

# Design for Journalism

Symposium on Data Science and Statistics

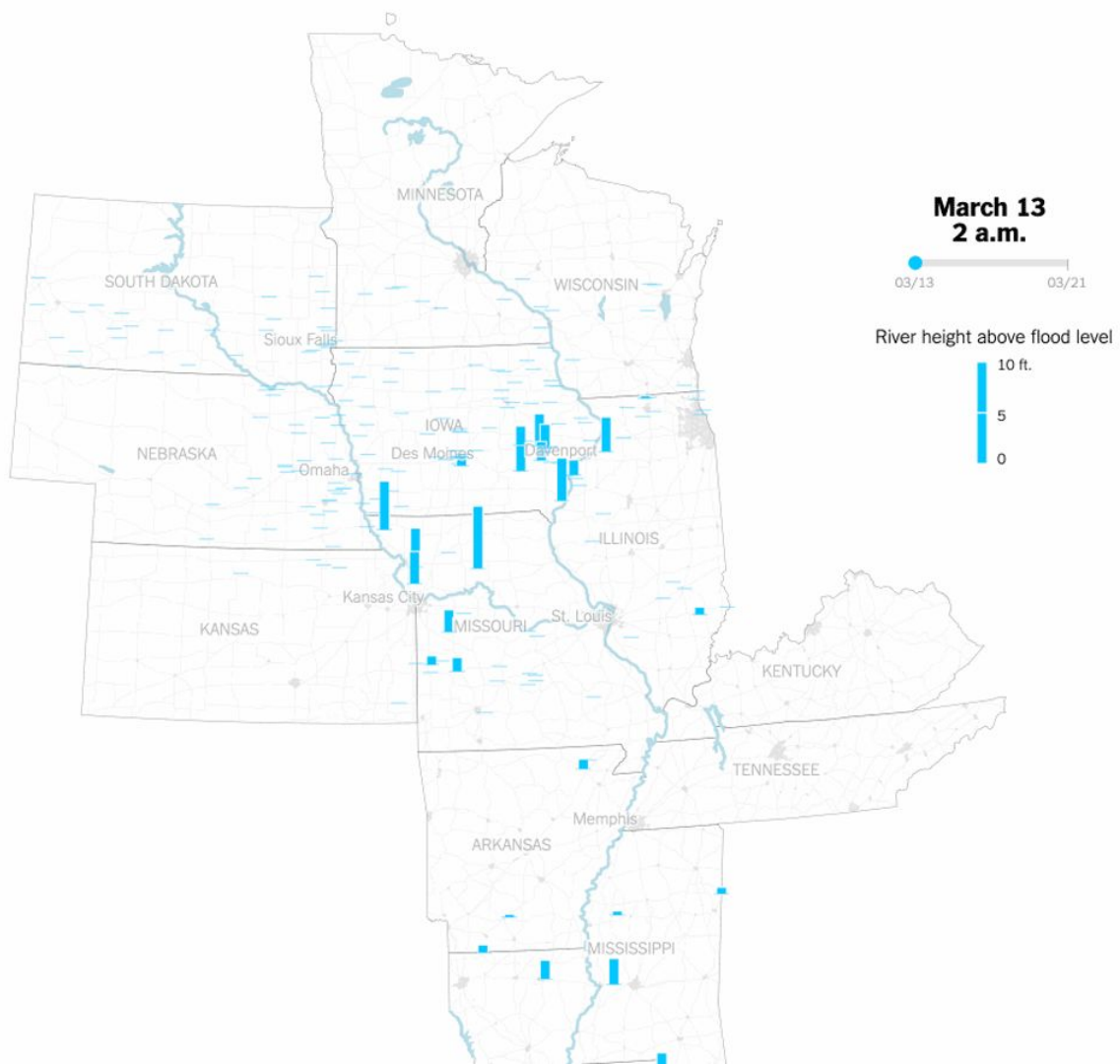
Sarah Almkhatar / Graphics Editor, The New York Times



# The Great Flood of 2019: A Complete Picture of a Slow-Motion Disaster

By Sarah Almukhtar, Blacki Migliozi, John Schwartz and Josh Williams Sept. 11, 2019

This year's flooding across the Midwest and the South affected nearly 14 million people, yet the full scale of the slowly unfolding



*Paralysis on America's Rivers: There's  
Too Much Water*



A photograph of a residential street completely inundated with floodwater. In the center, a speed limit sign for 35 mph stands in the water. To its right, a mailbox with the number 16700 is partially submerged. A chain-link fence runs along the right side of the road. In the background, a person is wading through the water. The scene is surrounded by lush green trees and houses, with a cloudy sky above.

## *Flooding in the Midwest: 4 Rivers Surge, Along With Residents' Worries*

The threat of flooding has been relentless along four Midwestern rivers. With more crests coming, residents pile sandbags, watch levees and wait.

