

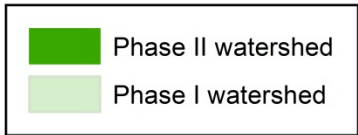
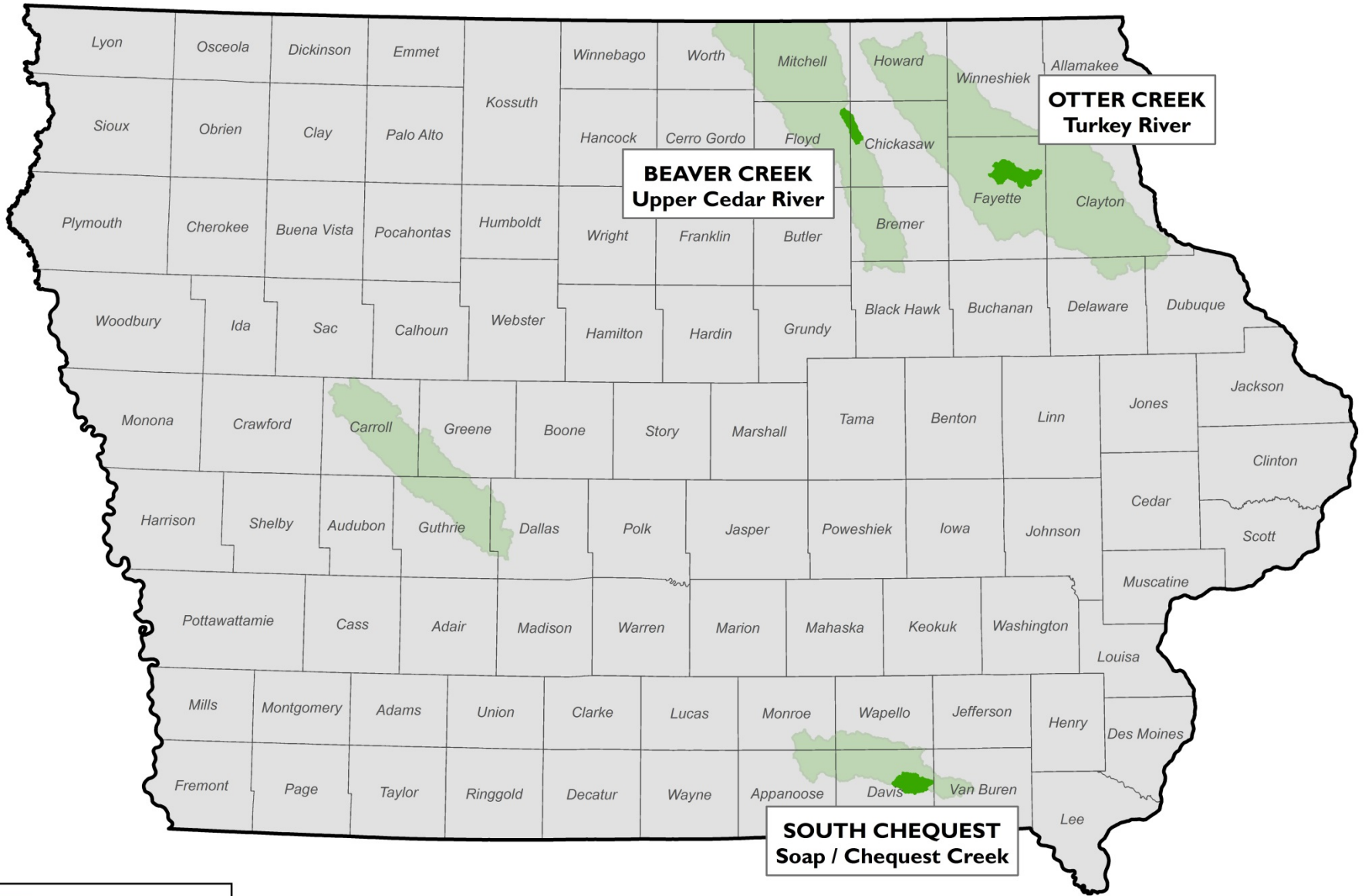
# Iowa Watersheds Project

**Turkey River Watershed  
Alliance Meeting**

**June 27, 2013**

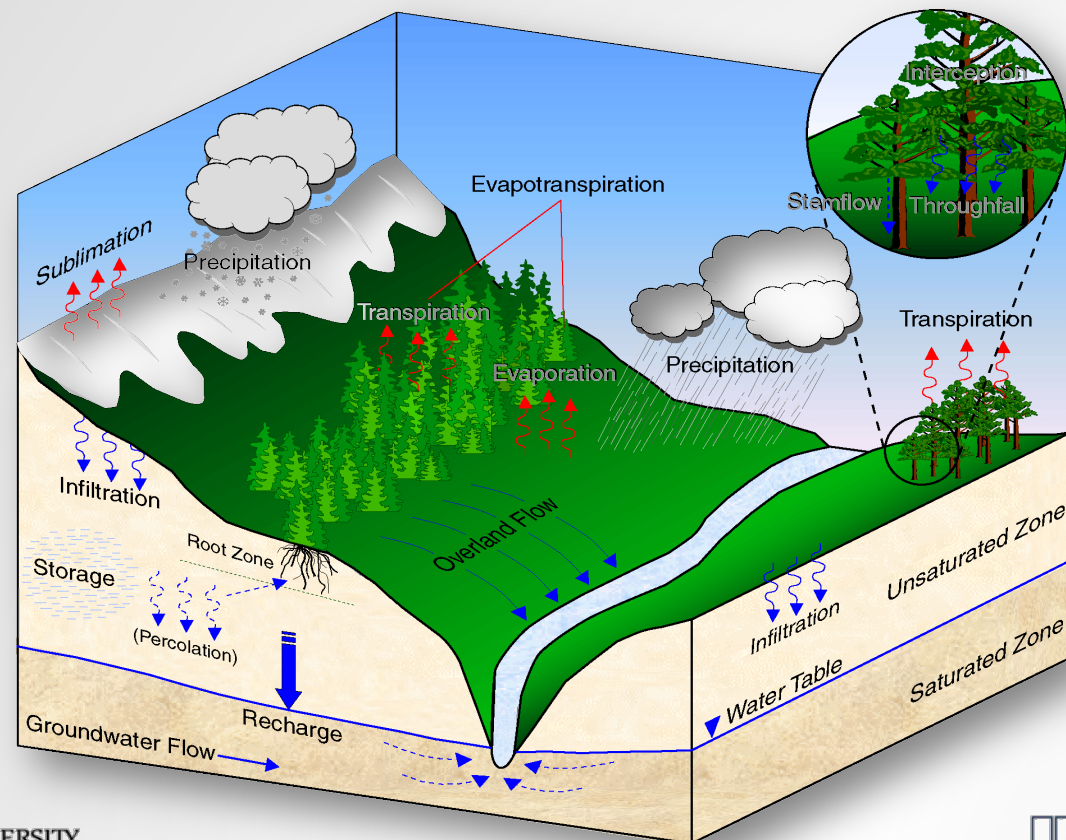
# Overview

- Phase II Modeling Update
  - Development, inputs, outputs
- Monitoring
- Phase II Projects
- Timeline
- Next Steps

