Turkey River Basin Flood Seminar

Thursday, June 14th, 2012

Clermont, Iowa

Mike Welvaert, Service Hydrologist

National Weather Service, La Crosse, WI

TURKEY RIVER BASIN FLOOD SEMINAR OVERVIEW

- An informational meeting to discuss river monitoring, flood forecasting, and water use in the Turkey Watershed.

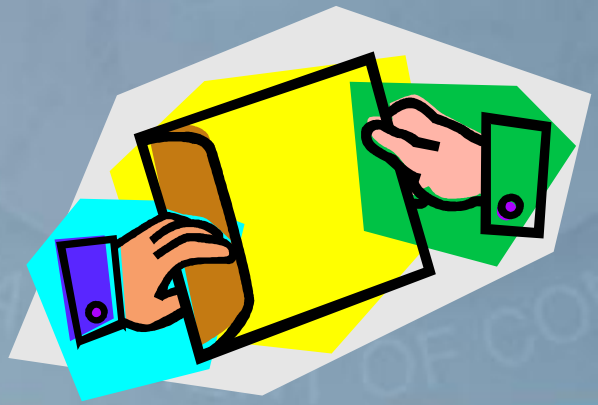
- Why did we decide to host this seminar?

TURKEY RIVER BASIN FLOOD SEMINAR OVERVIEW

- There are several federal, state, and private groups that have responsibilities in the Turkey Watershed. We all collect data and information to support our own agendas.

- There are also local users that have their own information and ideas.

- The purpose of this seminar is to encourage an exchange of that information!



TODAY'S AGENDA

Turkey River Basin Overview and Recent Flooding Events

Mike Welvaert, National Weather Service, La Crosse, WI

USGS Operations in the Turkey River Basin and Cooperative Gaging Program

Jon Nania, US Geological Survey, Iowa City, IA

River Forecasting Procedures & Techniques for Noutheast Iowa River Basins

Steve Buan/Mark Ziemer, National Weather Service, North Central River Forecast Center, Chanhassen, MN

Break

TODAY'S AGENDA

Iowa Stream Gauge Sensor Network

Witold Krajewski, Iowa Flood Center, University of Iowa, Iowa City, IA

Local Impacts and Actions from the Flooding

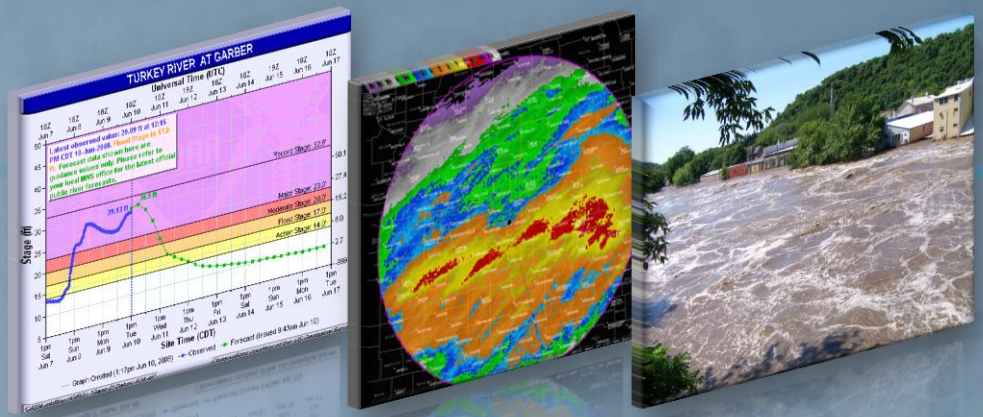
Randy Frank, Fayette County; Bruce Goetsch, Winneshiek County; Joel Biggs, Clayton County; Ken Raising, Chickasaw County; & Darrell Knecht, Howard County

The State Role in Disaster Response

Joyce Flinn, Iowa Homeland Security Emergency Management, Des Moines, IA

Other local user groups in the Turkey Basin

- Brad Crawford, Turkey River Watershed Project
- Scott Ralston/Chris Kahle, Iowa Department of Natural Resources
- Natural Resources Conservation Service
- Department of Transportation / County Highway Departments
- Canoe Rental Businesses / Campgrounds / Trout Fishing Groups / Others?



Turkey River Basin Flooding History and Overview

Mike Welvaert

Service Hydrologist

NOAA/NWS La Crosse

June 14, 2012

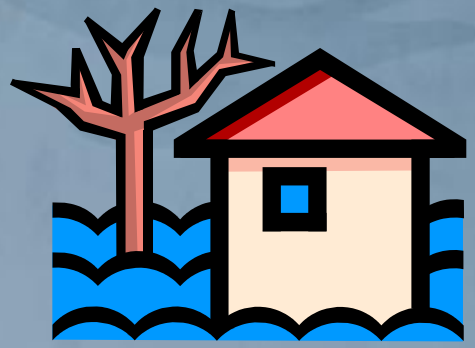
Thanks to Todd Shea for his assistance in developing this presentation.

Outline

- History of Turkey Basin
- NWS Products/Services
- Overview of Recent Floods
  - 2008 / 2004 / 1999
- Heavy Rainfall!
- Observed Flooding
- Impacts on Public/Partners
- Outreach ideas
- Inundation Mapping

A Brief History of the Turkey Basin

- Turkey/Little Turkey headwaters in southern and eastern Howard County
- Volga headwaters in Fayette County
- Turkey River length about 130 miles
- Volga River length about 75 miles
- Drains nearly 1600 square miles
- Frequent Large Floods (2008, 2004, 1999, 1991, 1979)



- Significant sediment and debris causes problems with snags, jams, and erosion

A Brief History of the Turkey Basin

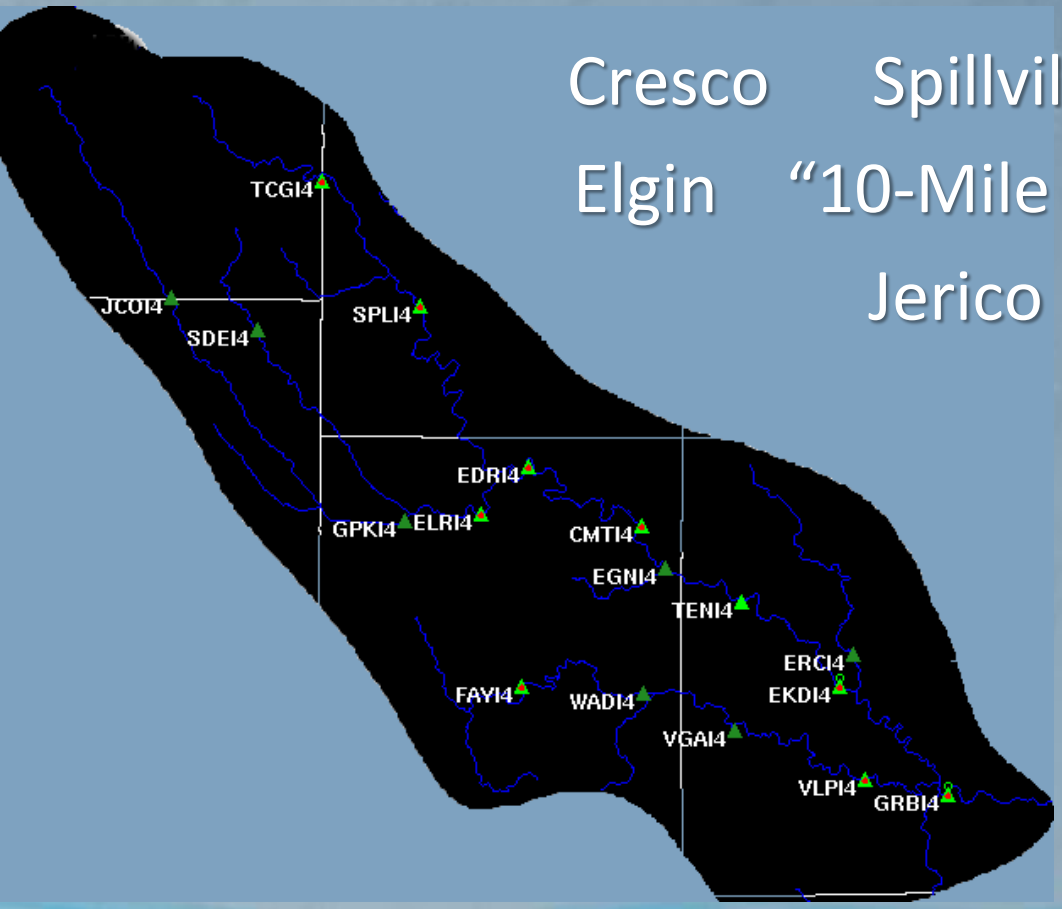
- Flooding in 1999 led to the loss of the towns of Elkport and Littleport.
- Flooding in 2008 led to a move of much of Garber to higher ground.
- Elkader and other communities also seriously impacted
- Many Recreational activities available