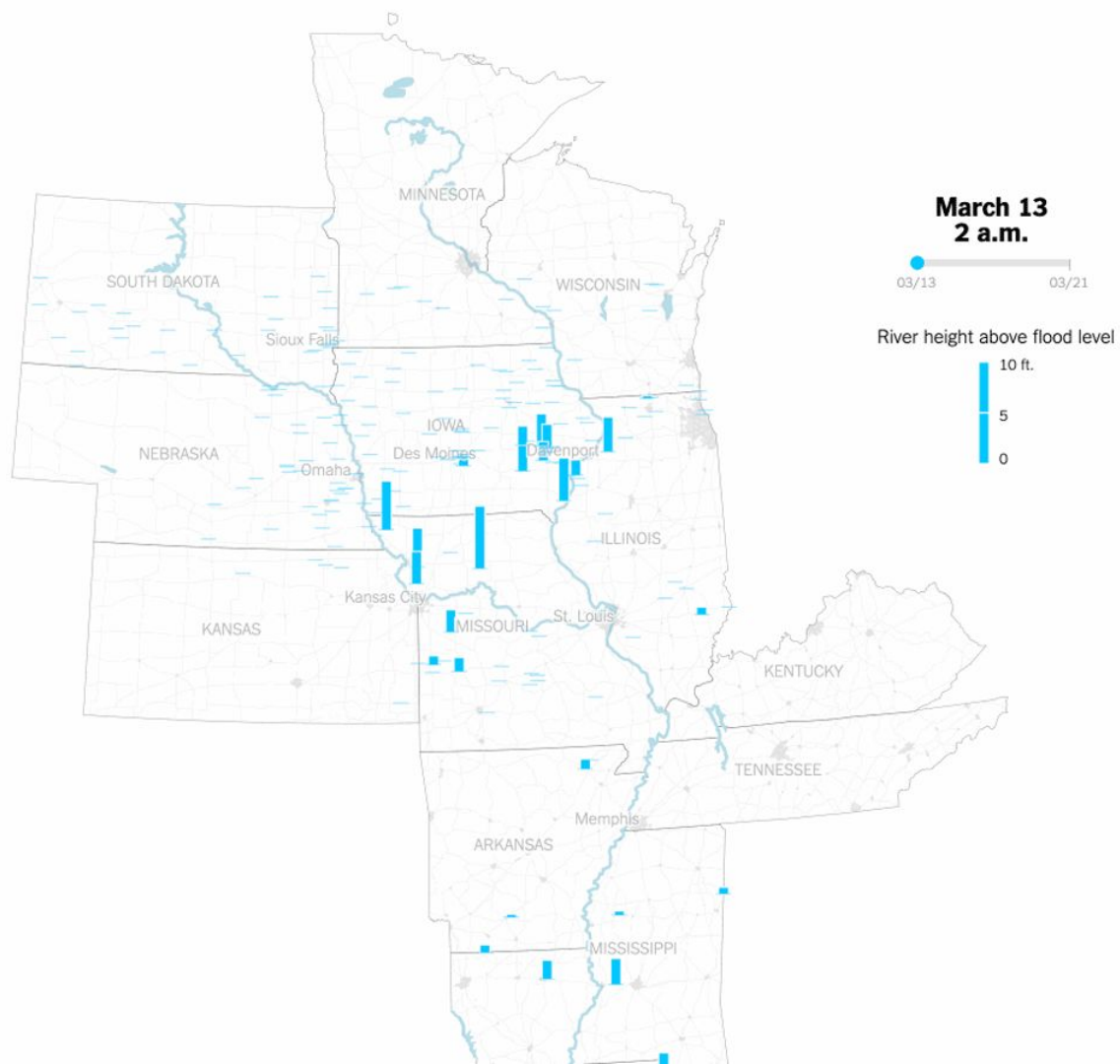
***‘Blocked Off From Civilization’:  
Floodwaters Turn Oklahoma Town  
Into an Island***





## *In the Midwest, Relentless Floods Dredge Up 'Shadow' of 1993*

The Great Flood of 1993, one of the worst in American history, left entire towns ravaged. With heavy spring rains and saturated soil, some fear a repeat.