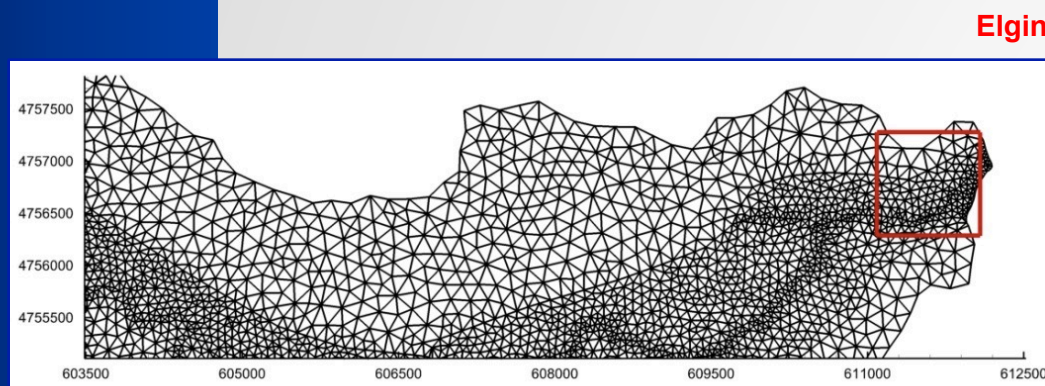
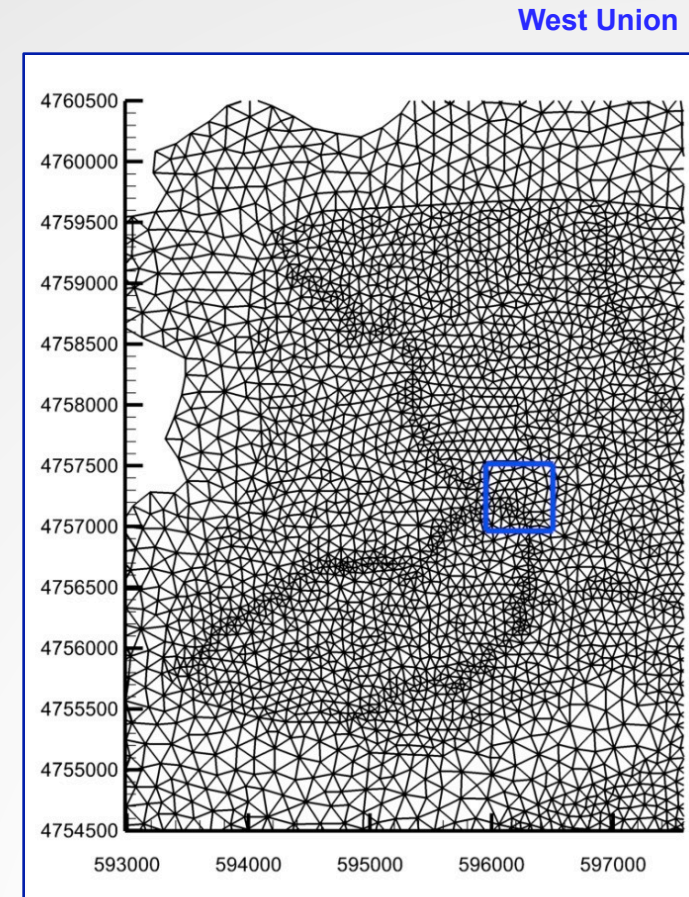
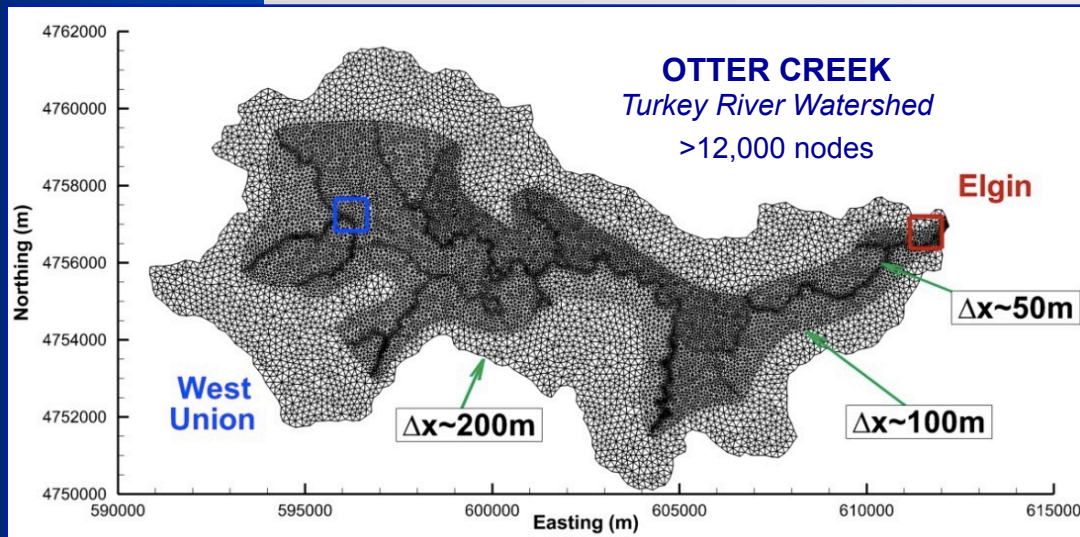