A Brief History of the Turkey Basin

- Changing Land-Use issues over the years
  - Land use practices and hilly terrain leading to more runoff into the river
  - Erosion and sedimentation have changed the channel characteristics significantly
  - Older bridges have been washed out or replaced, which once may have served as a debris catch

River Monitoring

- There are several river monitoring locations:



Cresco Spillville El Dorado Clermont

Elgin "10-Mile Bridge" Elkader Garber

Jerico Saude Gouldsburg Park

Near West Union Fayette

Wadena Volga

Littleport

River Monitoring

Types of river gages:

- Automated (USGS)

- Automated
  (Iowa Flood Center)

River Forecasts

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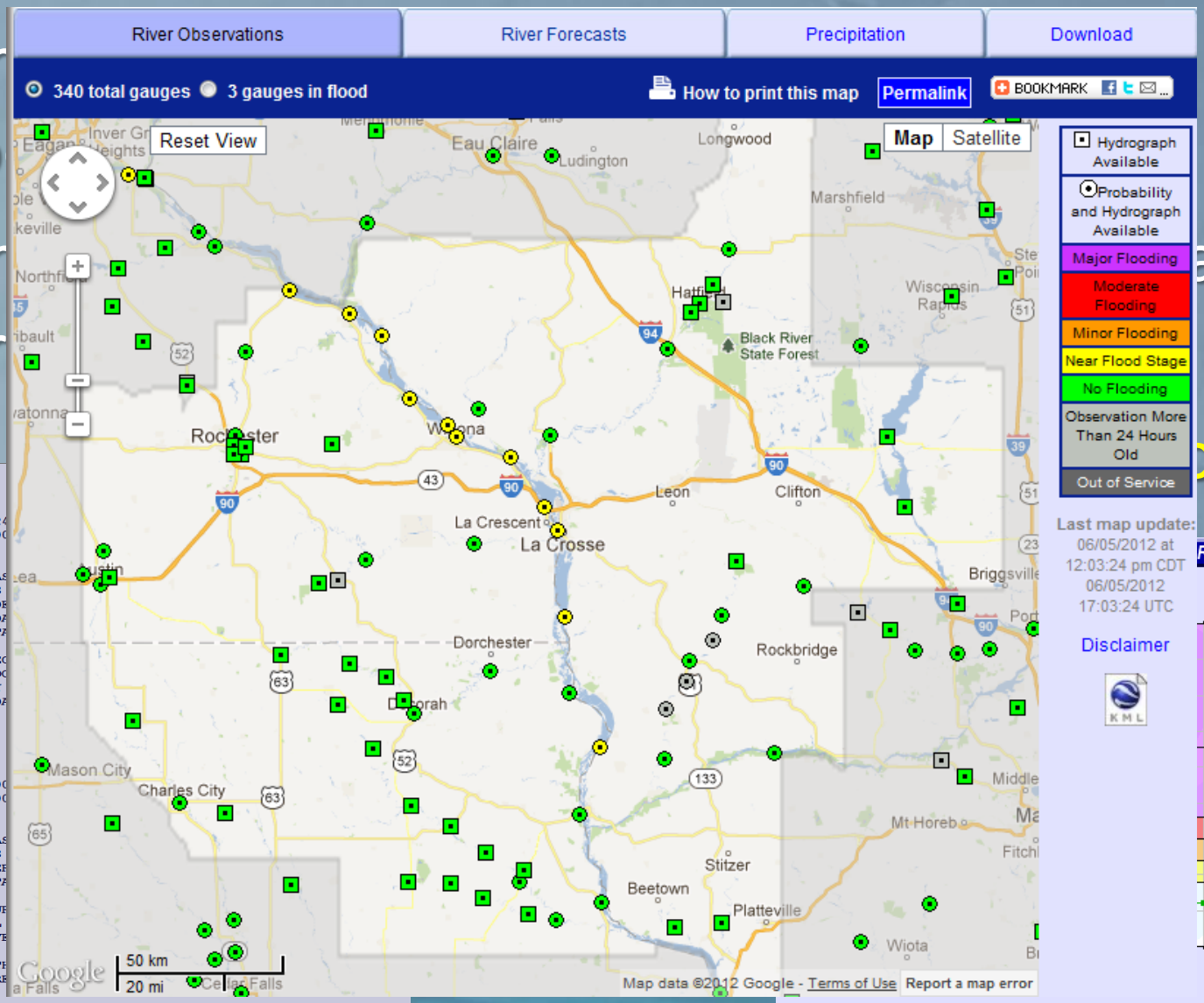


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...FORECAST FLOODING INCREAS
THE FLOOD WARNING CONTINUES
  THE TURKEY RIVER AT ELKADE
* FROM THIS EVENING TO MONDA
* AT  7:45 AM FRIDAY THE STA
* FLOOD STAGE IS 12.0 FEET.
* MODERATE FLOODING IS FOREC
* FORECAST...RISE ABOVE FLOO
  RISE TO NEAR 16.0 FEET BY
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822 AM CDT FRI JUL 23 2010

...FORECAST FLOODING INCREAS
THE FLOOD WARNING CONTINUES
  THE TURKEY RIVER AT GARBER
* AT  7:15 AM FRIDAY THE STA
* FLOOD STAGE IS 17.0 FEET.
* MODERATE FLOODING IS OCCUR
* FORECAST...THE RIVER WILL
  SATURDAY MORNING. THE RIVE
  MORNING.
* IMPACT...AT 26.0 FEET...TH
  UPSTREAM OF GARBER IS THRE