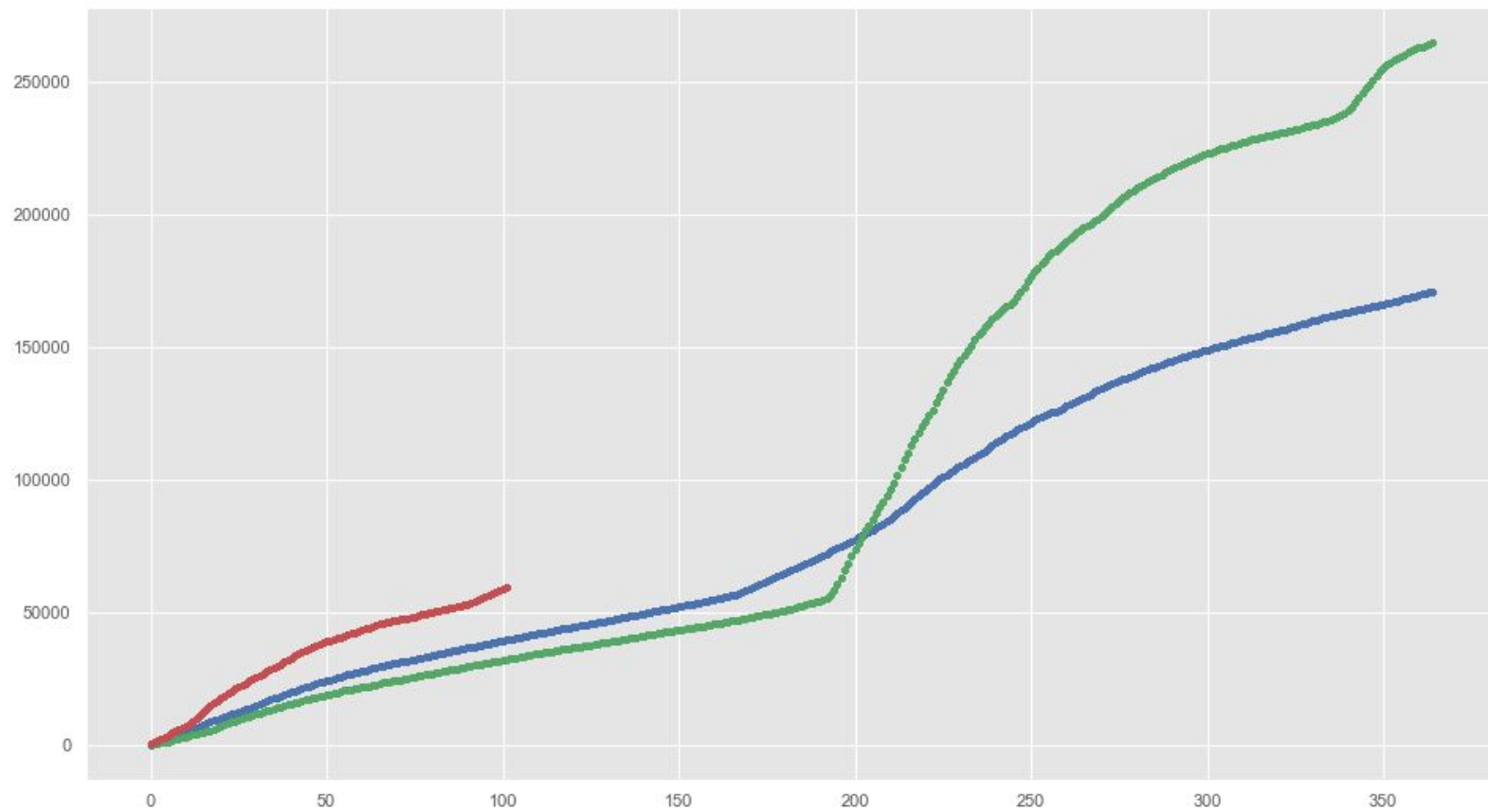


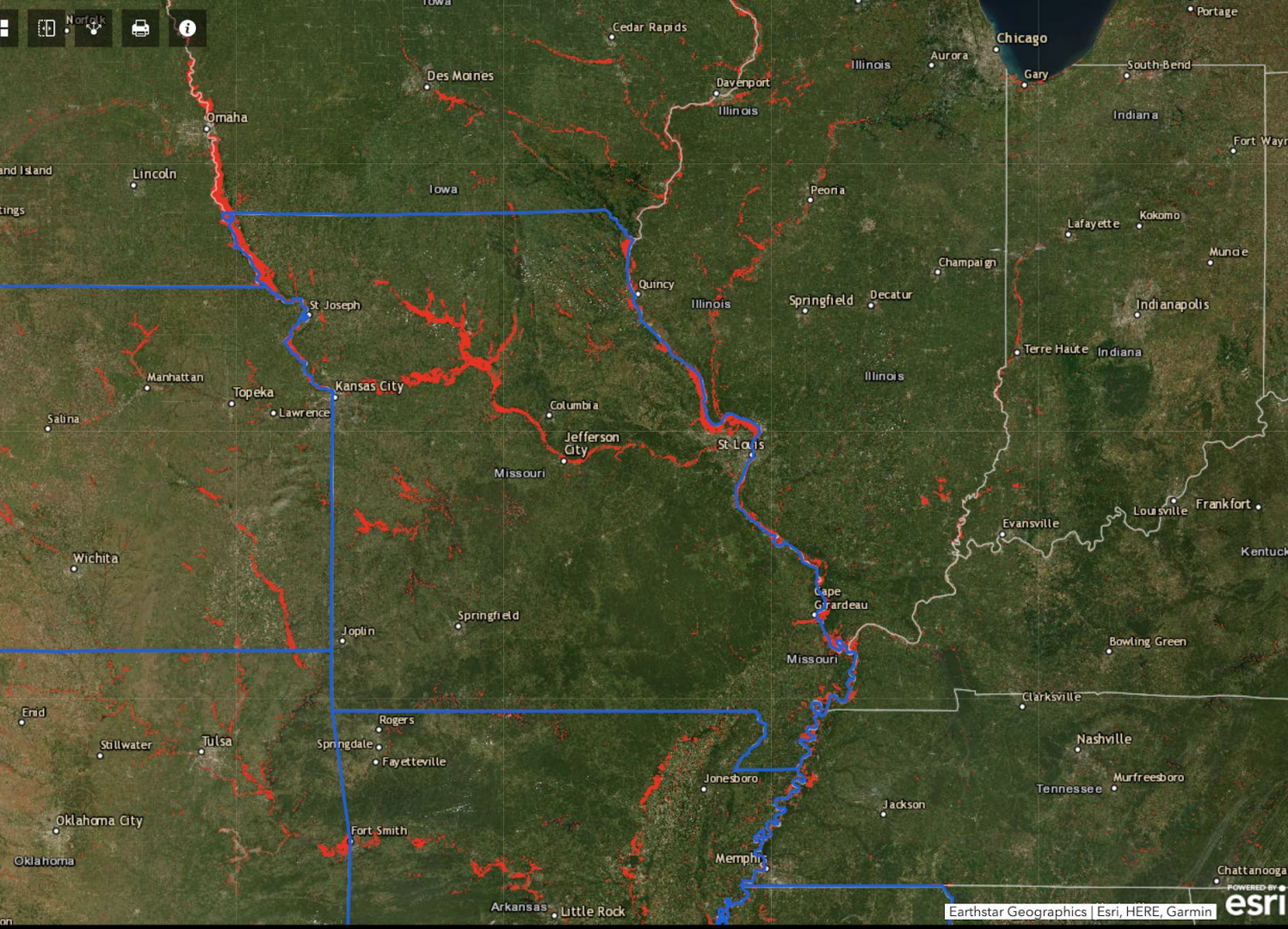


How can we show flooding  
over a long time and across a  
large area all at once?



05344490





### Layers

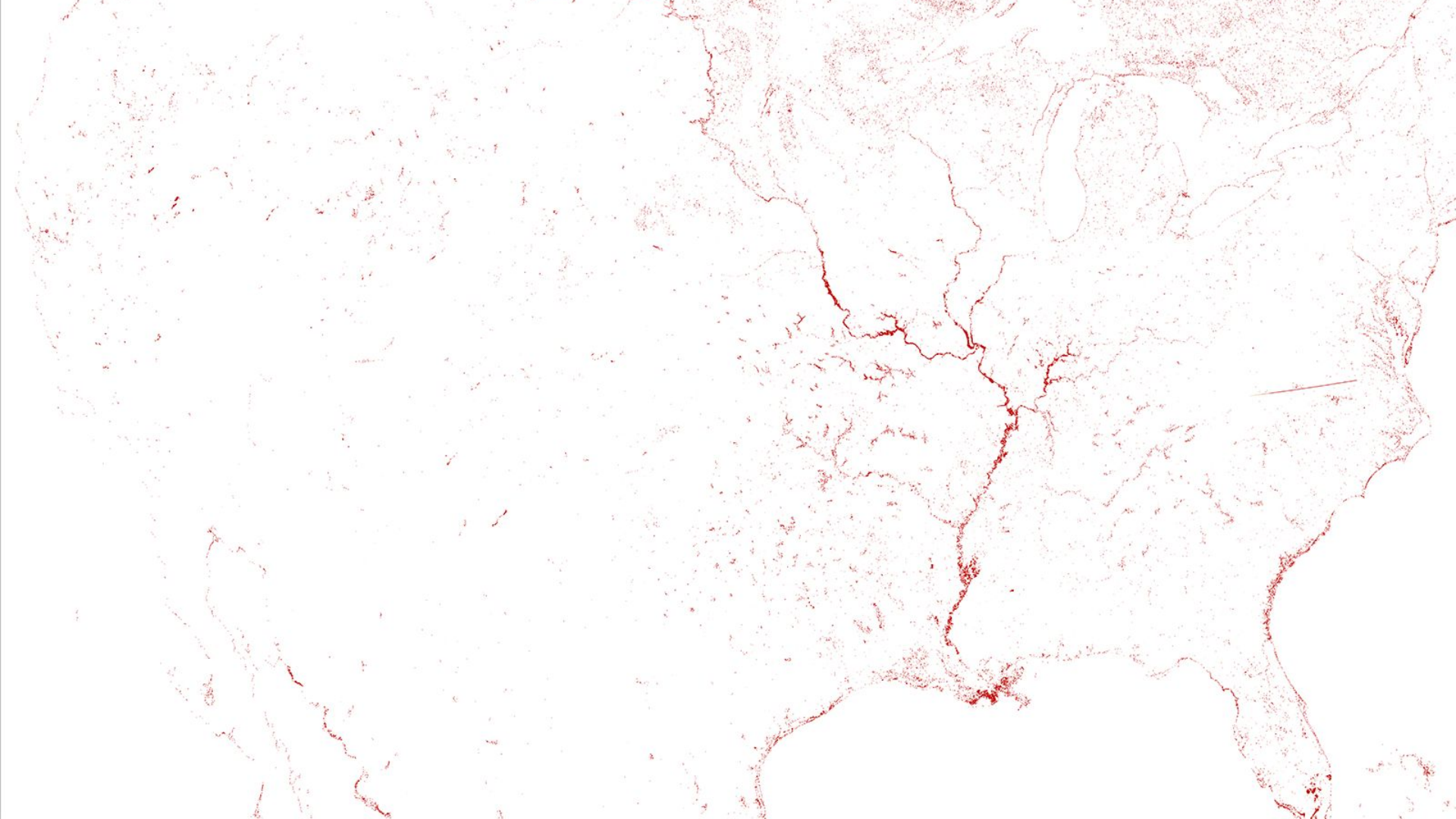
- States
- World Boundaries and Places
- VIIRS Flood Water Fraction 5-Day Merge (05312019-06042019)
- VIIRS Flood Water Fraction 5-Day Merge (05292019-06022019)
- sentinel2\_waterextent\_vector
- sentinel2\_naturalcolor
- sentinel1\_waterextent\_vector

