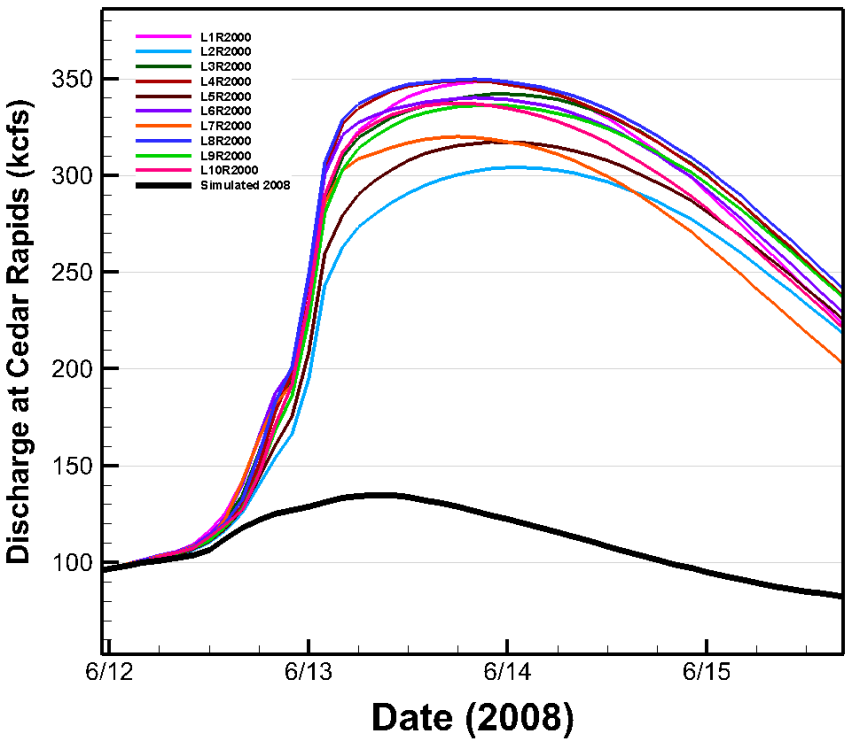
Return Period Estimates are built by repeated transpositions







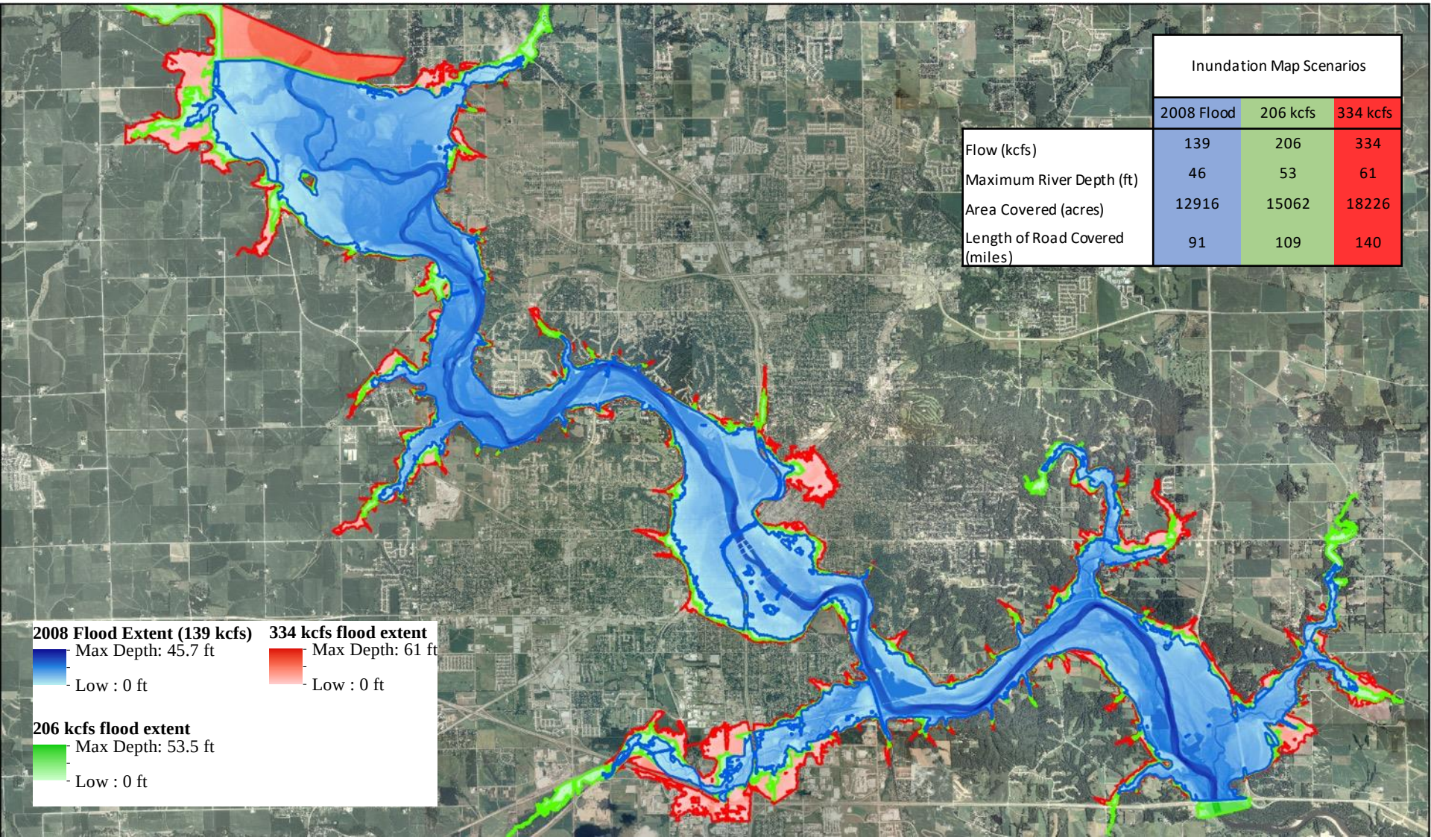




Min: 6.63 inches
Max: 7.98 inches
Average: 7.39 inches

Min: 304 kcfs
Max: 350 kcfs
Average: 334 kcfs

Increased Flood Peak – Increased Area of Inundation



	Inundation Map Scenarios		
	2008 Flood	206 kcfs	334 kcfs
Flow (kcfs)	139	206	334
Maximum River Depth (ft)	46	53	61
Area Covered (acres)	12916	15062	18226
Length of Road Covered (miles)	91	109	140