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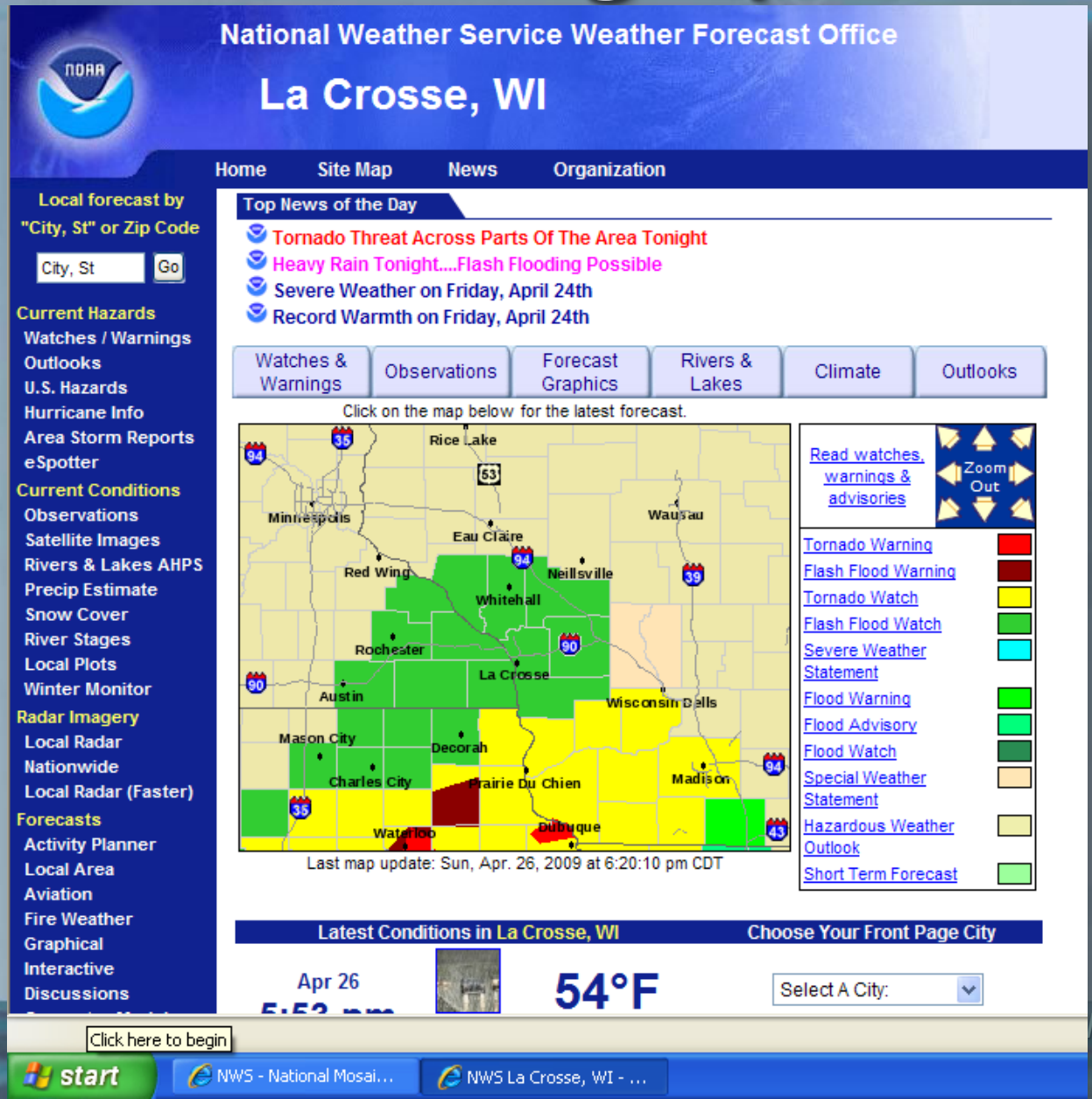
Flooding Statements/Warnings

- The NWS also issues Flood Advisories and Flood/Flash Flood Warnings for larger areas.
  - Parts of counties
  - Smaller creeks and streams
  - Urban areas

- Flash Flood Warning
- Flood Warning
- Urban and Small Stream Flood Advisory

www.weather.gov/lacrosse

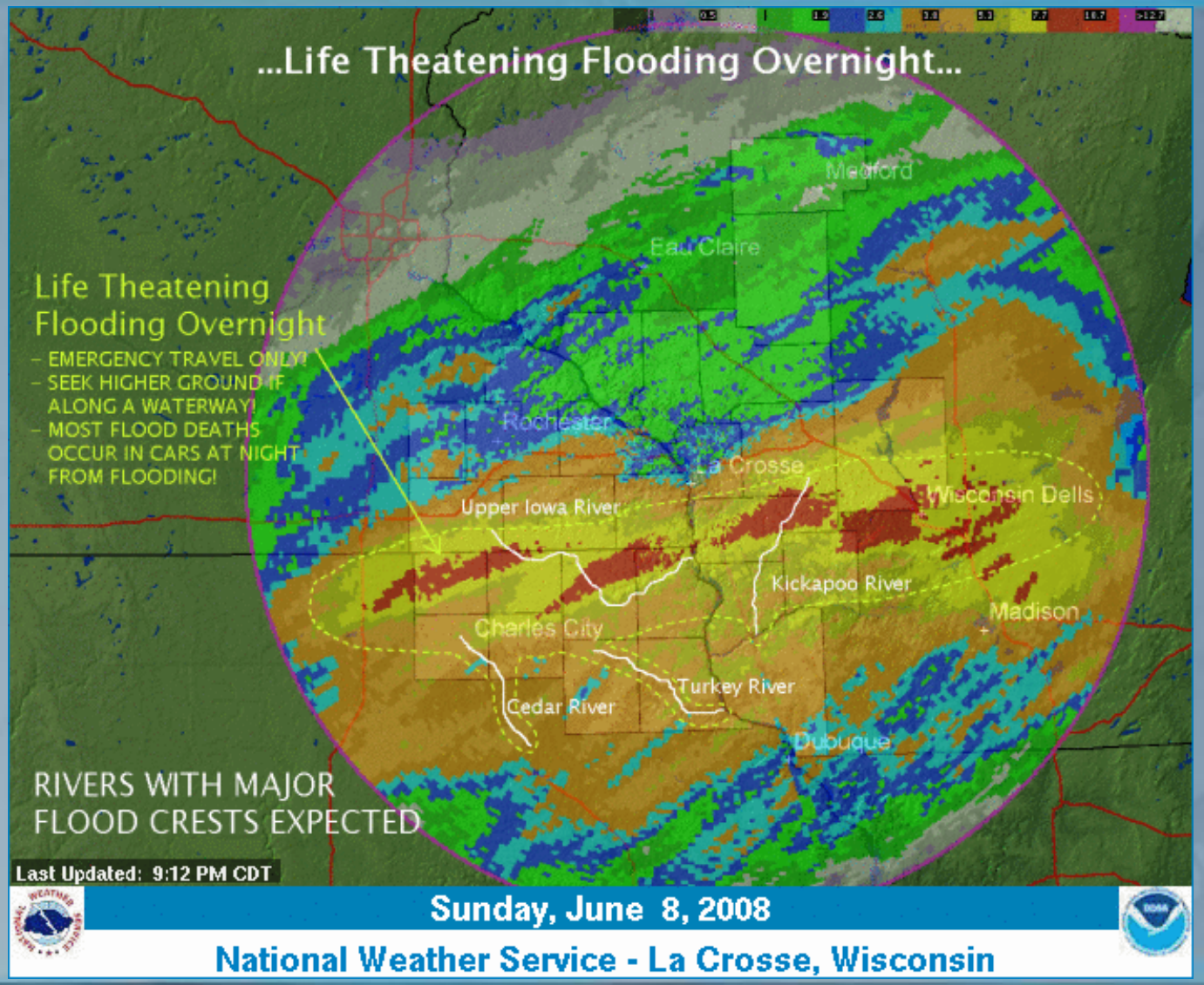


June 7-8, 2008 Flooding

Several rounds of heavy thunderstorms have impacted the region. Rivers, creeks and streams will see flooding overnight. 7-9 inches of rain has fallen in the area depicted on the map as LIFE THREATENING FLOODING.

MAJOR RIVER FLOODS: Kickapoo, Upper Iowa, Turkey, and Cedar rivers.

DO NOT TRAVEL. ENSURE YOU ARE ON HIGH GROUND AND EVACUATE TO DESIGNATED AREAS AWAY FROM WATERWAYS IN THE LIFE THREATENING AREA. MANY MUDSLIDES HAVE ALSO OCCURRED.



