

A “New” Source of Deep Groundwater for Kendall County

- Recalibration of the model with mass measurement data
- Incorporation of the Sandwich Fault
- Incorporation and inter-aquifer connections
 1. Has development altered the aquifer?
 2. Do we now have a one, two, or three aquifer system?
- Resulting transmissivity roughly double

Results

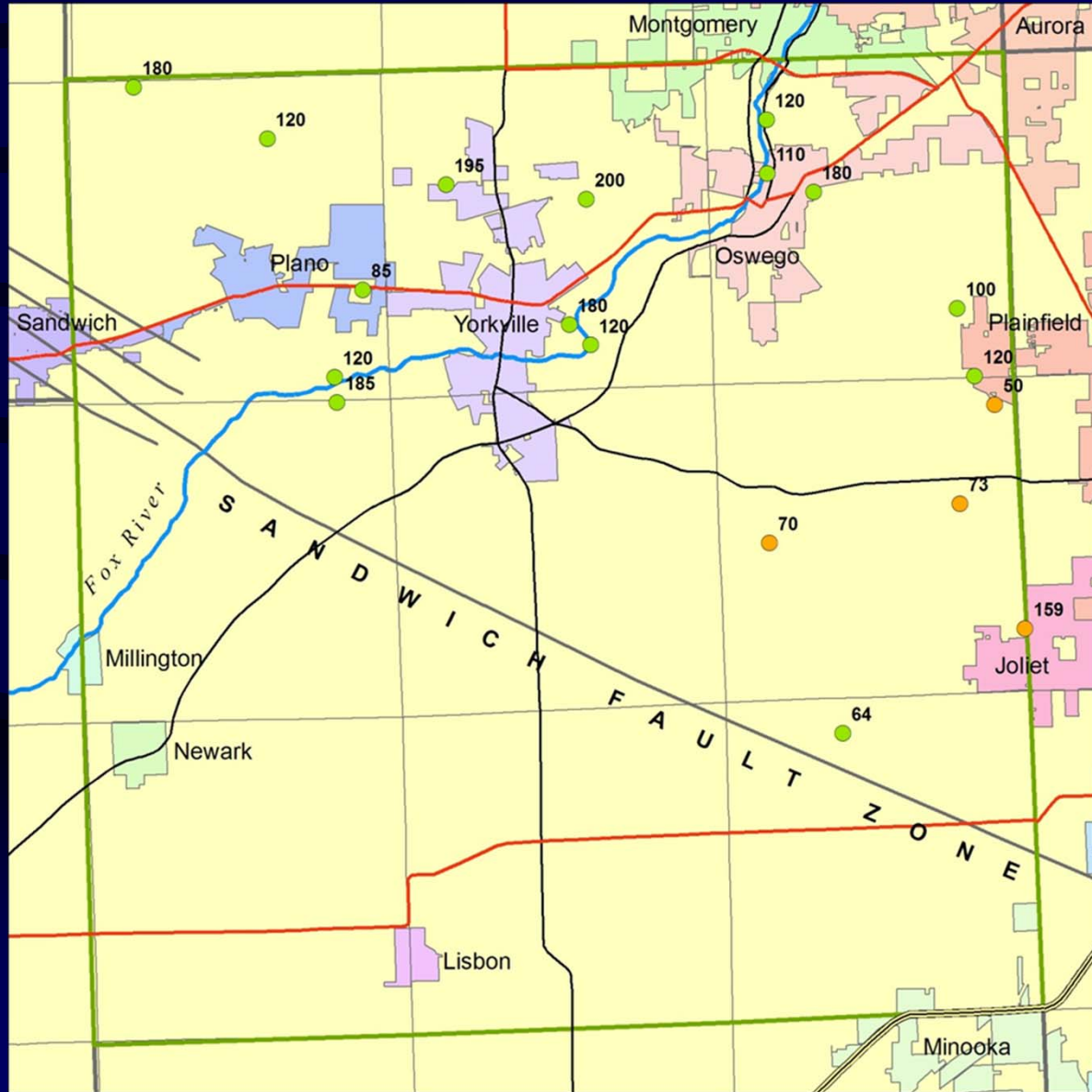
- **Bad News**

- Lower water levels in the Ancell – St Peter Sandstone in the Joliet region
- Deep industrial supplies at risk
- Deep domestic wells at greater risk