# Phase II Modeling

- Physically-based model accounts for all surface & subsurface interactions

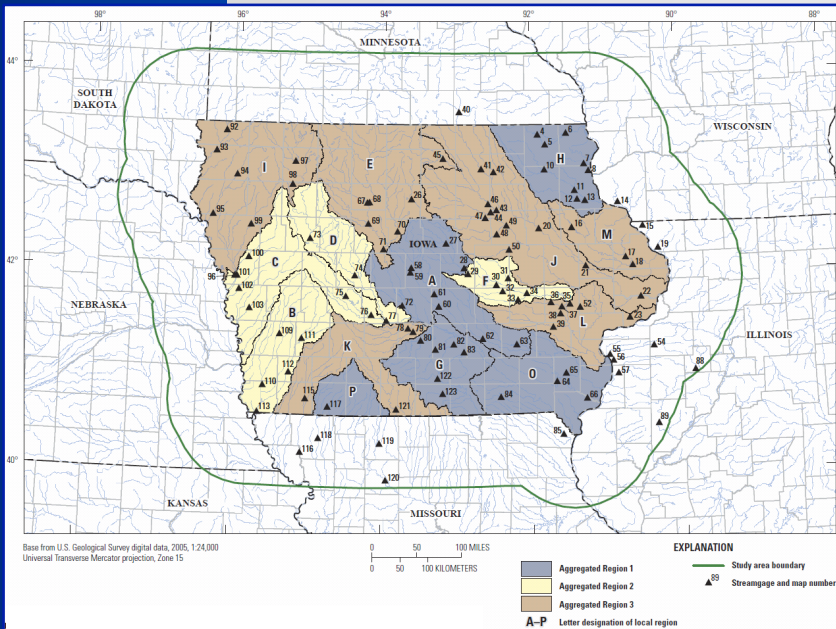


# HUC 12 Model & Mesh

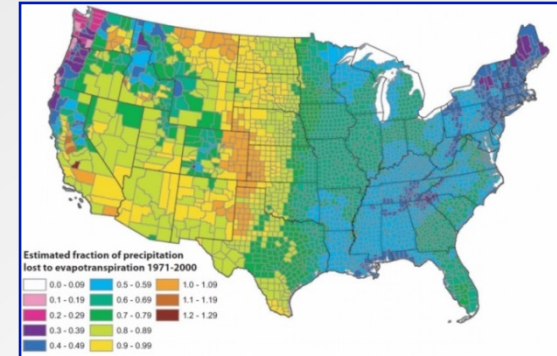


# Surface Hydrology

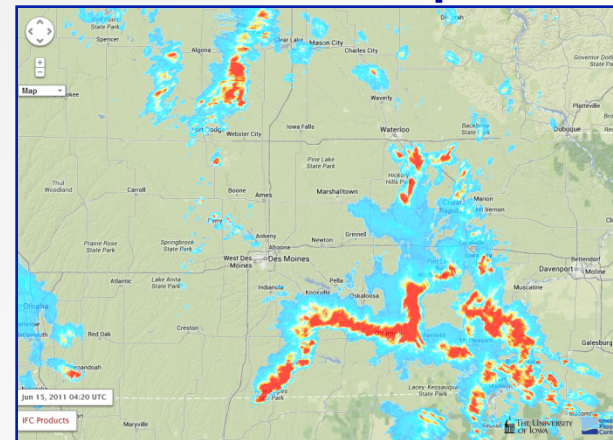
## Discharge



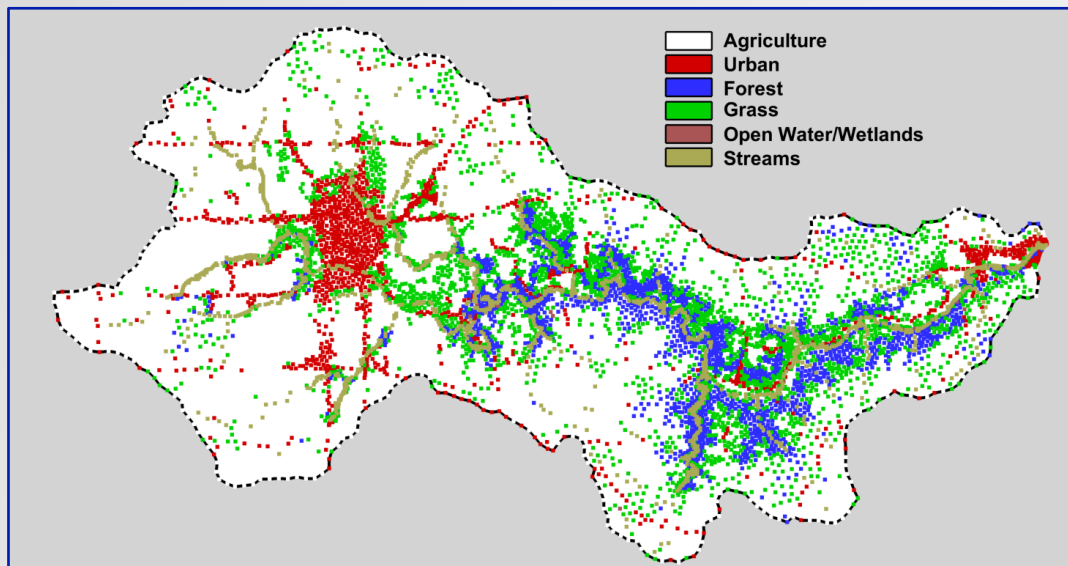