June 7-8, 2008 Flooding

- Two elements
  - Flash Flooding / River Flooding
- Communities flooded
  - Hundreds of homes damaged
  - Numerous businesses
  - Infrastructure destroyed
  - Dozens of mudslides
  - Many highways closed
- $100 Million in damages


Bridge destroyed on County Road W42 between Clermont and Eldorado, IA from June 8, 2008 flooding

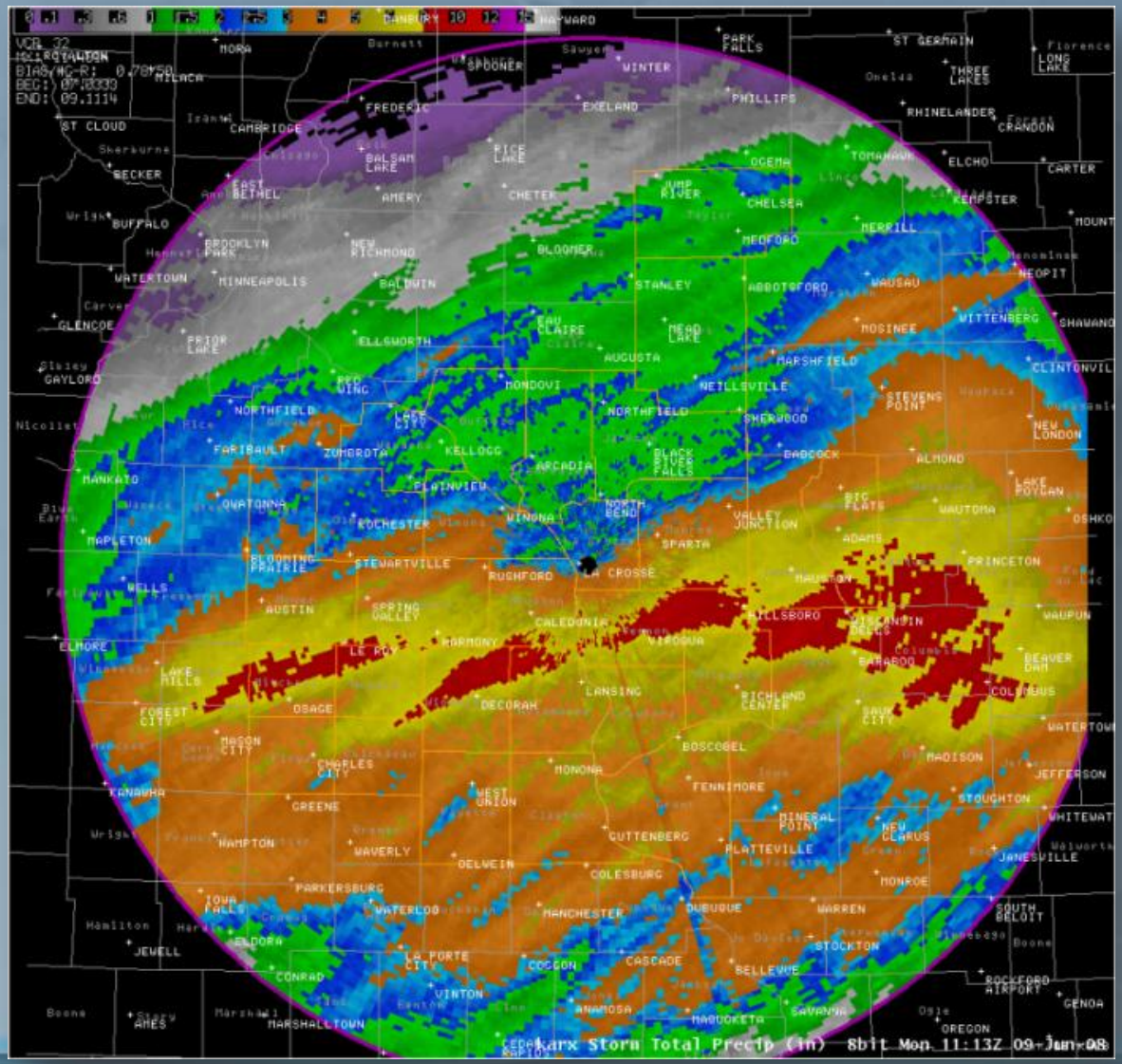

Damage to Great River Road between Clermont and Eldorado, IA from June 8, 2008 flooding

June 7-8, 2008

Radar Estimated Amounts
June 7th through the
night of the 8th.

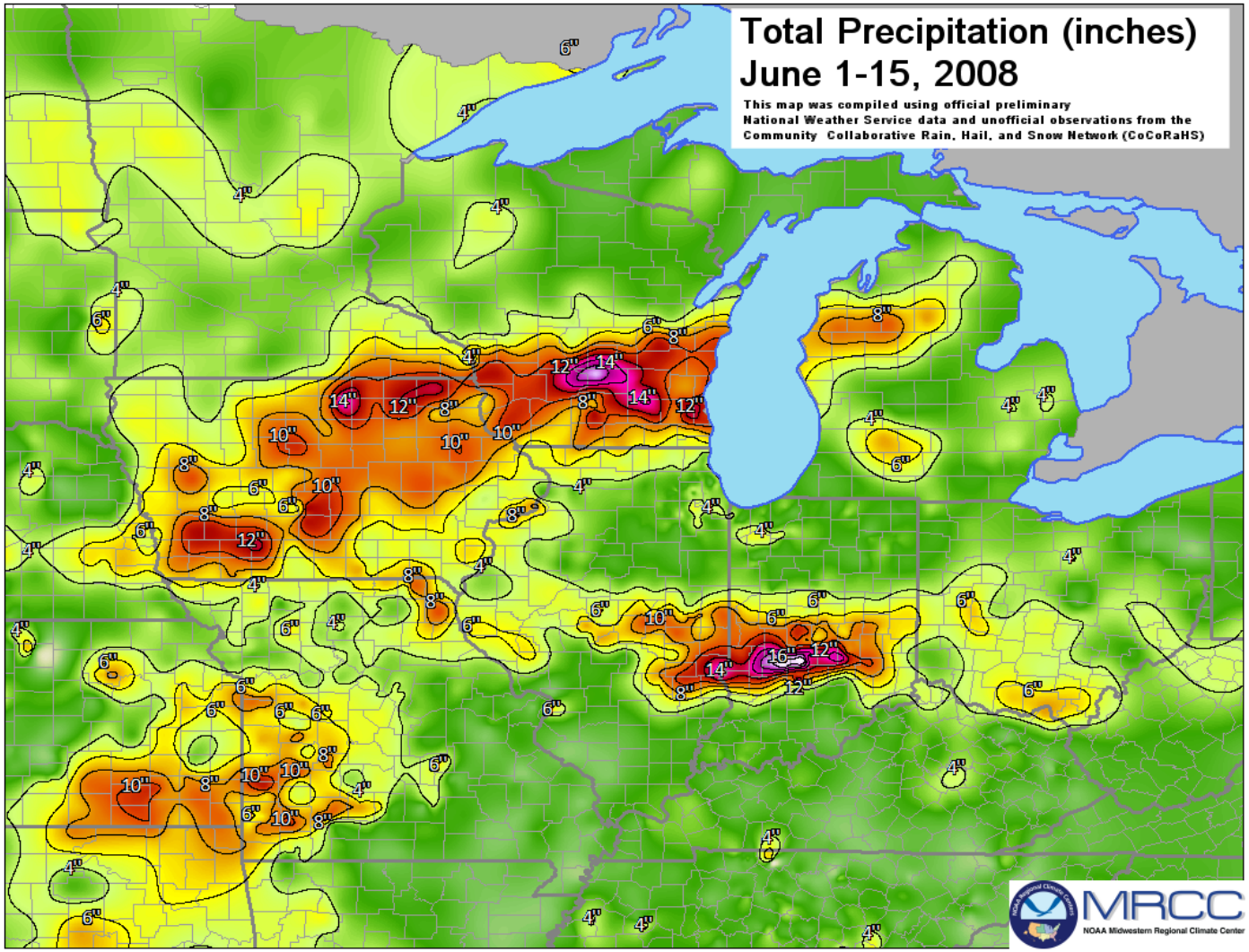
- Yellow is 6-8 inches
- Red is 8-10 inches

Dorchester	7.30”
Edgewood	7.28”
Bluffton	7.23”
Kendallville	7.00”
Decorah	6.60”
Elma	6.25”
Ion	6.14”