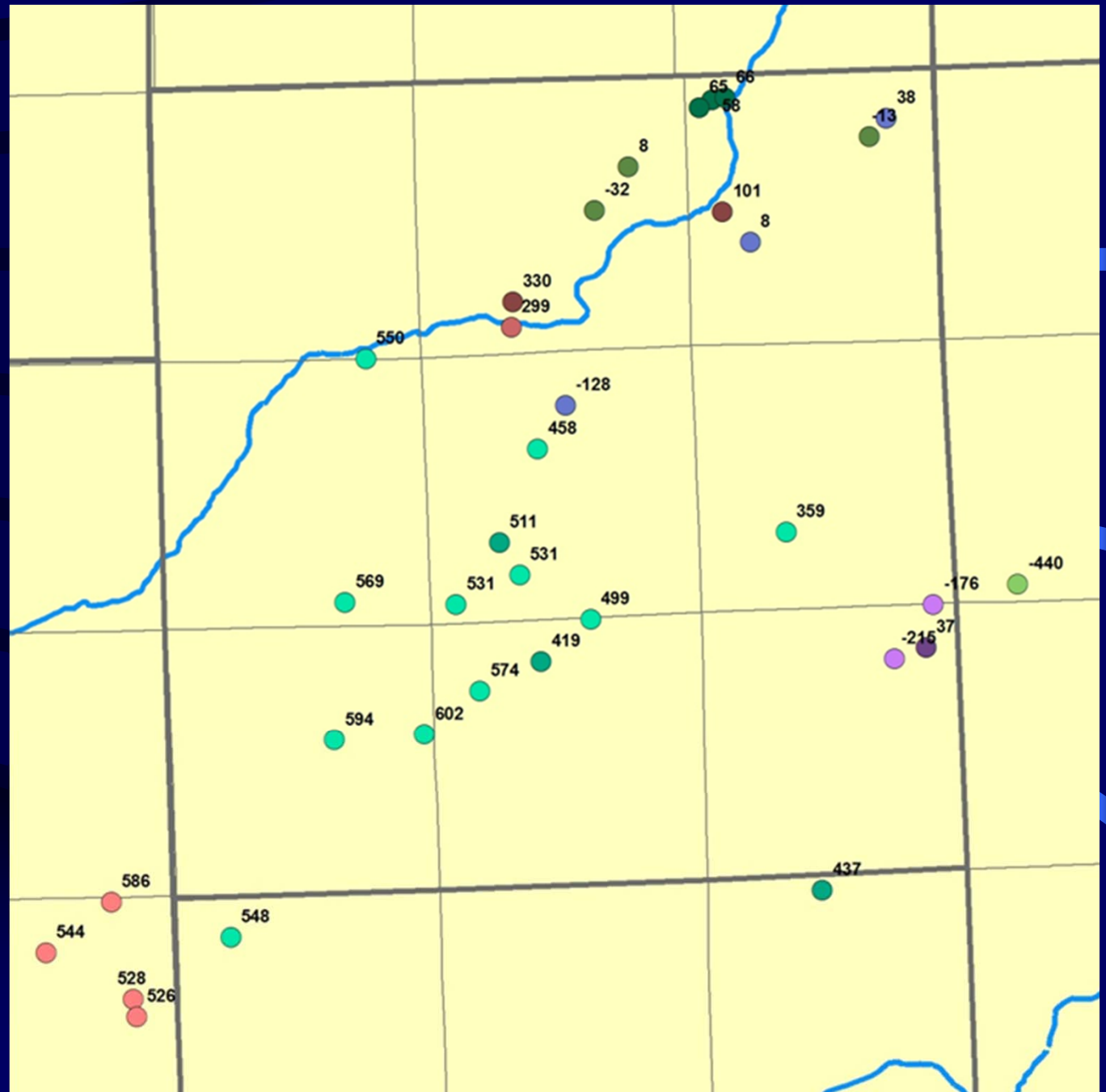
- **Good News**

- Higher water levels in the Ironton-Galesville Sandstone throughout NE Illinois
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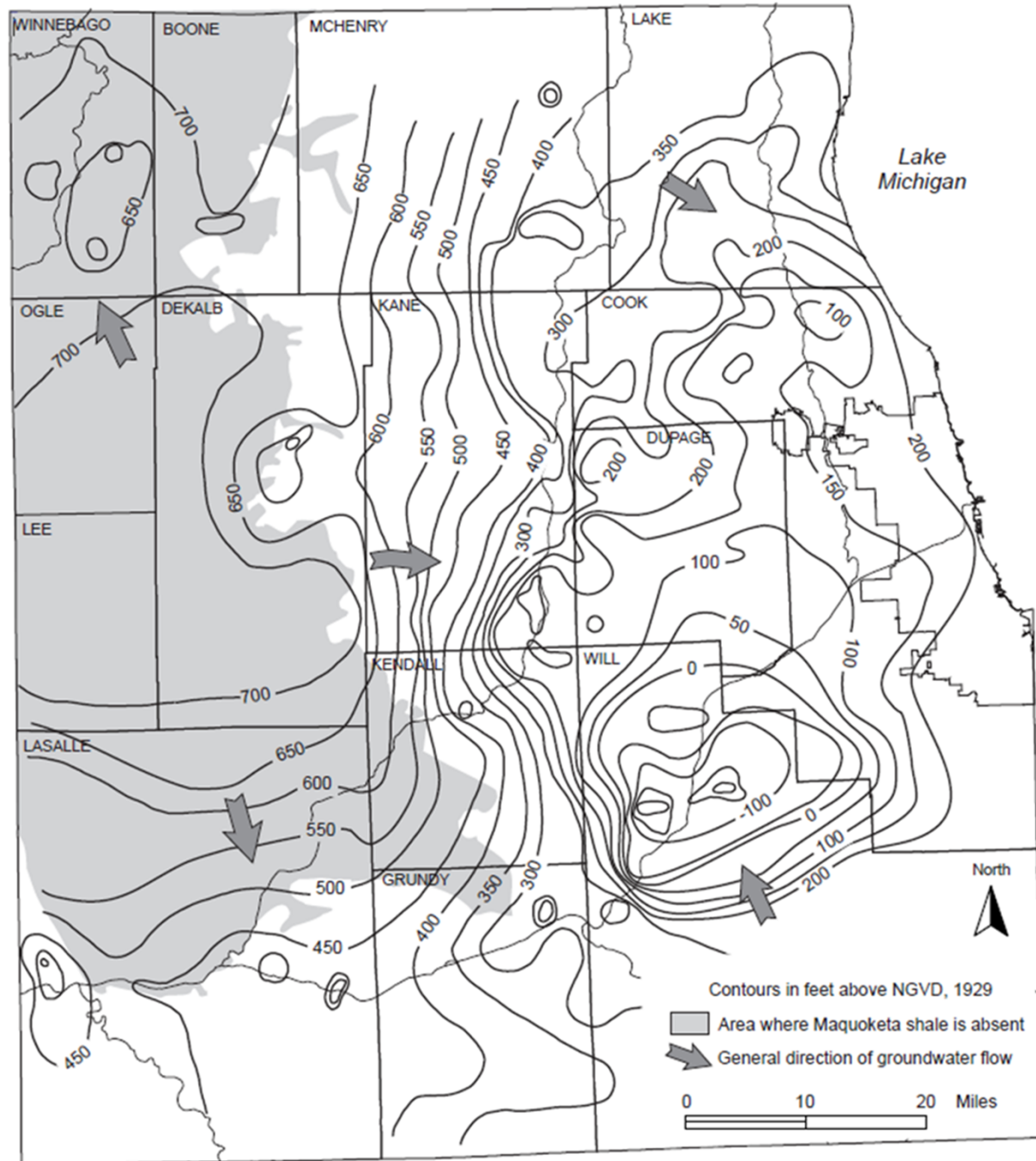
Kendall County