### Satellite Imagery

#### Layers

- landsat\_naturalcolor
- sentinel2\_naturalcolor
- sentinel1\_rgb

Earthstar Geographics | Esri, HERE, Garmin **esri**



How can we best present  
this imagery?



# A Rogue State Along Two Rivers

## How ISIS Came to Control Large Portions of Syria and Iraq

By JEREMY ASHKENAS, ARCHIE TSE, DEREK WATKINS and KAREN YOURISH July 3, 2014

The militant group called the Islamic State in Iraq and Syria, or ISIS, seemed to surprise many American and Iraqi officials with the recent gains it made in its violent campaign to create a new religious state. But the rapid-fire victories achieved over a few weeks in June were built on months of maneuvering along the Tigris and Euphrates Rivers.

## The Euphrates

### Aleppo: Ejected by Other Rebel Groups

In 2013, ISIS emerged from the remnants of Al Qaeda in Iraq and began to operate in Syria. The vacuum created by the country's civil war provided a place for ISIS to rebuild. Syrian rebel groups initially welcomed ISIS as an ally, but soon realized that they did not have the same goals. ISIS was more interested in forming an Islamic

A satellite map of Al Bab, Syria, showing ISIS control. The map is overlaid on a larger satellite image of the region. A label 'Al Bab' is present, with a smaller label 'ISIS Control' below it.

Al Bab  
ISIS Control



RUSSIA

BEAUFORT SEA

PERMAFROST

ALASKA

CANADA

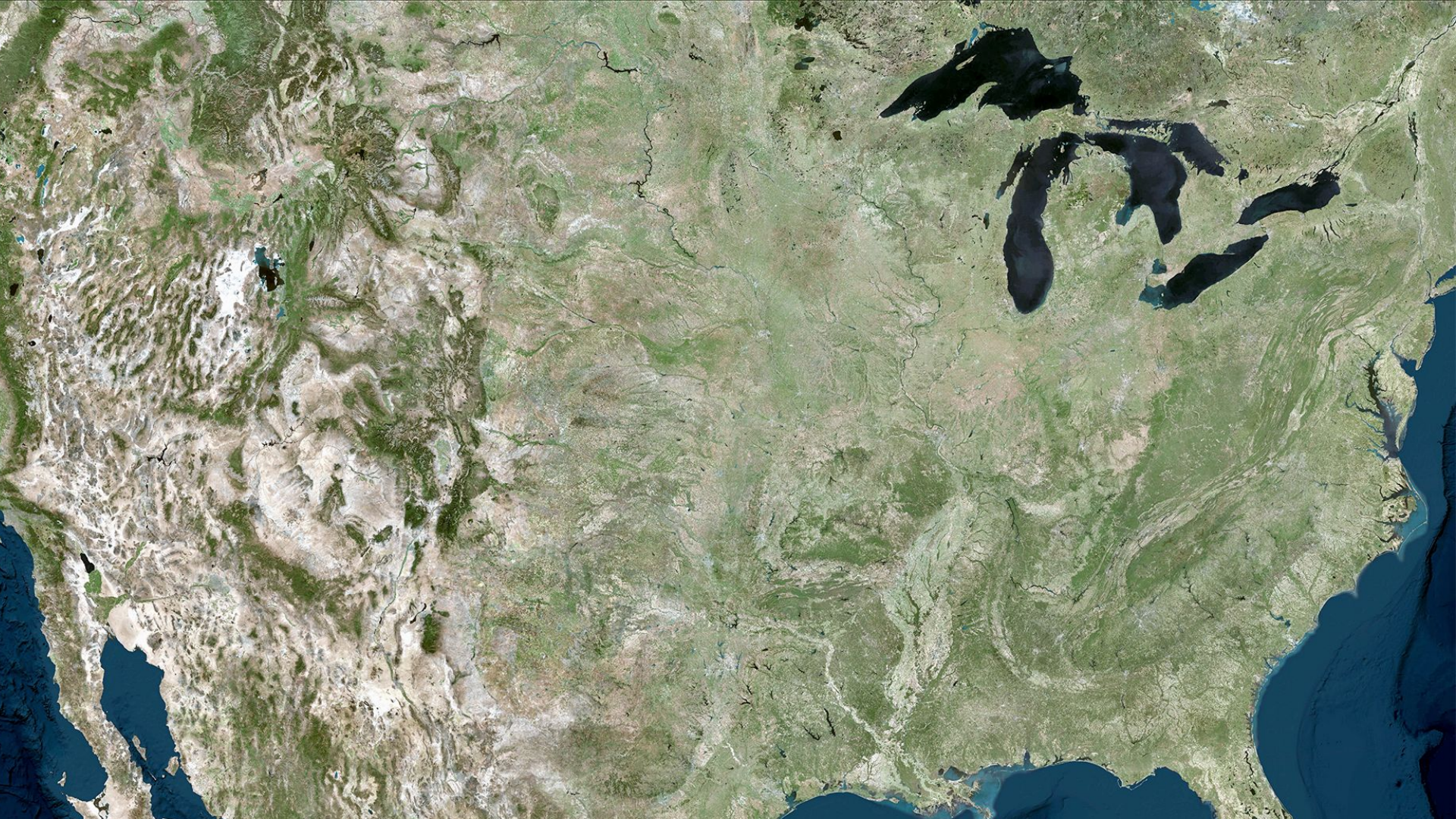
BERING  
SEA

Alaska's permafrost, **shown here in 2010**, is no longer permanent. It is starting to thaw.