## Evapotranspiration ~0.75



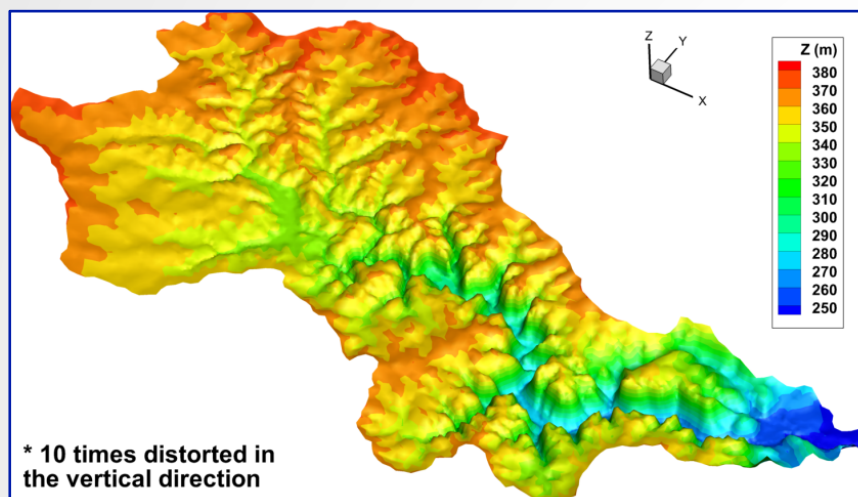
## Precipitation



# Surface Elements

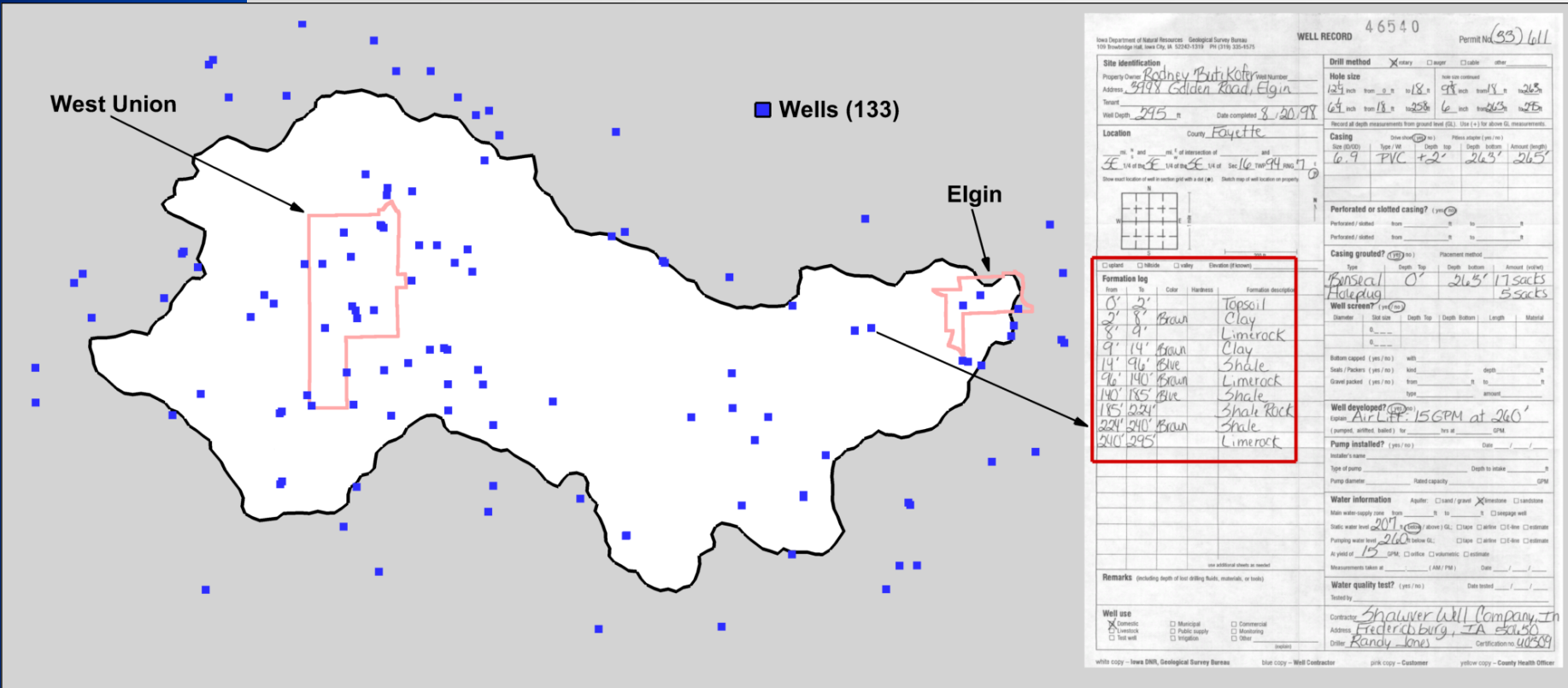


Land use



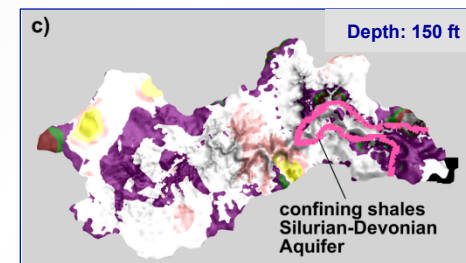
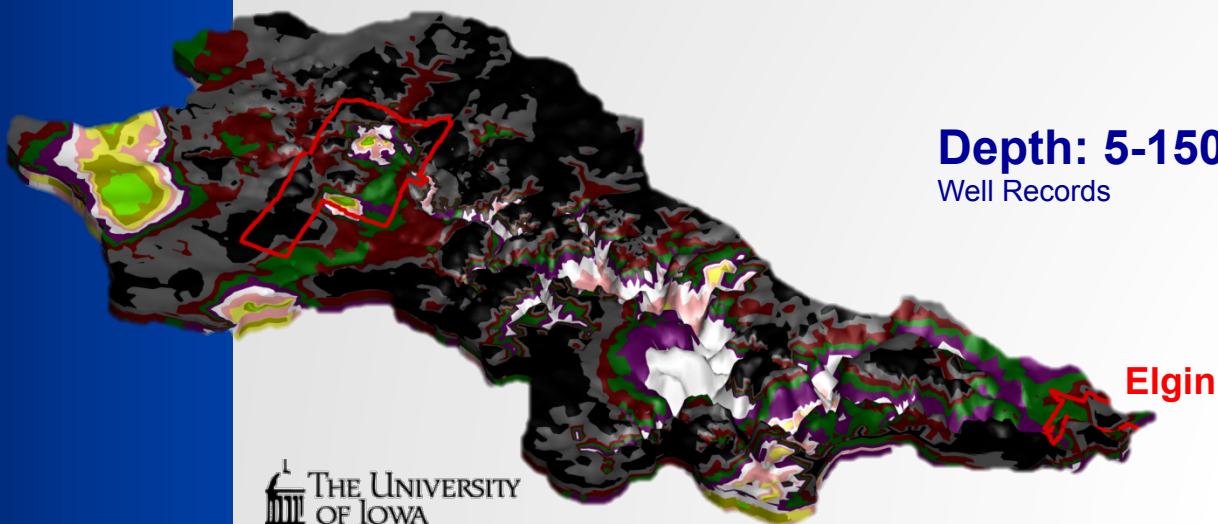
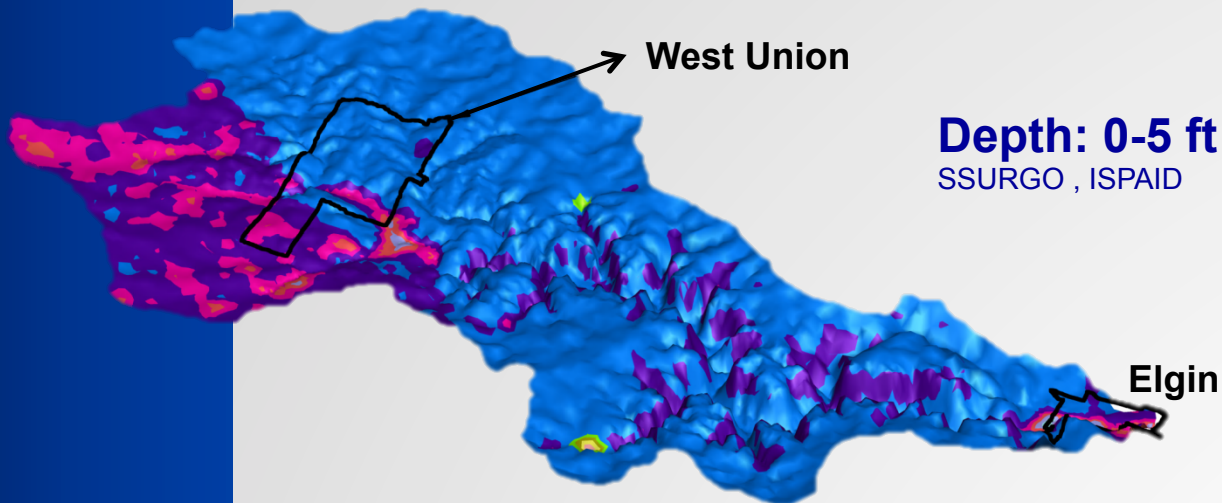
Topography