Sandstone Water Levels



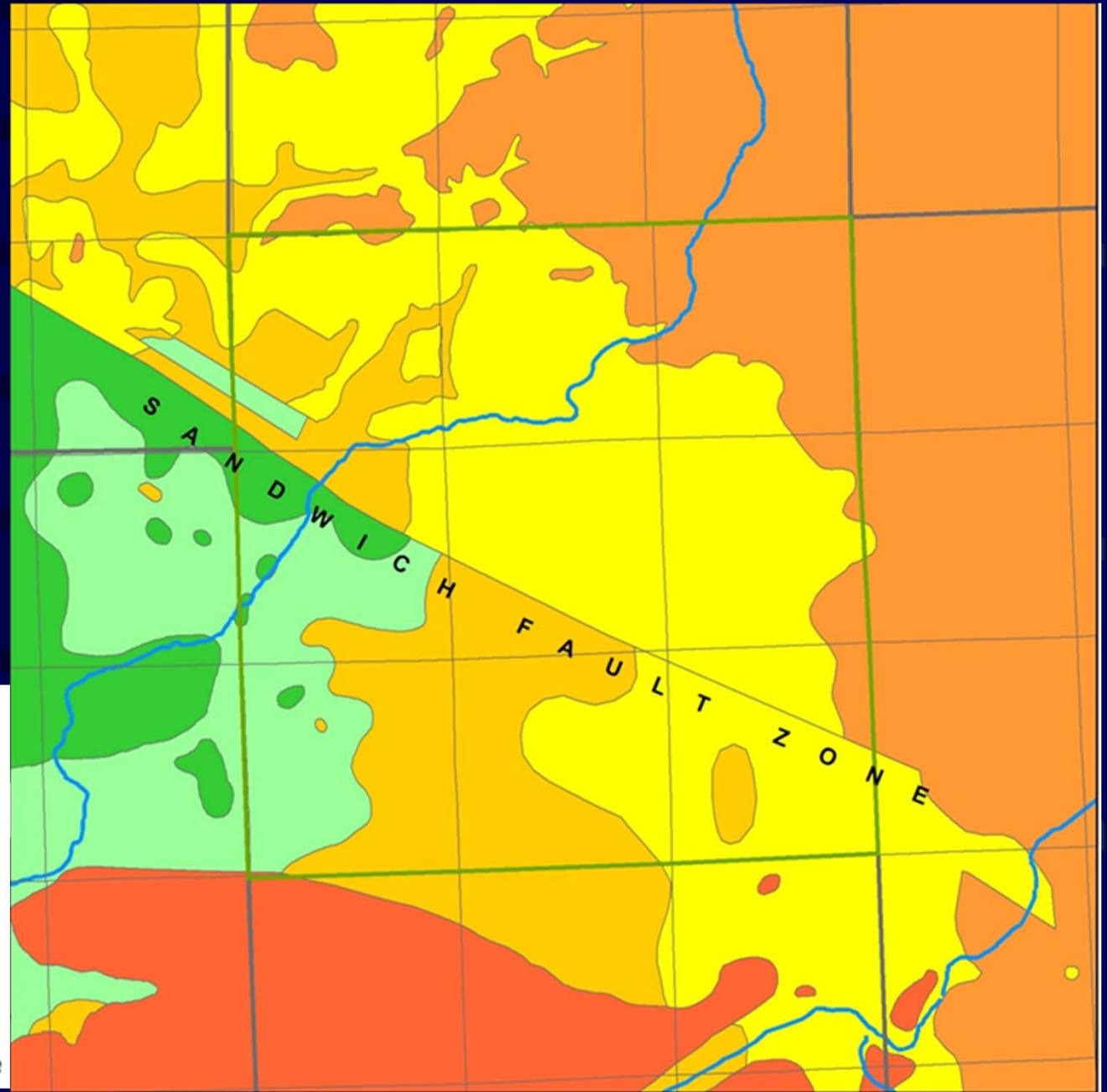
2000 Water Levels