GULF OF  
ALASKA

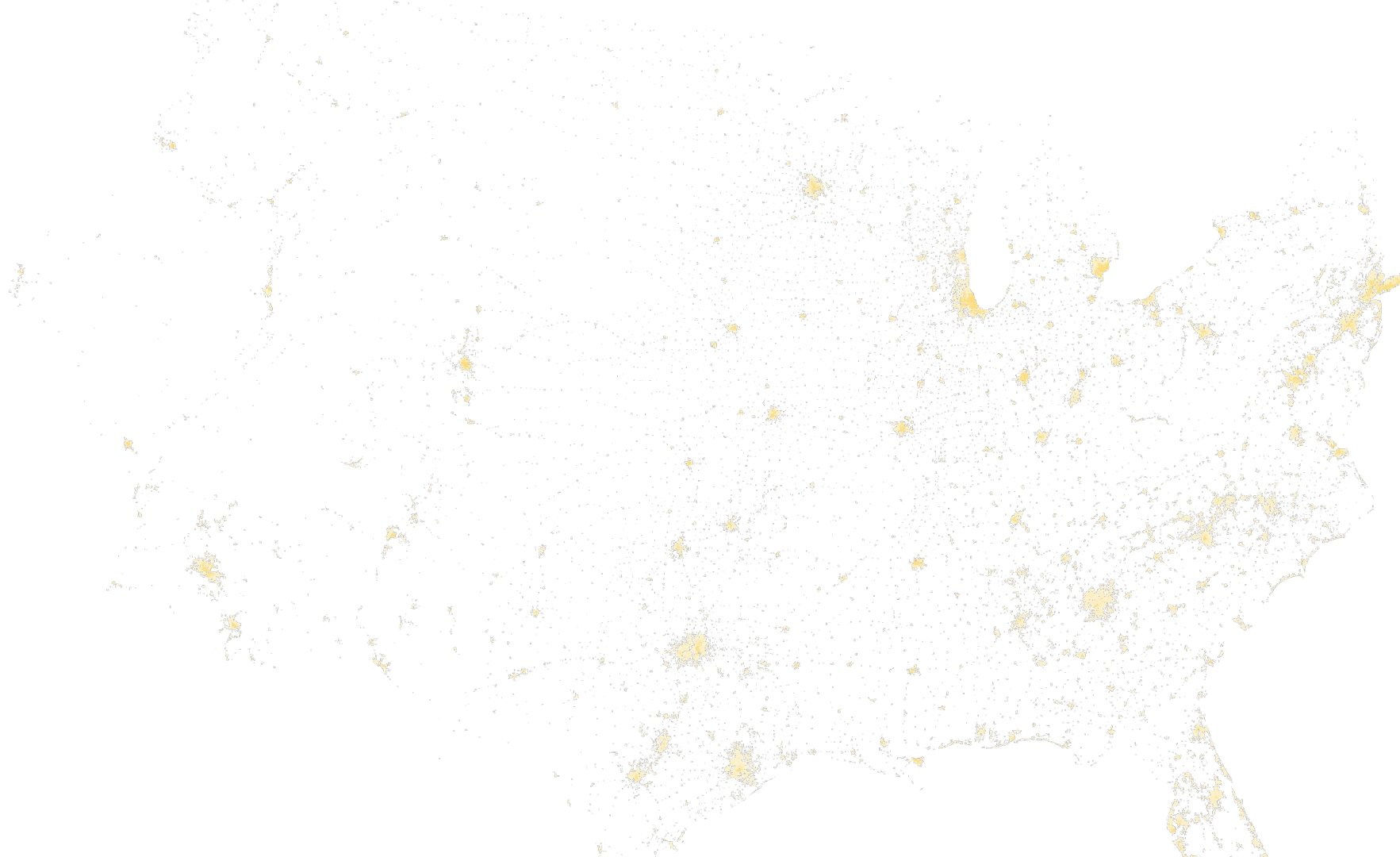


The base map:  
texture + context

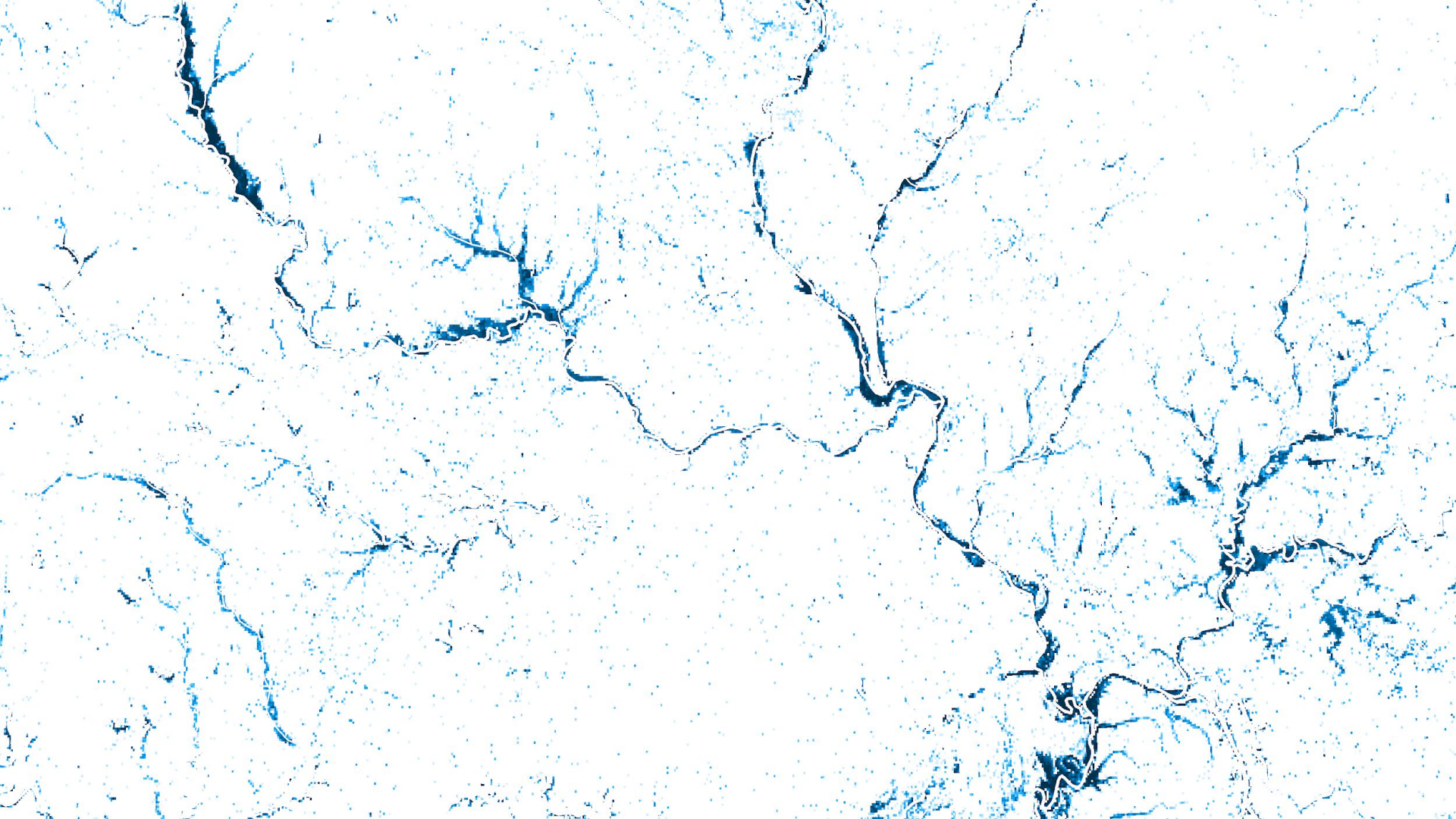


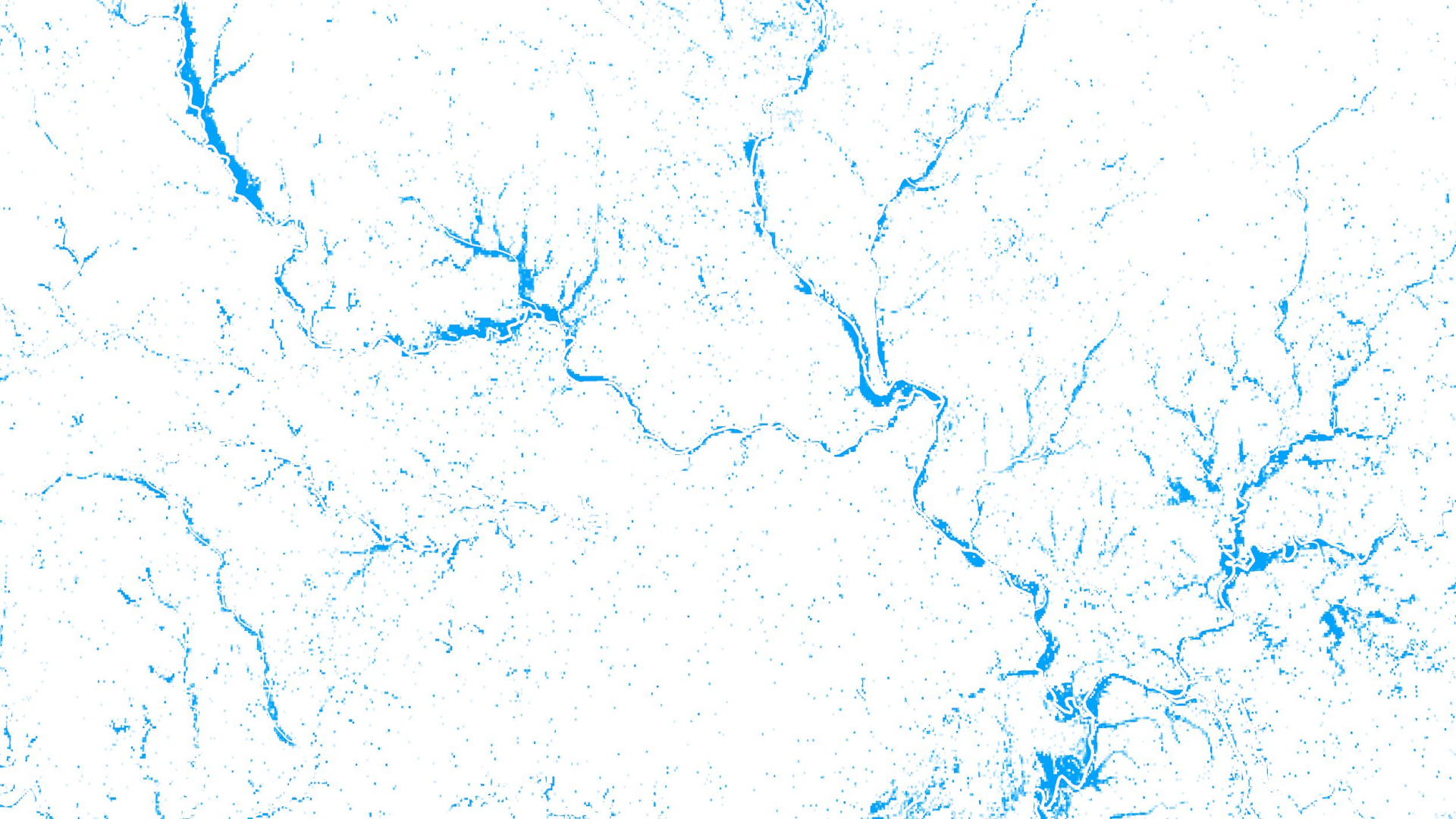




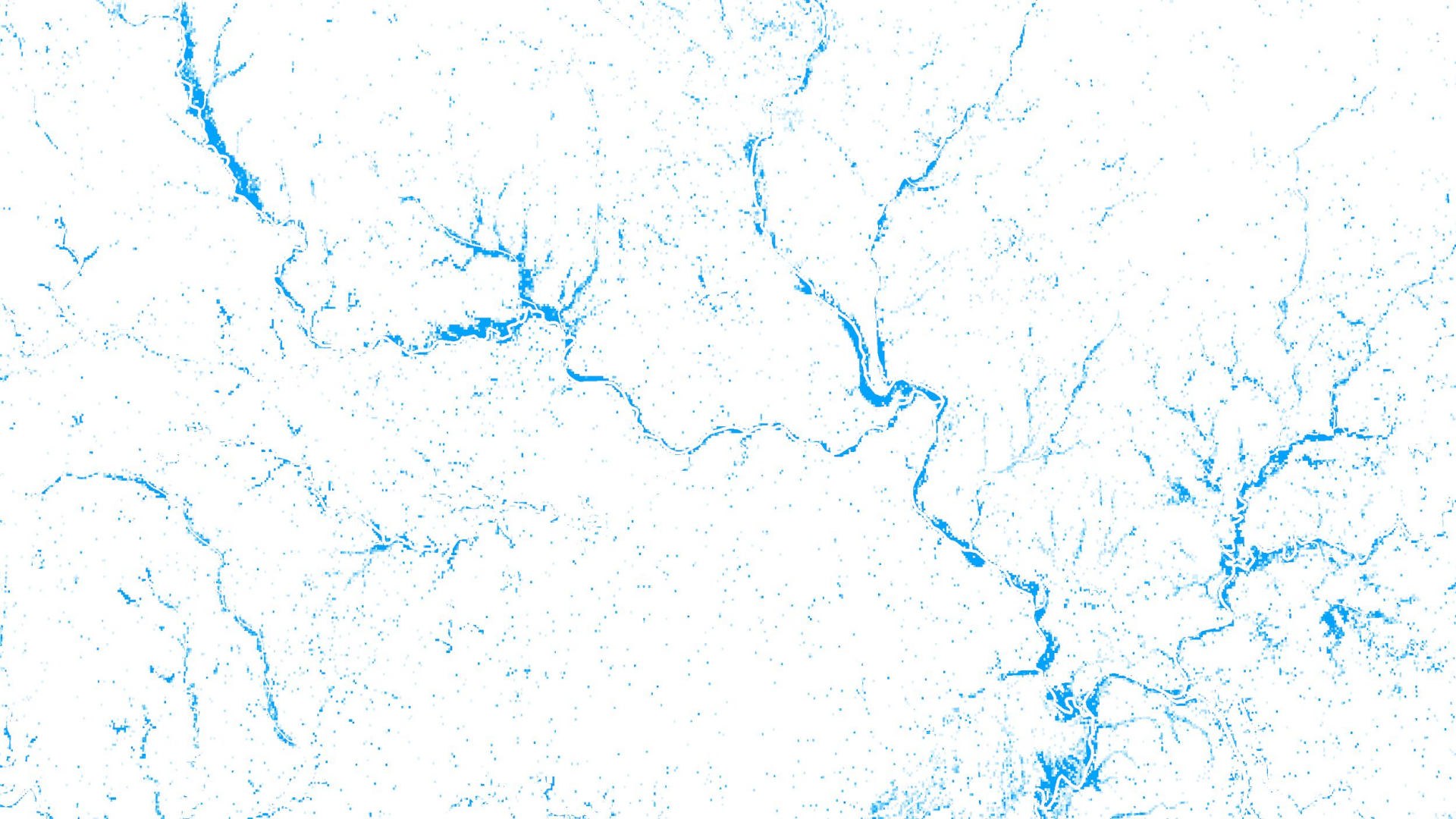


The data












How can we help readers  
understand what they're  
looking at?

A composite map of the Midwest and South showing flooding areas in blue, rivers in white, and farmland in green. The map is overlaid on a satellite-style background. The text is positioned in the upper left quadrant of the map.

This year's flooding across the Midwest and the South affected nearly 14 million people, yet the full scale of the slowly unfolding disaster has been difficult to fathom. To visualize just how extensive it was, The New York Times created this composite map showing all the areas that were inundated at some point from January through June.

The blue on the map, generated from satellite data used to detect flooding, shows the estimated extent and intensity of **■ flooding**. The usual extents of **□ rivers** are shown in white. **■ Farmland**, much of which was so drenched that farmers had to delay planting, is shown in green.

SCROLL TO CONTINUE



**Hamburg, Iowa**

Flood waters breached a levee that had been in need of repair for years.

6 MILES



**Grafton, Ill.**

In May, the Mississippi River reached the fourth-highest crest recorded here. Nine of the town's 20 highest crests have occurred since 2008.