# Subsurface

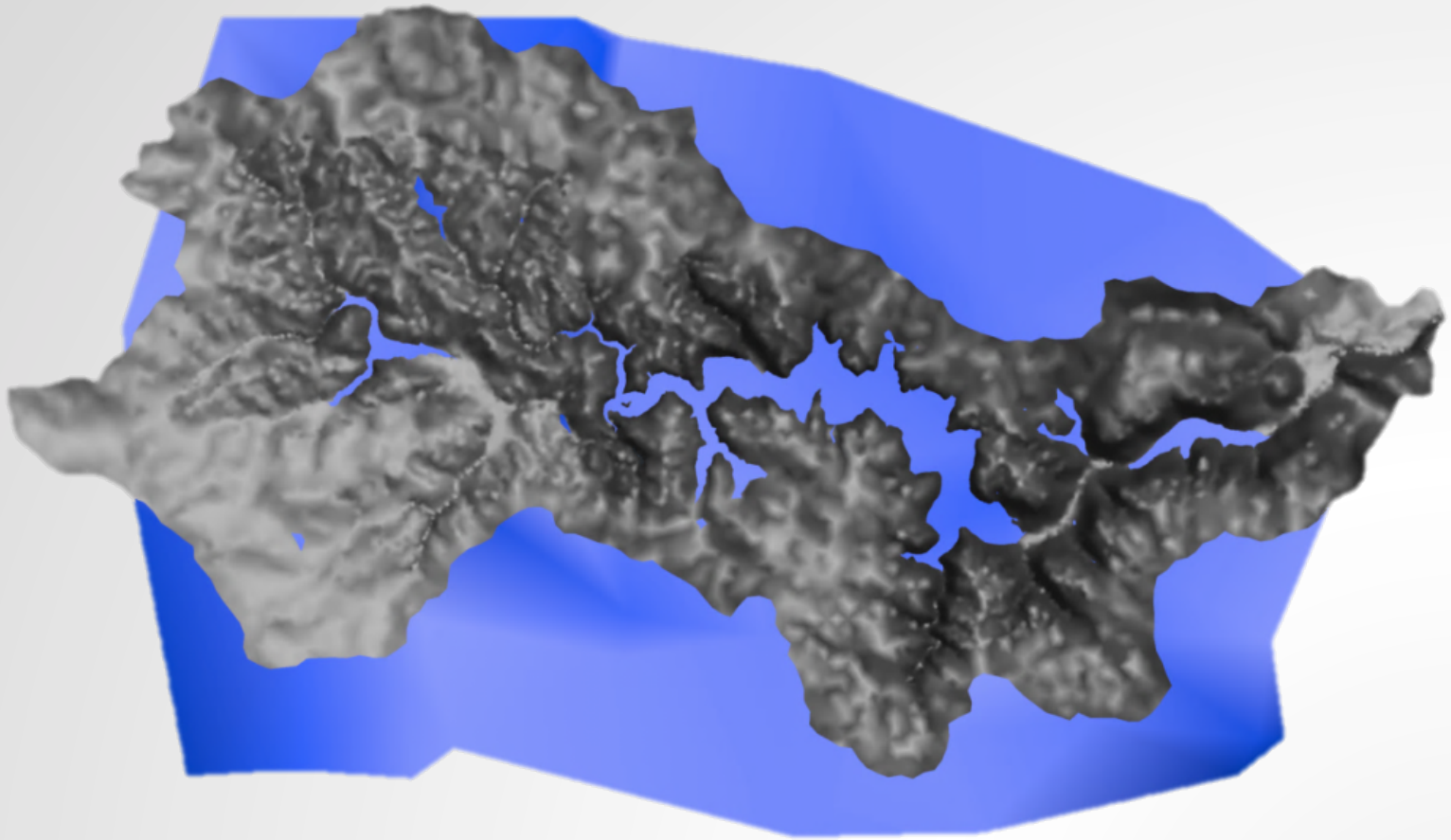




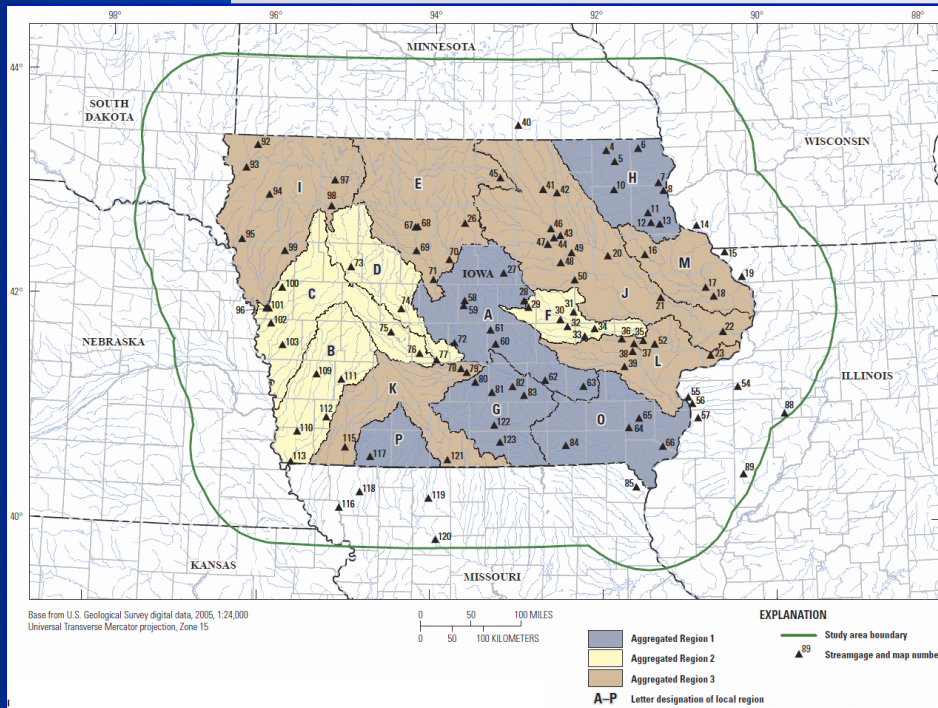
# Subsurface – Geology



# Subsurface – Groundwater

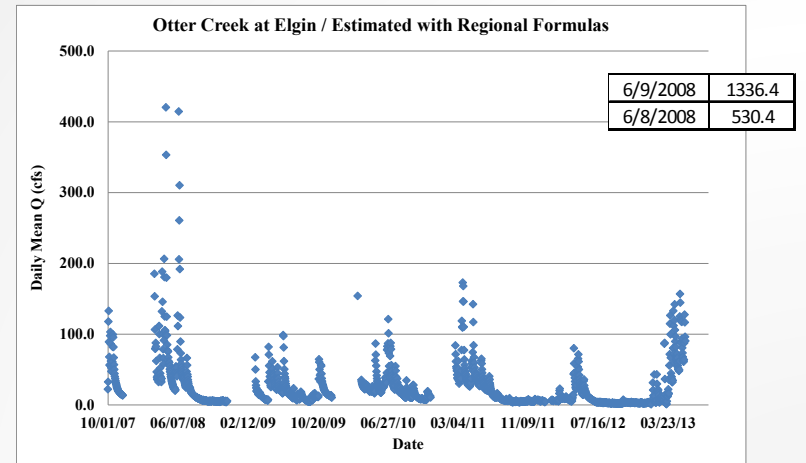