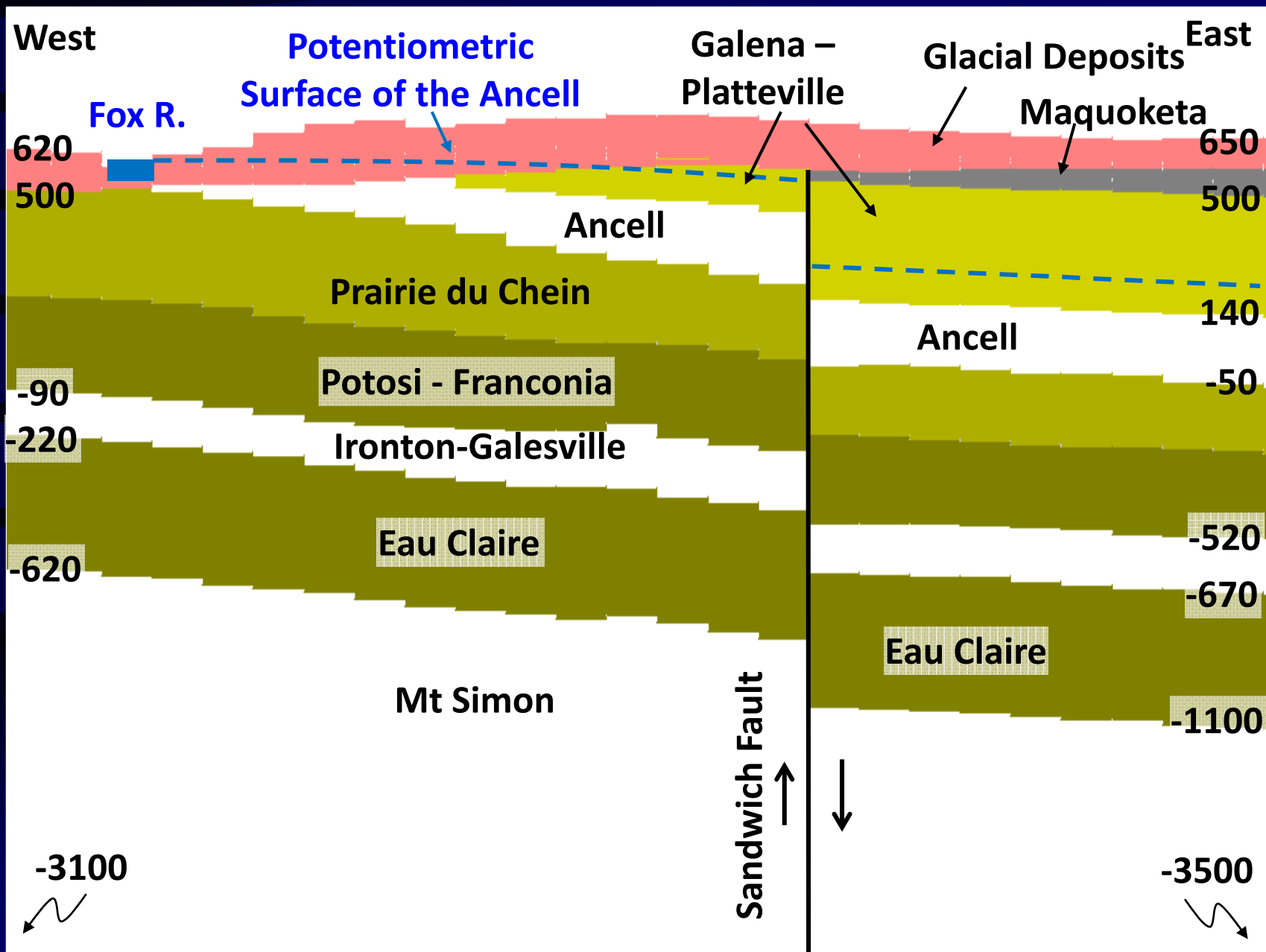


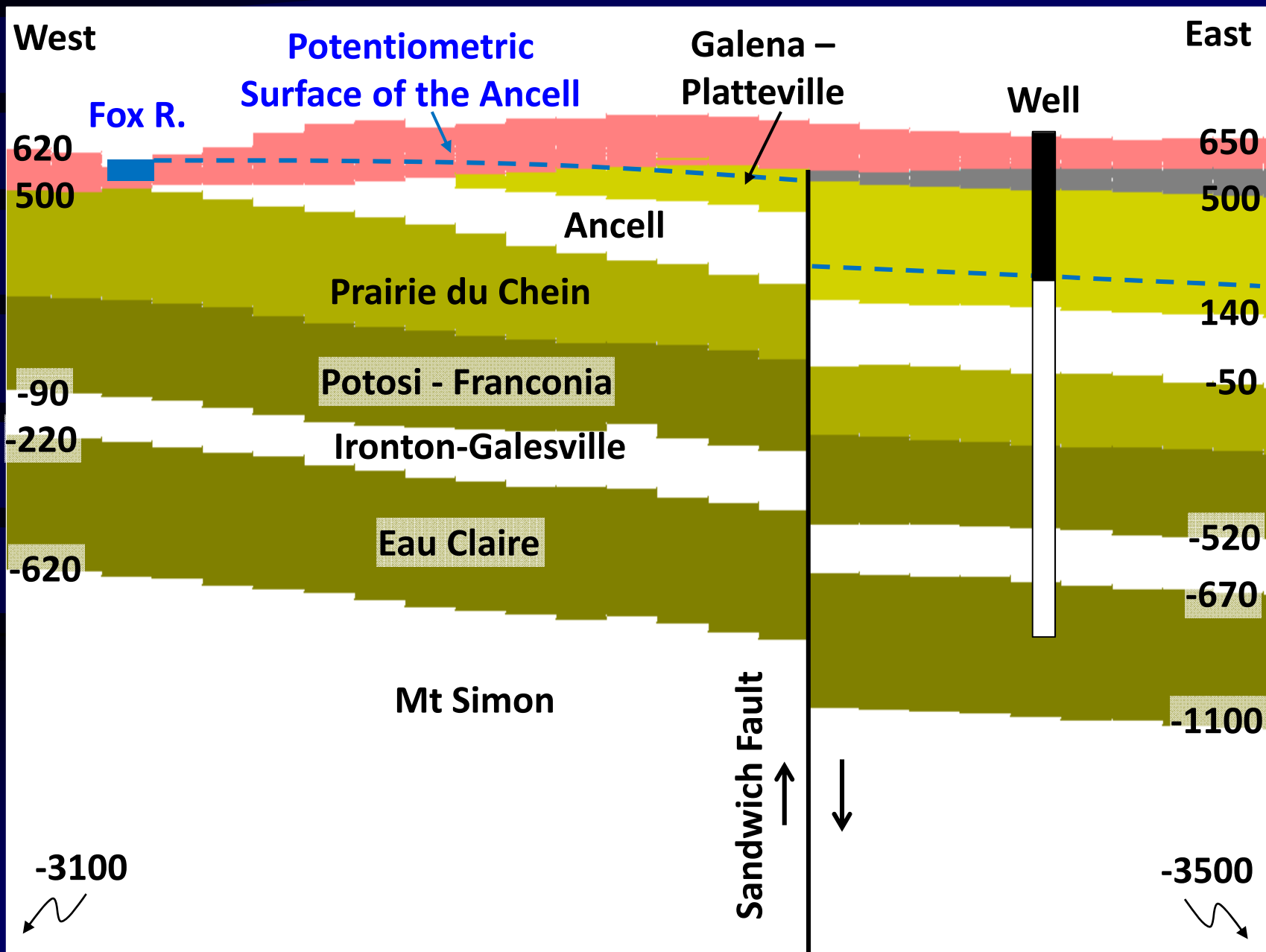
Burch (2002)