**Cairo, Ill.**  
Waters stayed above flood stage  
for a record 156 days in a row.



ILLINOIS

KENTUCKY

TENNESSEE

Cape Girardeau

Clarksville

Union City

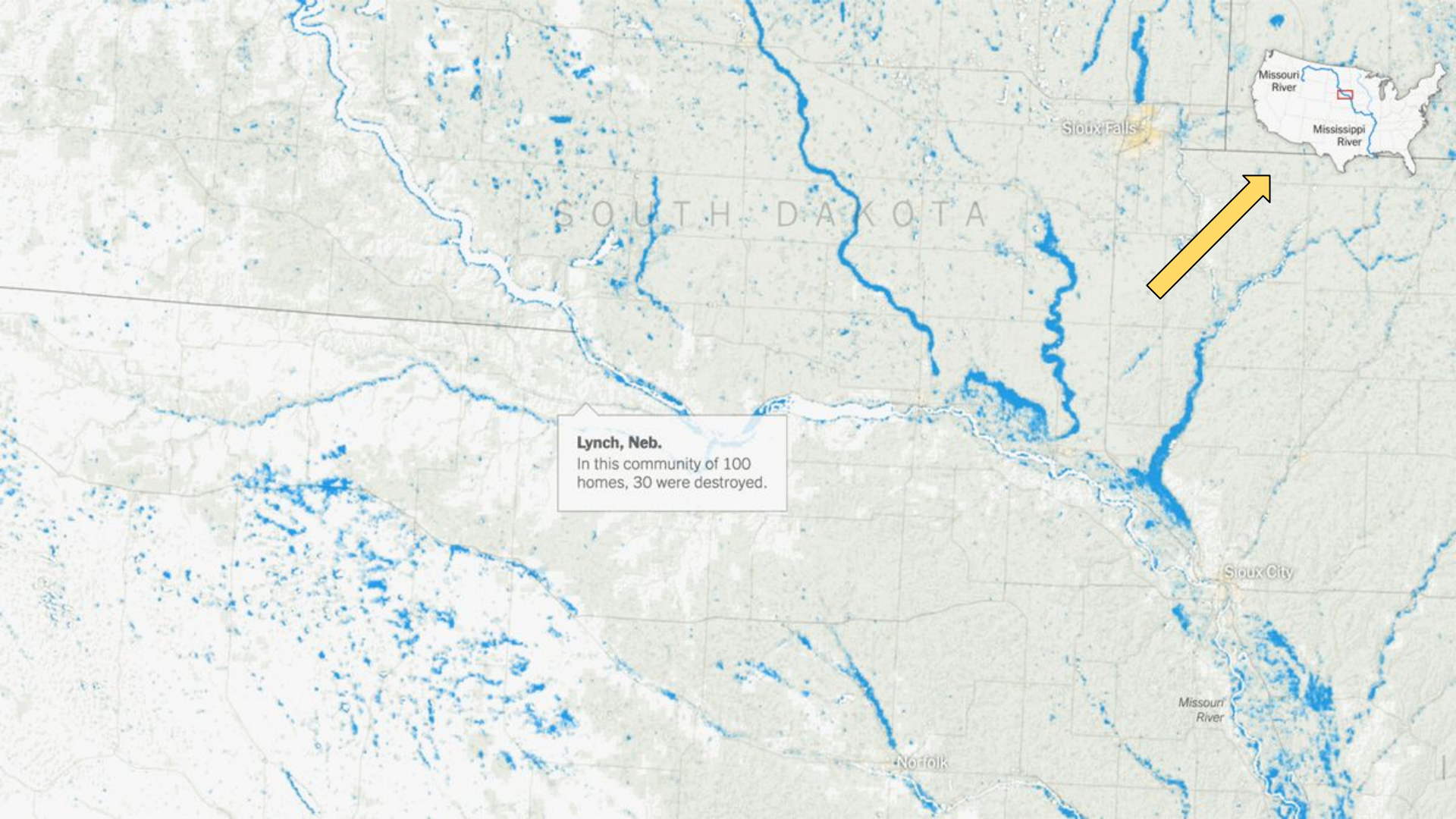
Mississippi River

Dyersburg

Nashville

Jonesboro

12 MILES



SOUTH DAKOTA

Sioux Falls



**Lynch, Neb.**  
In this community of 100 homes, 30 were destroyed.

Sioux City

Missouri River

Norfolk



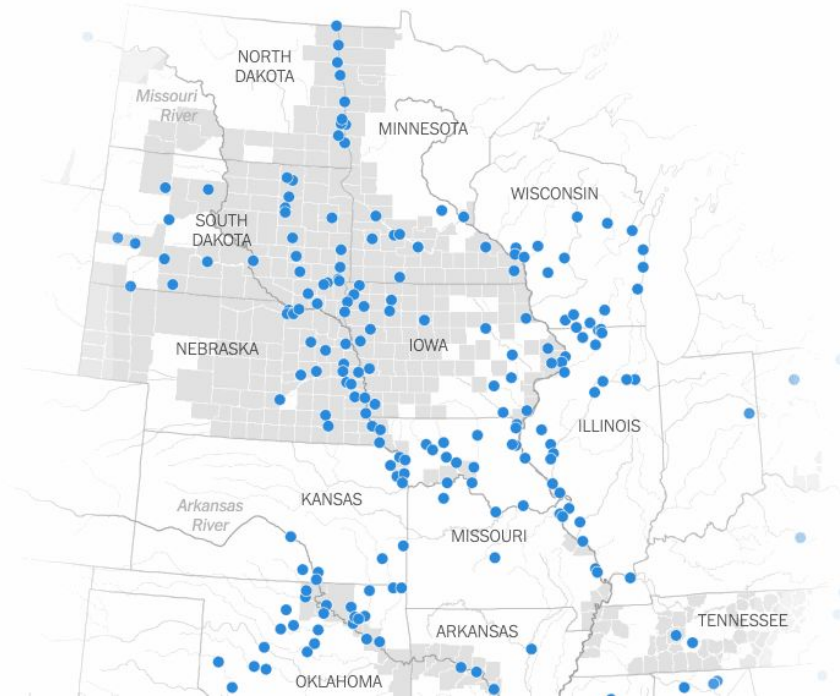
■ Areas that flooded



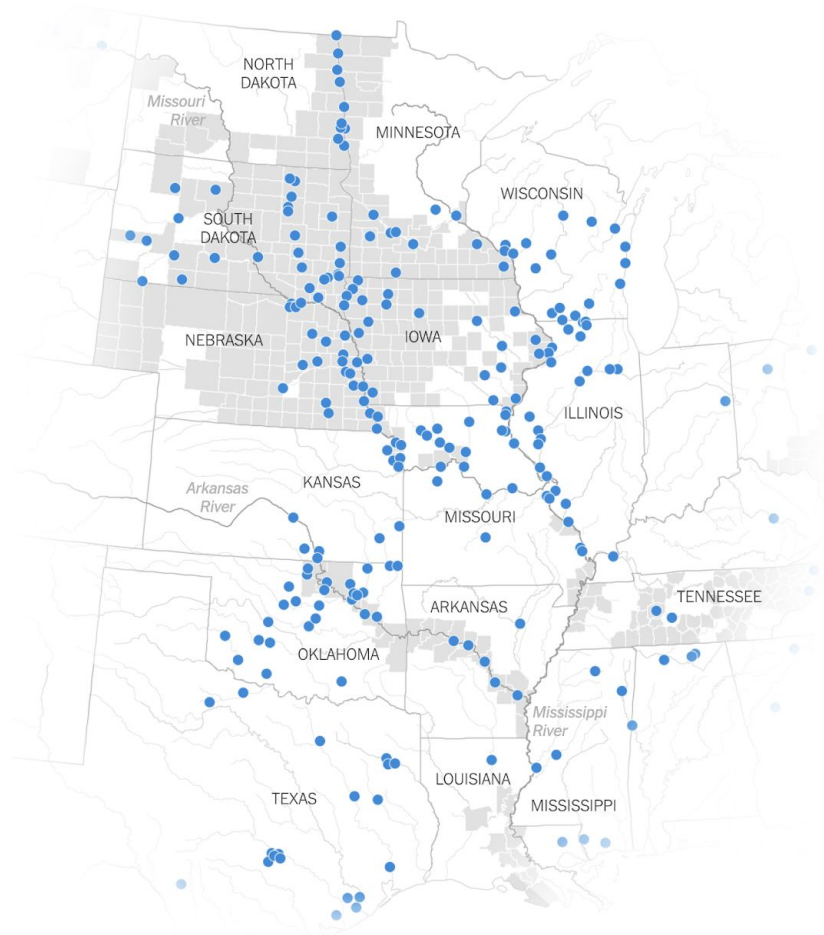
The flooding started in earnest in March as heavy rains fell on frozen ground already bearing a deep load of winter snow. As the water spread across parts of South Dakota, Nebraska and Iowa, traditional defenses that communities had in place to protect against rising waters were quickly overwhelmed.

As the high water from the many tributaries of the Mississippi came together, the river became a record-breaking monster.

● Major flood stage sites, Jan. 15 to June 30    ■ Federal assistance-approved counties



● Major flood stage sites, Jan. 15 to June 30    ■ Federal assistance-approved counties



Prioritize the data.

Reduce the noise.

Push the format.

Thank you!