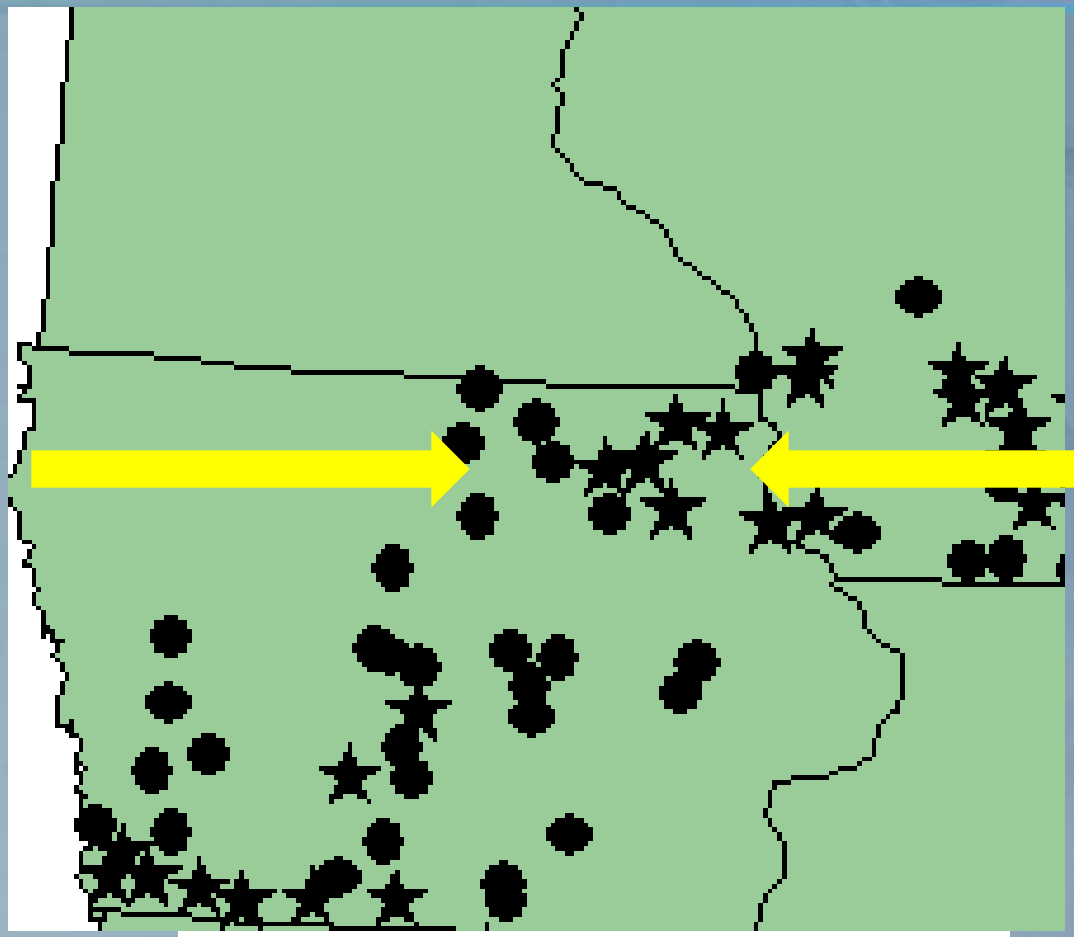
National Weather Service
La Crosse, WI

June 1-15, 2008 Rainfall



Rainfall Records

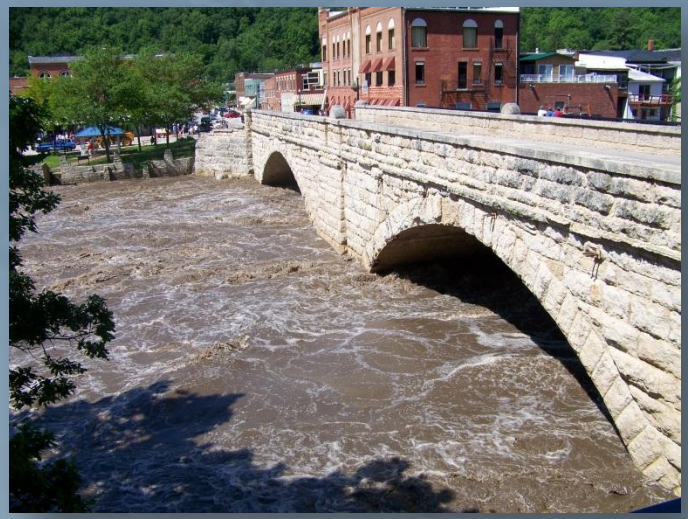
Seven sites with records ranked from 2-5



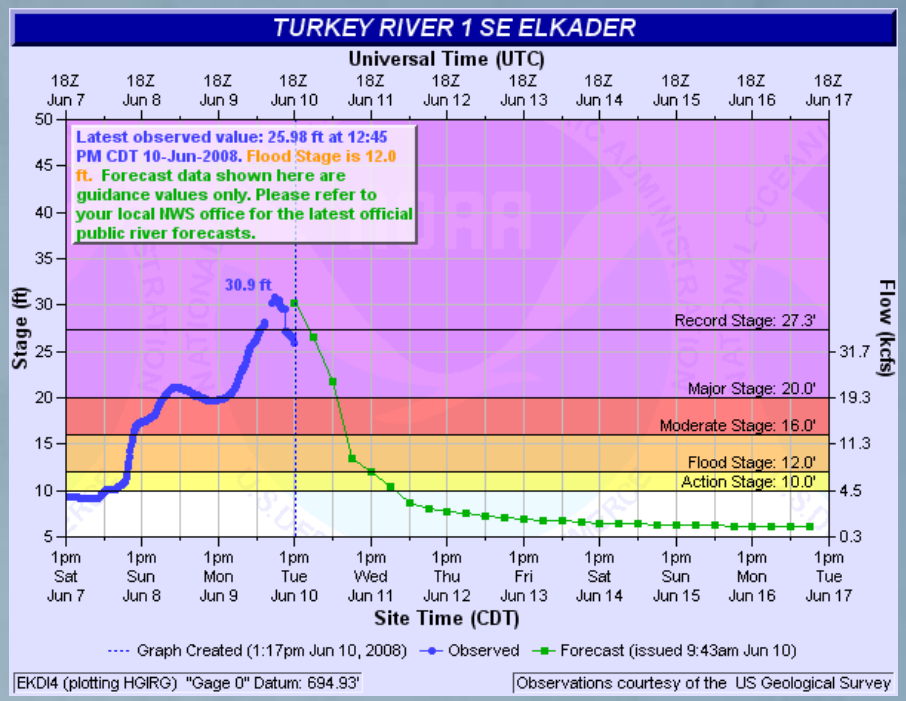
Six new rainfall records

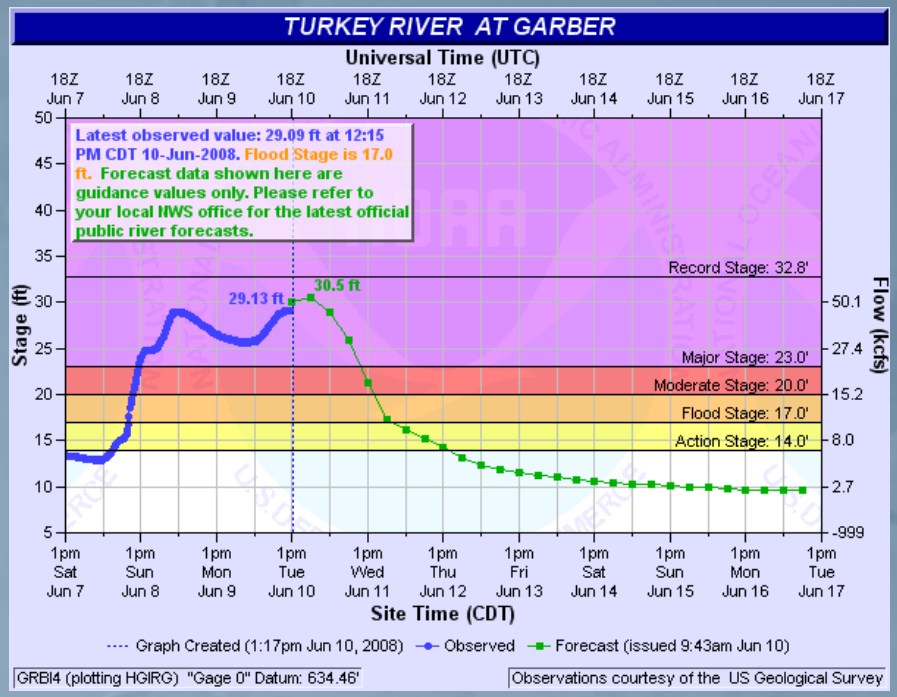
National Weather Service Cooperative Observer Network precipitation stations having a Top 5 precipitation total for June 2008. The locations with stars tied or exceed previous records, while the locations with dots are ranked second to fifth wettest. All stations reported at least 75% of the time, had 30 years or more of records, and were compared to all station data since 1895.