Surficial Bedrock Geology

- Upper Bedrock Unit
- Silurian-Devonian
- Maquoketa Unit
- Galena-Platteville Unit
- Ancell Unit
- Prairie du Chien-Eminence



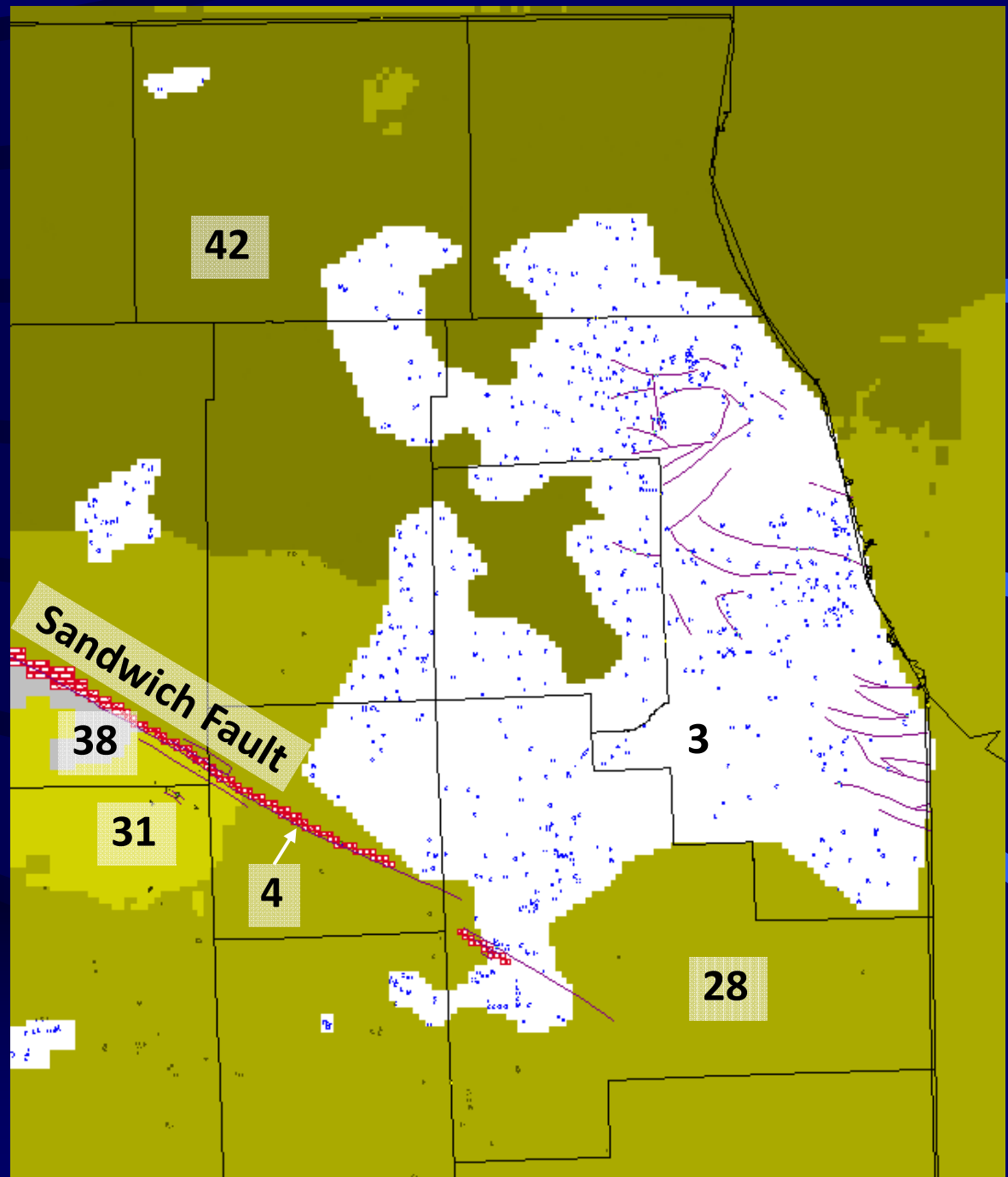