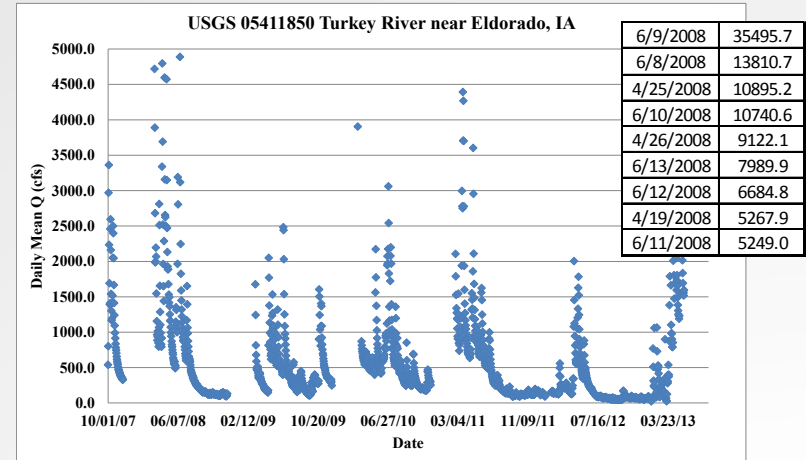


# Initial Modeling

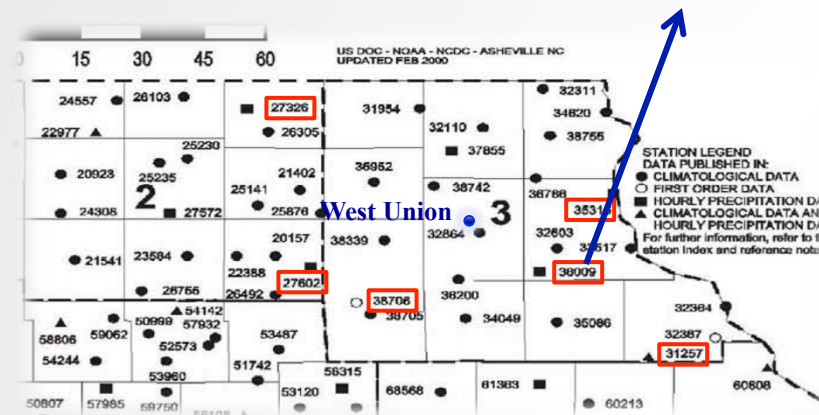
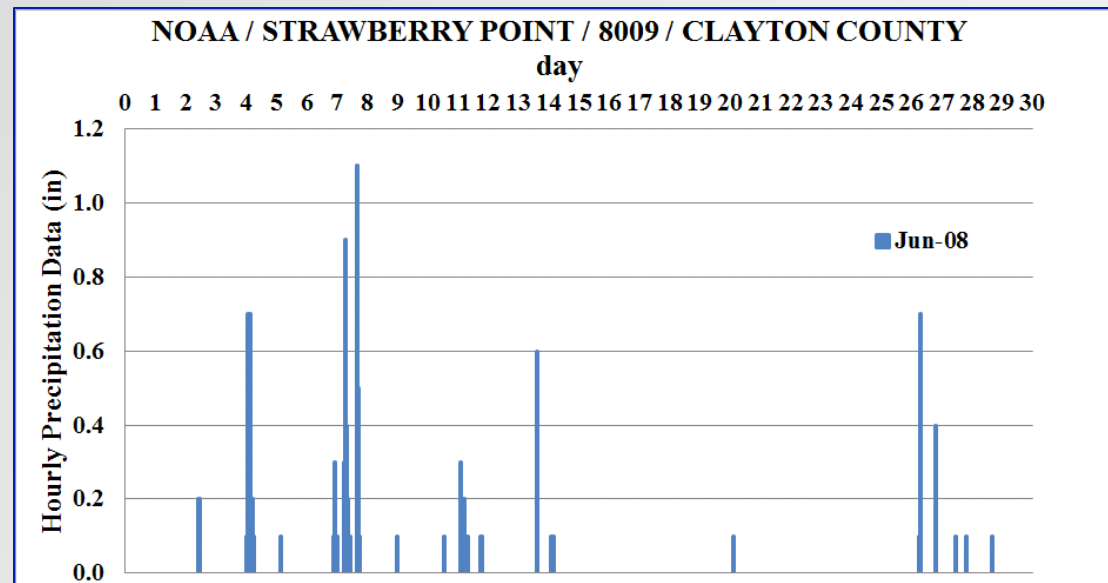