Extensive Flooding



Extensive Flooding





- Hydrograph for Elkader from June 2008
- Hydrograph for Garber from June 2008

It has happened before

2004:

1999:

Partner Impacts

- Some planned for event
- Workload dramatically increased
  - Large number of 911 calls

- Civil Emergency Decisions (evacuations)
- Hazards begin to compound themselves
  - Increases workload even more
- Longer term disaster
  - Days, weeks, months with no breaks
  - Relocation / Buyouts of structures
  - Rebuilding road and other infrastructure

Challenges

- Amount of rain (how to predict the “big one”)
- Recognizing scope of event
- How do we convey *higher impact* event?
- Weekend (summer) activities
- Weekend staffing
- Nighttime (darkness)
- Communication
- Simply getting around
- Exchange of information

Outreach Ideas

- Flood Safety Education
- Help people to recognize dangers around them
  - Look for the signs; realize this is different than before
- Signage in most dangerous areas
- Flash Flood Awareness projects

Turn Around Don't Drown

tadd.weather.gov

Outreach Ideas

- High Water Mark Signs
- Recognize that flooding can and has happened

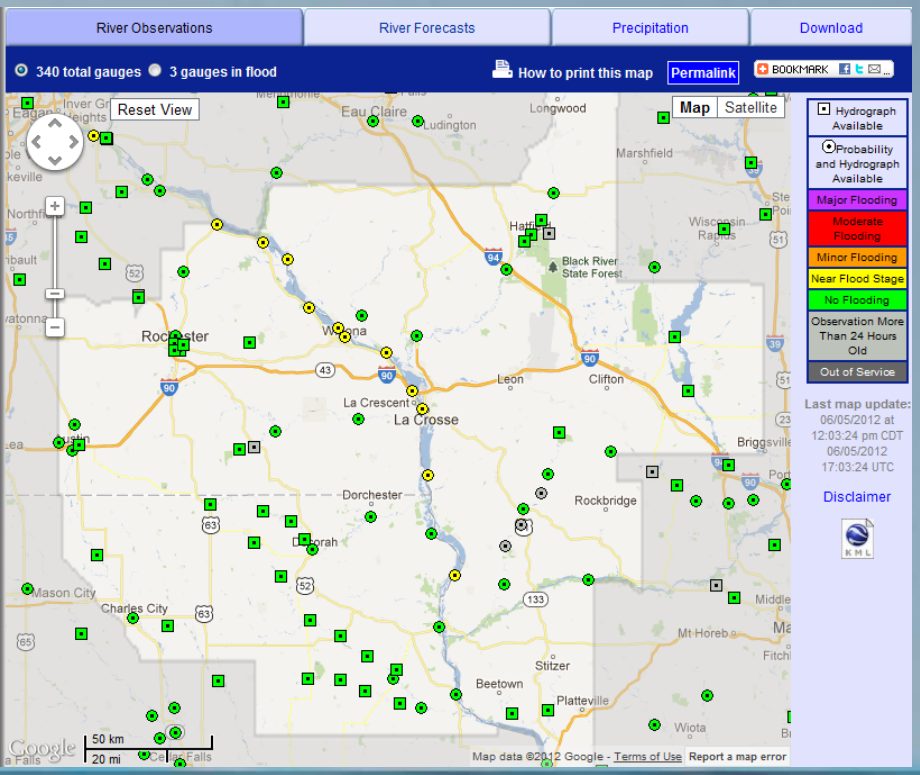
- Obtain Flood Insurance

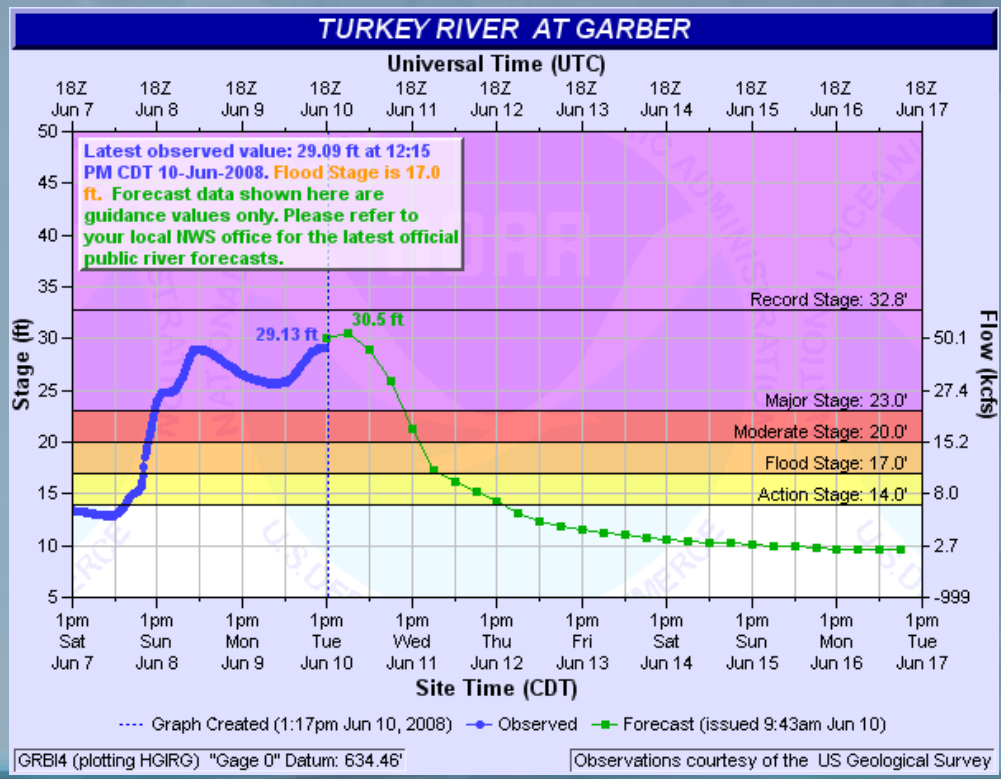
www.floodsmart.gov

FloodSmart.gov

Inundation Mapping

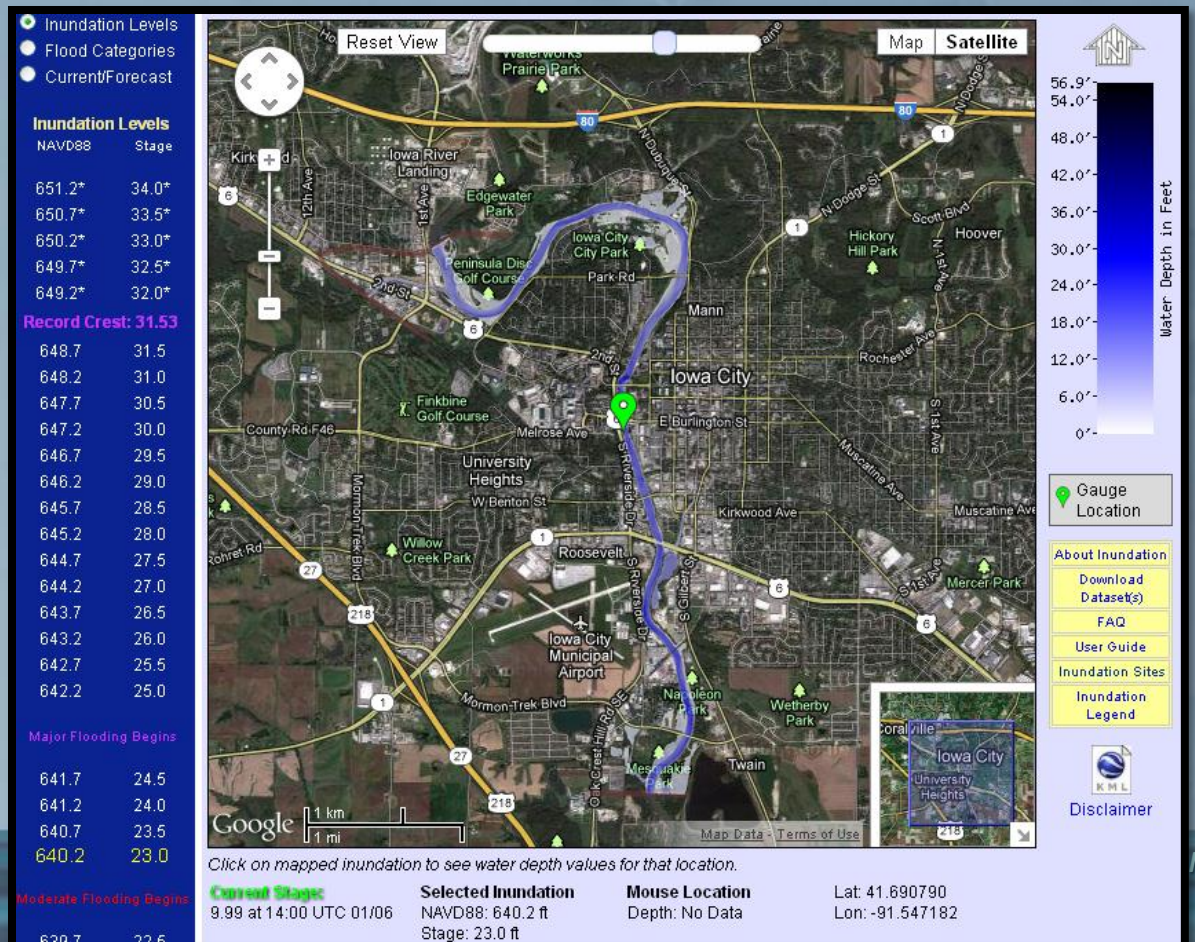
- New service being deployed across the U.S.
- Our current maps look like this:





Inundation Mapping

- But our new inundation mapping shows much more information for planning purposes



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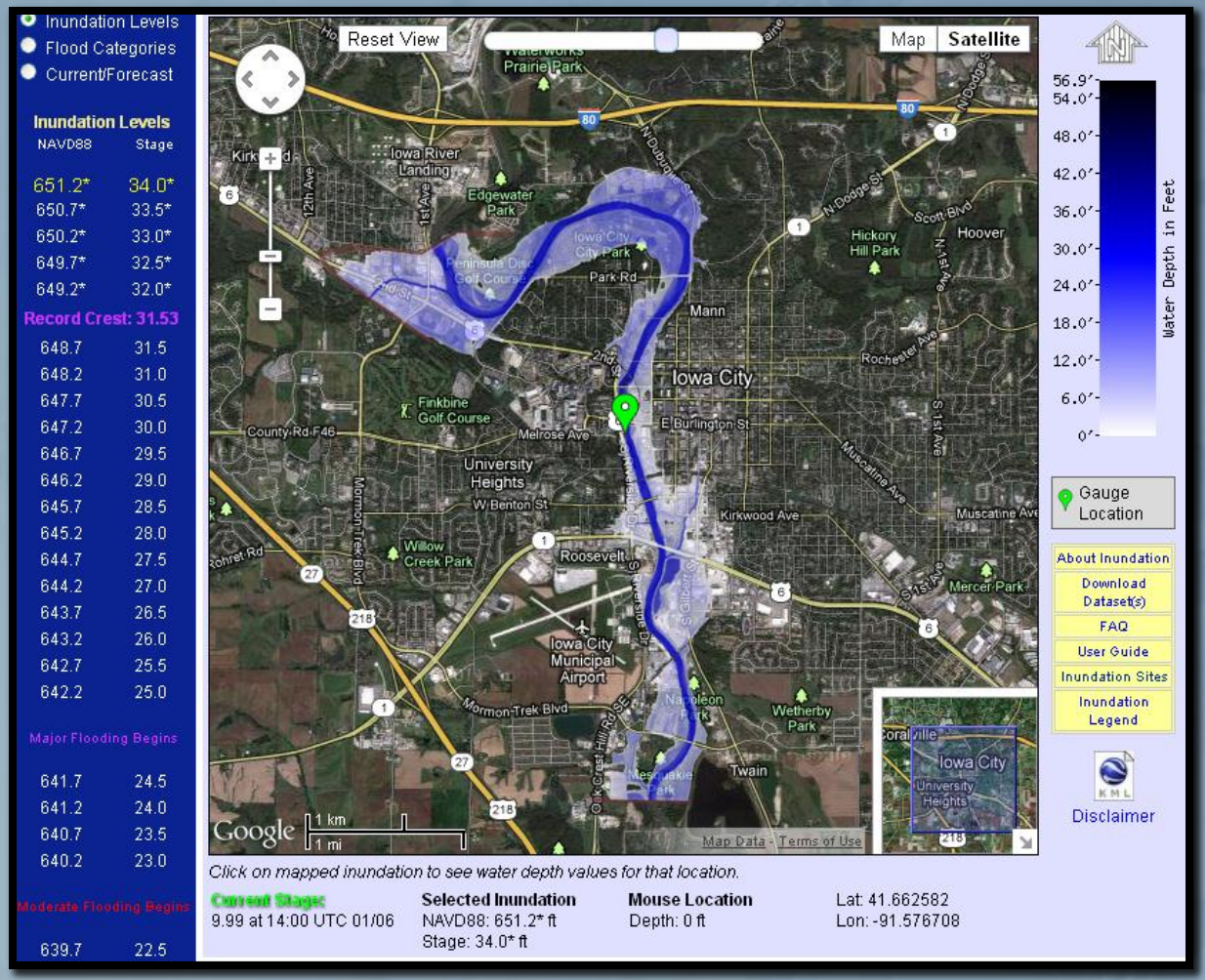