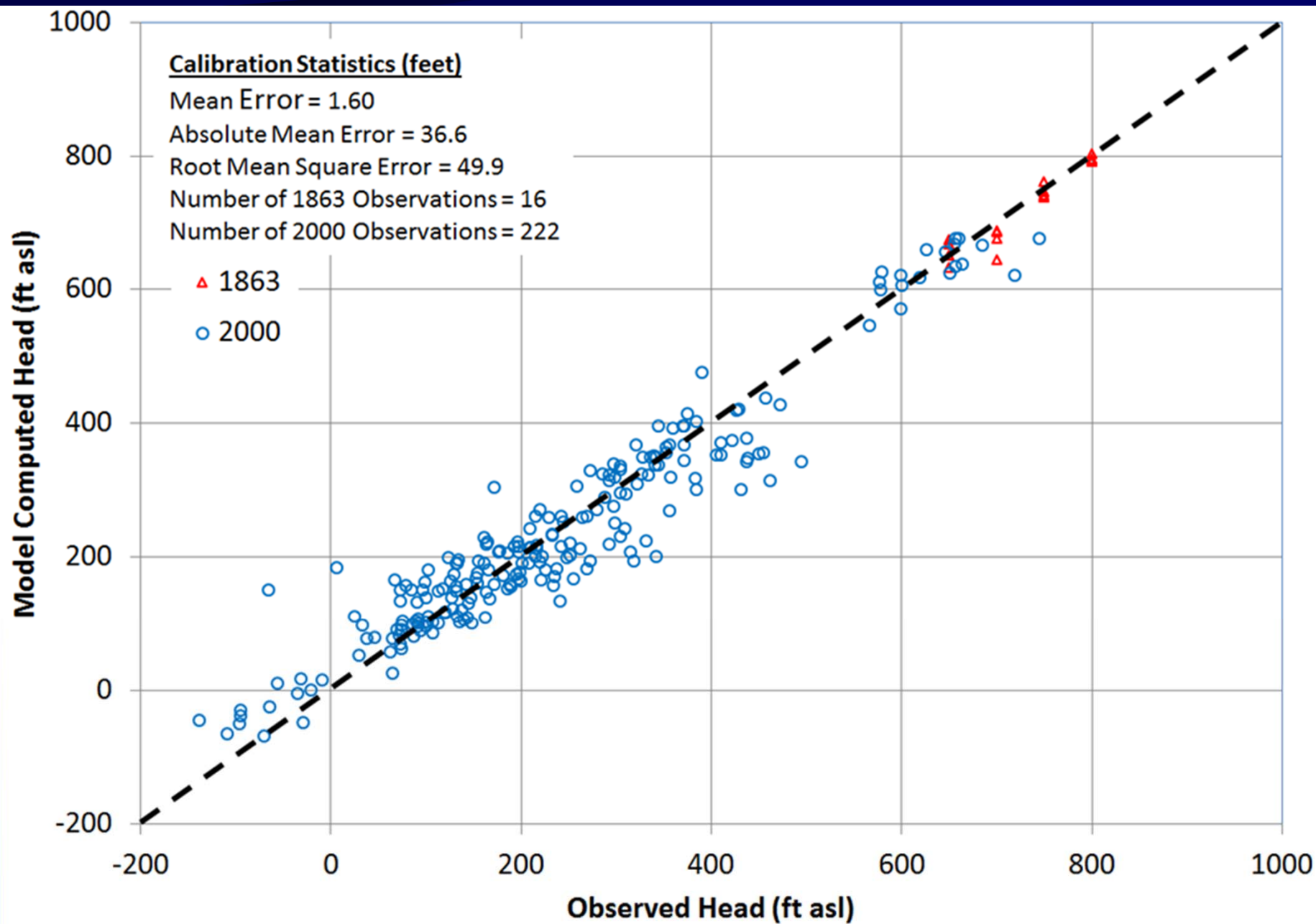


Hydraulic Conductivity Zones 3 and 4

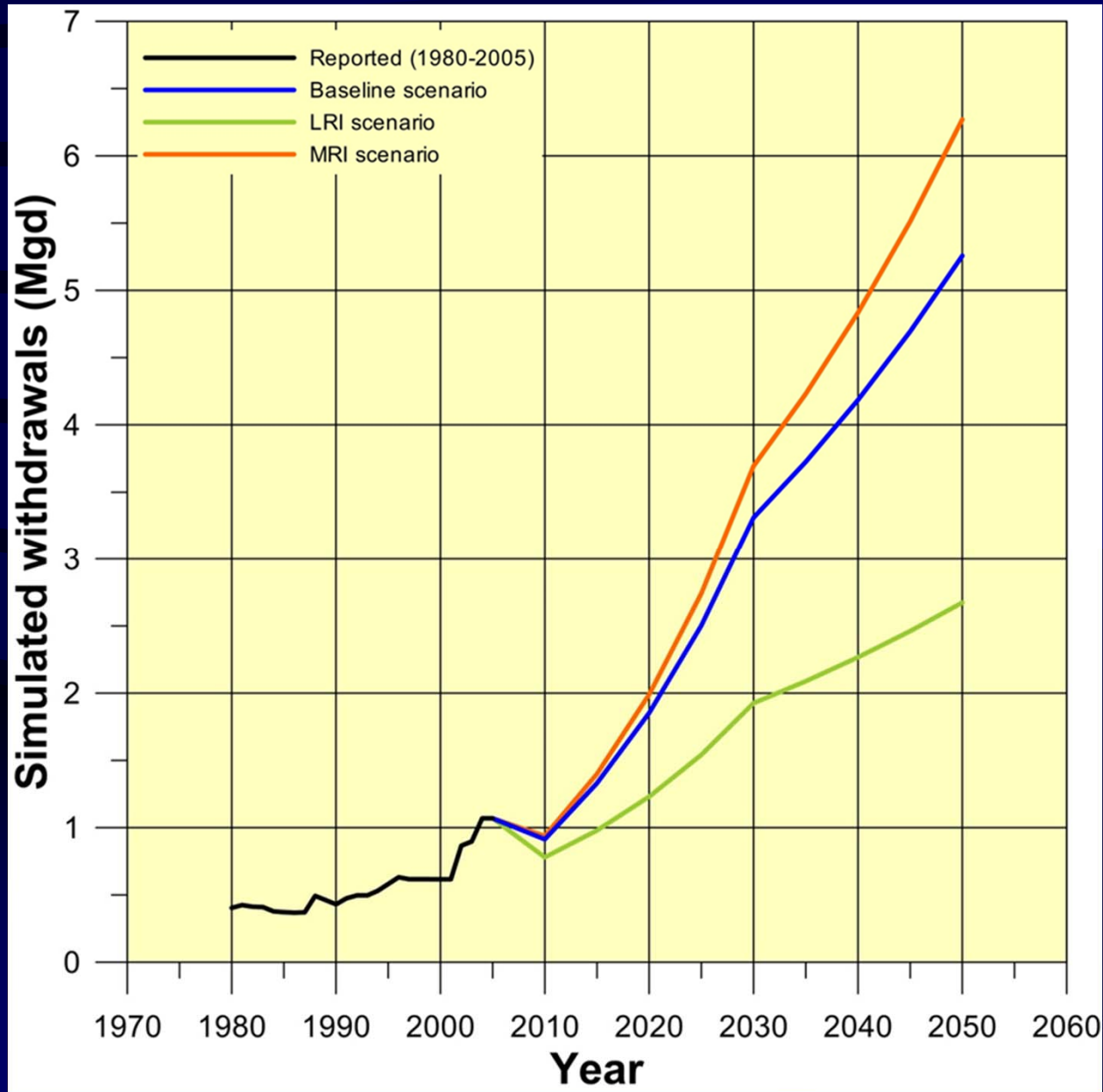
Confining layer
between the Ancell
and the Ironton-
Galesville Sandstones