**Computing Daily Mean Streamflow at Ungaged Locations in Iowa by using the Flow Anywhere and Flow Duration Curve Transfer Statistical Methods**

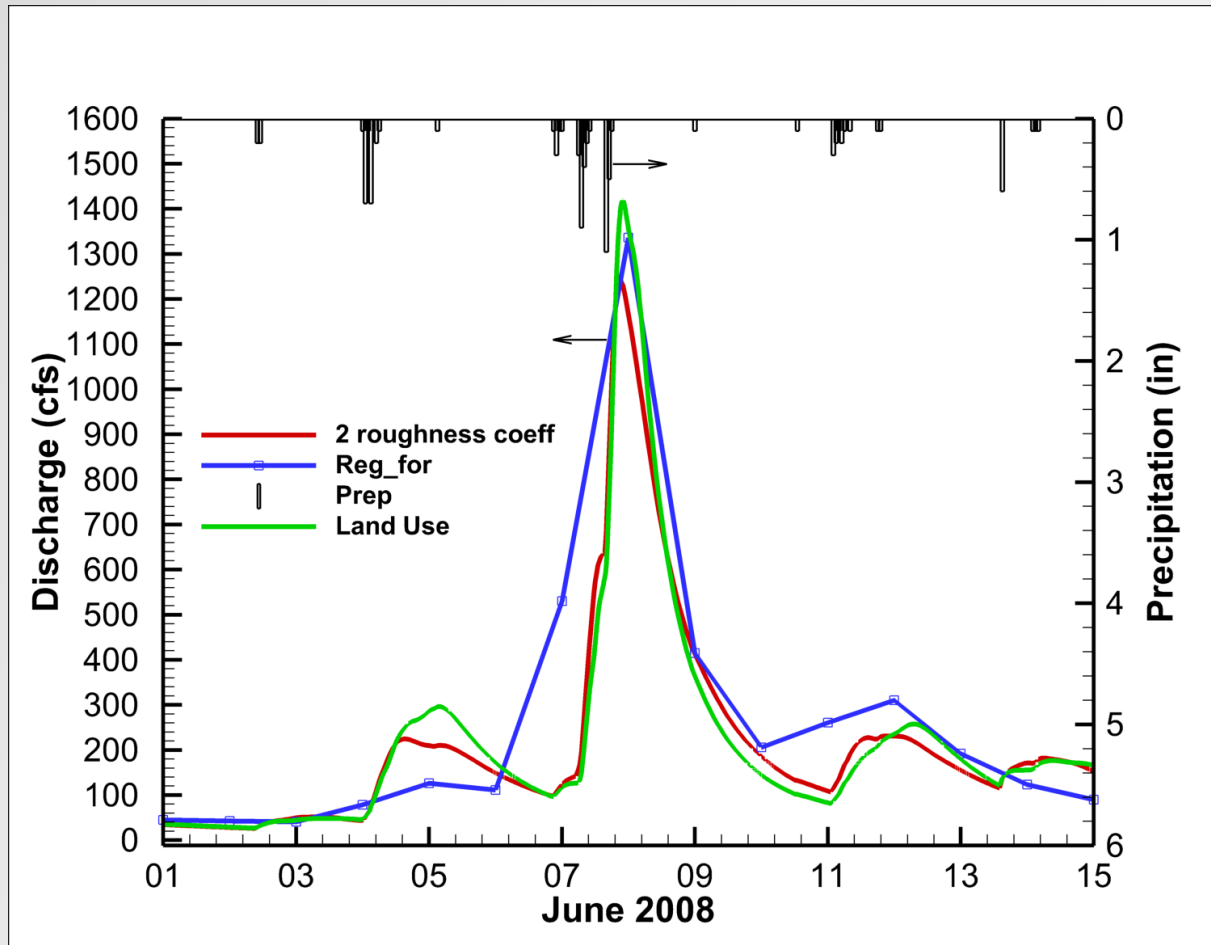
By S. Mike Linhart, Jon F. Nania, Curtis L. Sanders, Jr., and Stacey A. Archfield



# June 2008 Rainfall



# June 2008 Streamflow



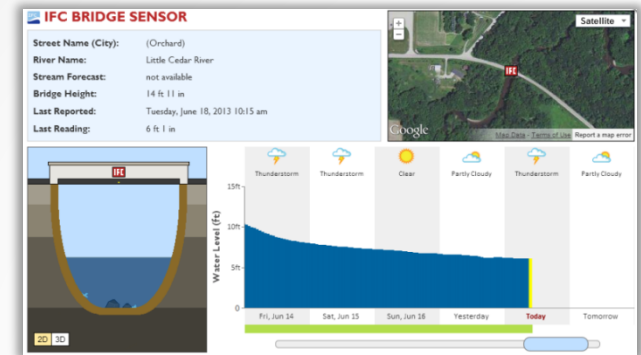
# Phase II Monitoring

- Establish baseline conditions in HUC 12s
- Monitor the impact of projects
- Provide publically-accessible data