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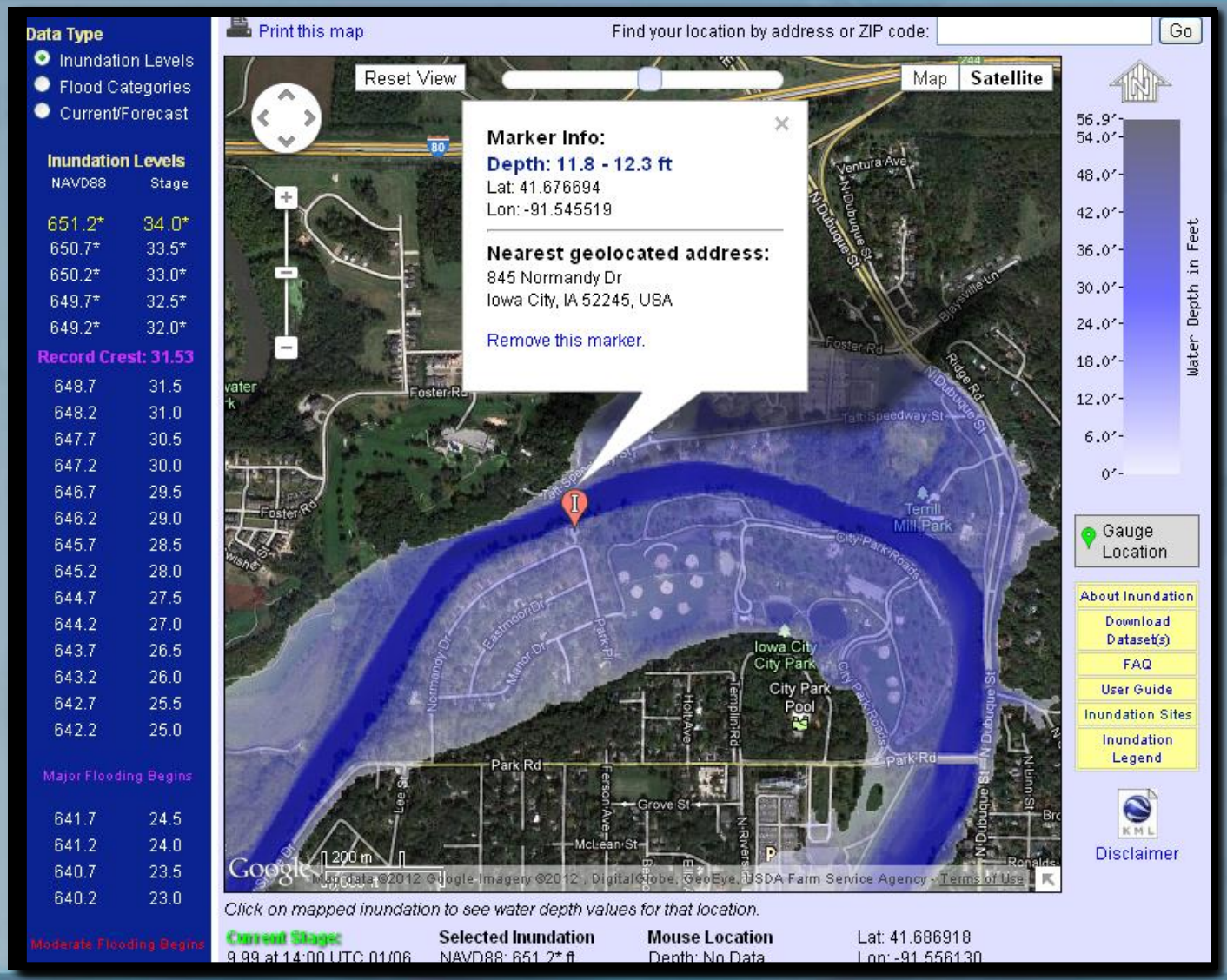
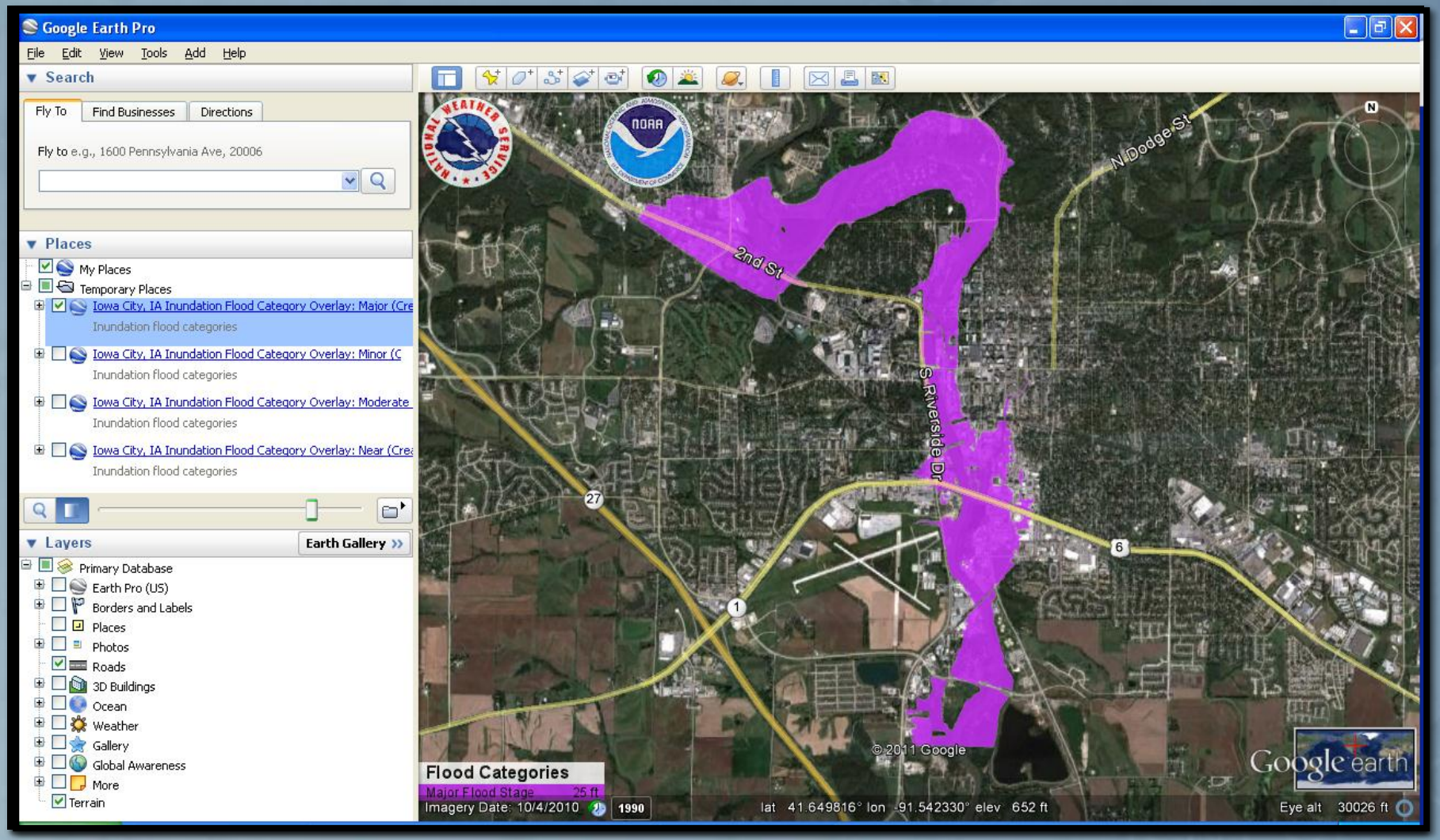
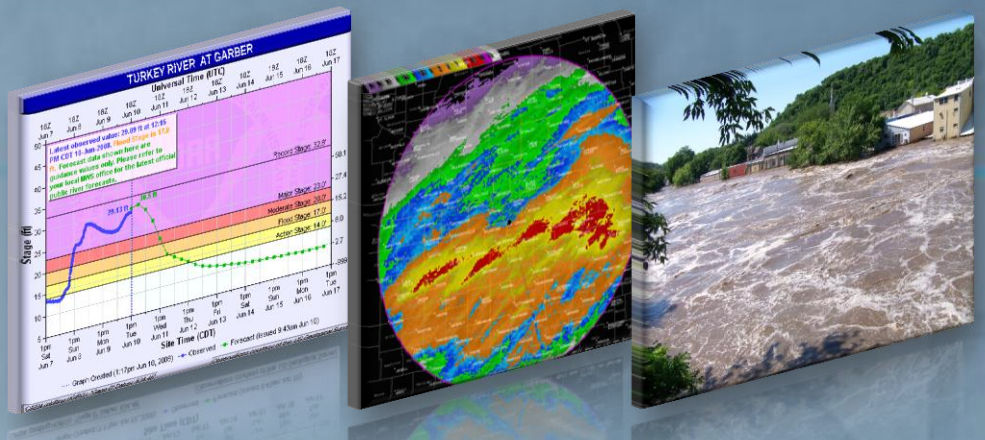


Inundation Mapping



Inundation Mapping

- This could be done in Elkader!!
- Iowa Flood Center has already done most of the work
- NWS can implement this for Elkader (and Chalres City) based on the IFC's work
- Need to find $4,000 to fund the conversion



Turkey River Basin Flooding History and Overview

Let the Exchange of Information Begin!

Thank YOU for being here!

National Weather Service
La Crosse, WI