Blue dots represent
deep wells

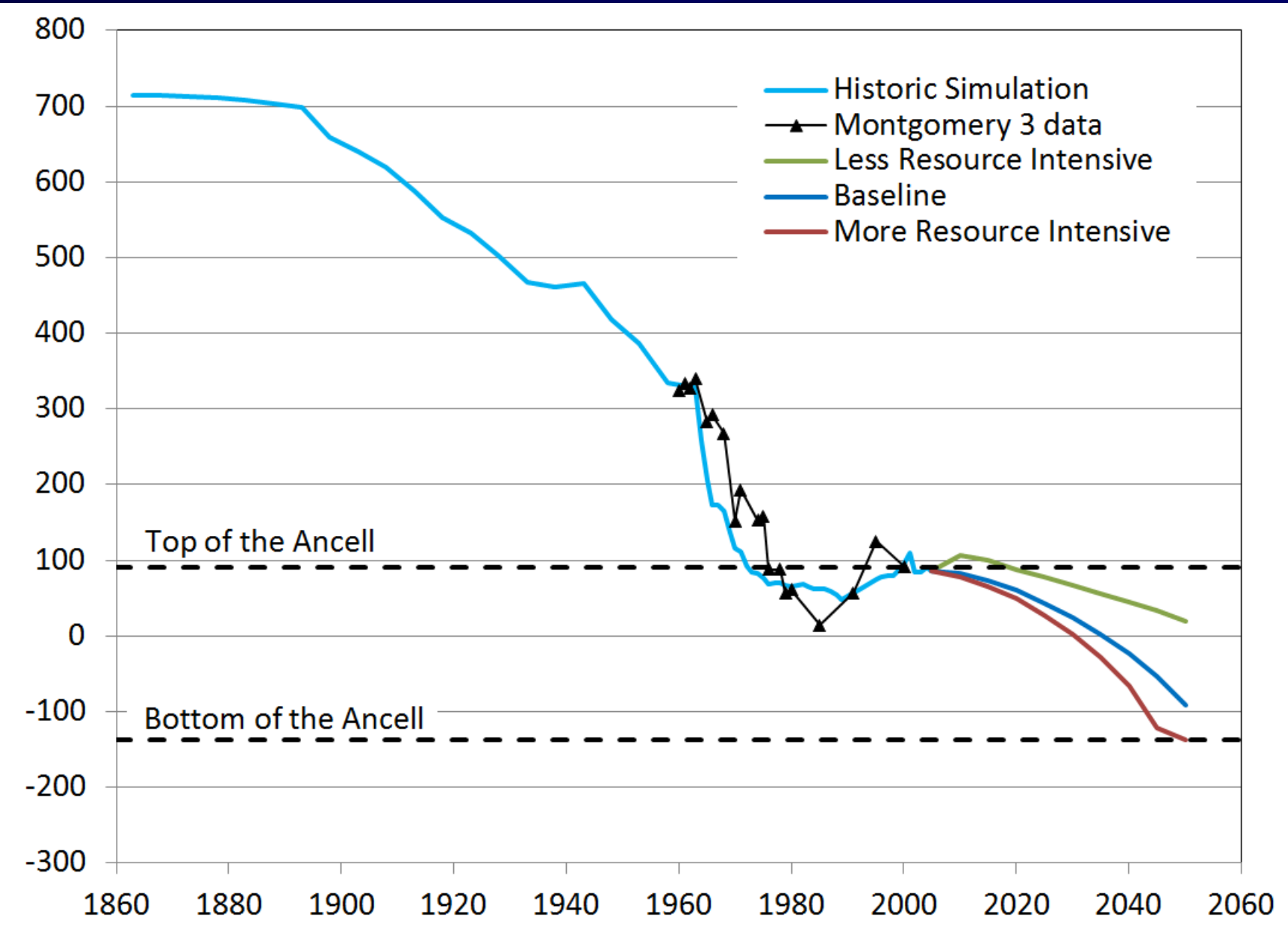




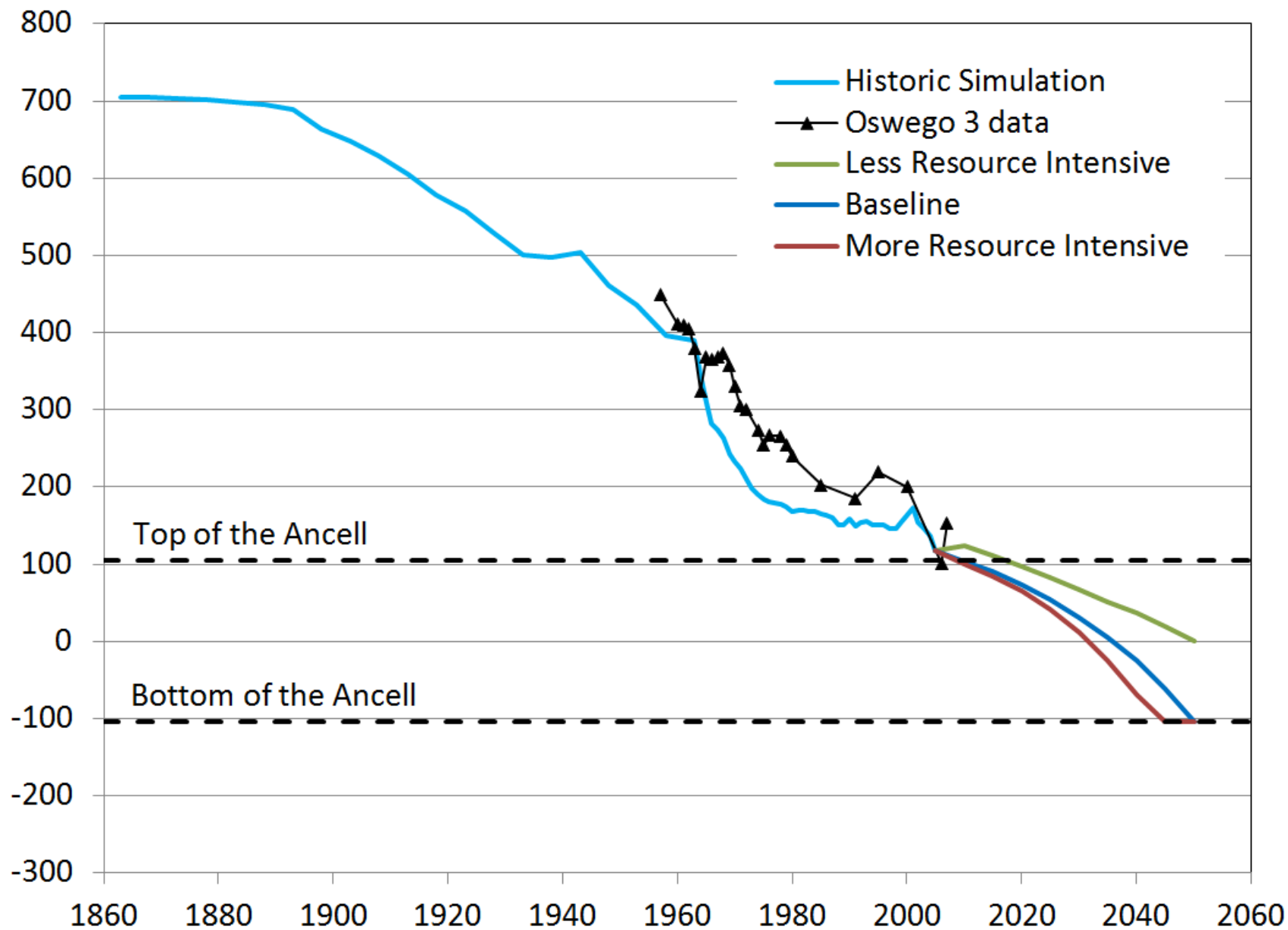