# Stream Stage Conditions

- Measure stage
  - 150 units statewide
- Deployed on bridges
  - Coordinated by IFC
- Sensor at Elgin in 2011
  - 2-4 additional locations



# Water Quality Conditions

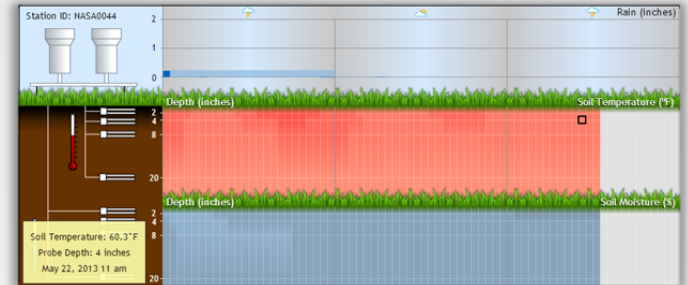
- Real-time conditions
  - Nitrate (mg/L)
  - pH
  - Turbidity (NTU)
  - Temperature (C)
  - Dissolved oxygen (mg/L)
  - Specific conductance ( $\mu\text{S}/\text{cm}$ )
- Deployed at Cedar Rd., Elgin
  - Coordinated by IFC /USGS
  - Co-located with USGS stream gage



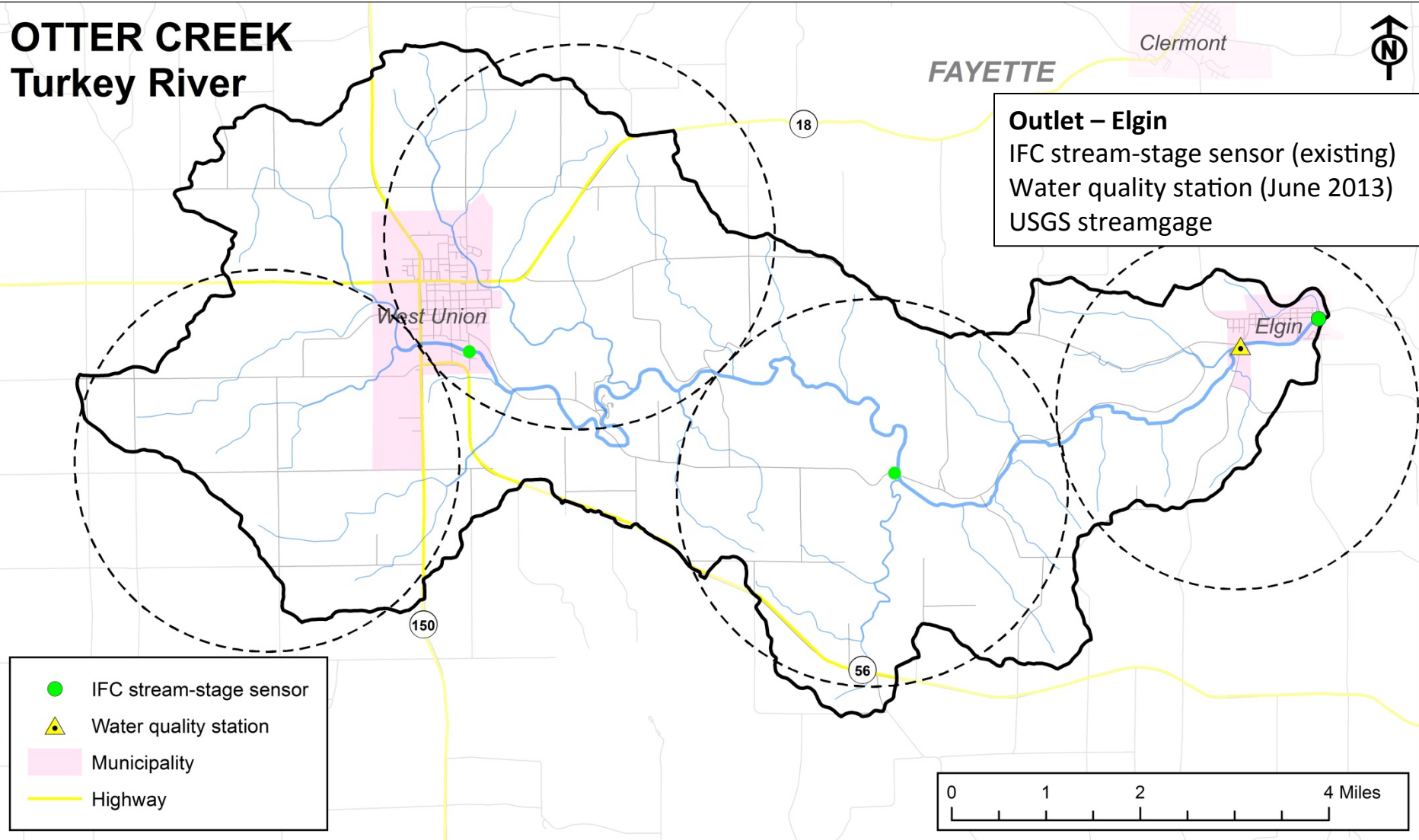


# Precipitation/Soil Conditions

- Ground validation
  - Precipitation totals
  - Soil moisture
  - Soil temperature
- Site specifics
  - Public or private land
  - Access to sunlight
  - Clear of obstructions
  - High ground
- 2-4 units



# OTTER CREEK Turkey River



## ***Additional Efforts***

*Turkey River Watershed Alliance, West Union Project*

# Phase II Projects

- Flood reduction benefits
  - Pond structures
  - Wetlands
  - Floodplain easements
  - Controlled drainage systems
  - Buffer strips
- Consultation with IFC for final selection

# Project Timeline

## Phase II

Summer & Fall 2013	Explore project locations, commence project design, deploy monitoring equipment
Winter & Spring 2014	Design projects
Summer 2014 – Summer 2015	Construct projects
Summer 2013– 2017	Monitor & assess
Summer 2017	Finalize Phase II report

## Phase I

Fall/Winter 2013	Complete hydrologic assessment
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# Enhancing the Model

- Physical elements
  - Existing project locations
  - Bridge information
  - Hydraulic structures
- Water quality/quantity monitoring efforts
  - Current or past
  - Local governments, non-profits, colleges

# Next Steps

# Subsurface – Geology