Estimated Future Water Use - Yorkville



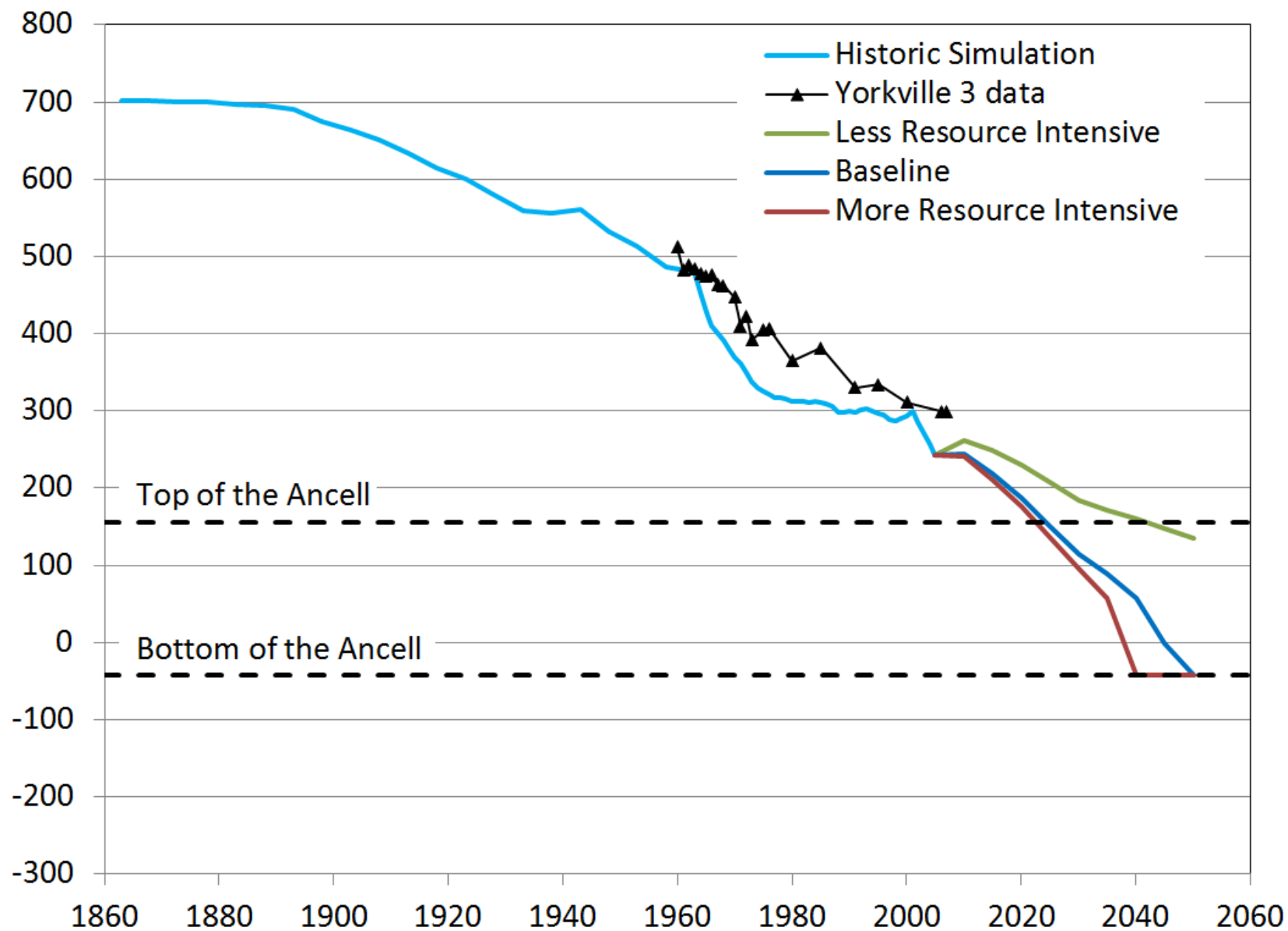
Groundwater Levels at Montgomery



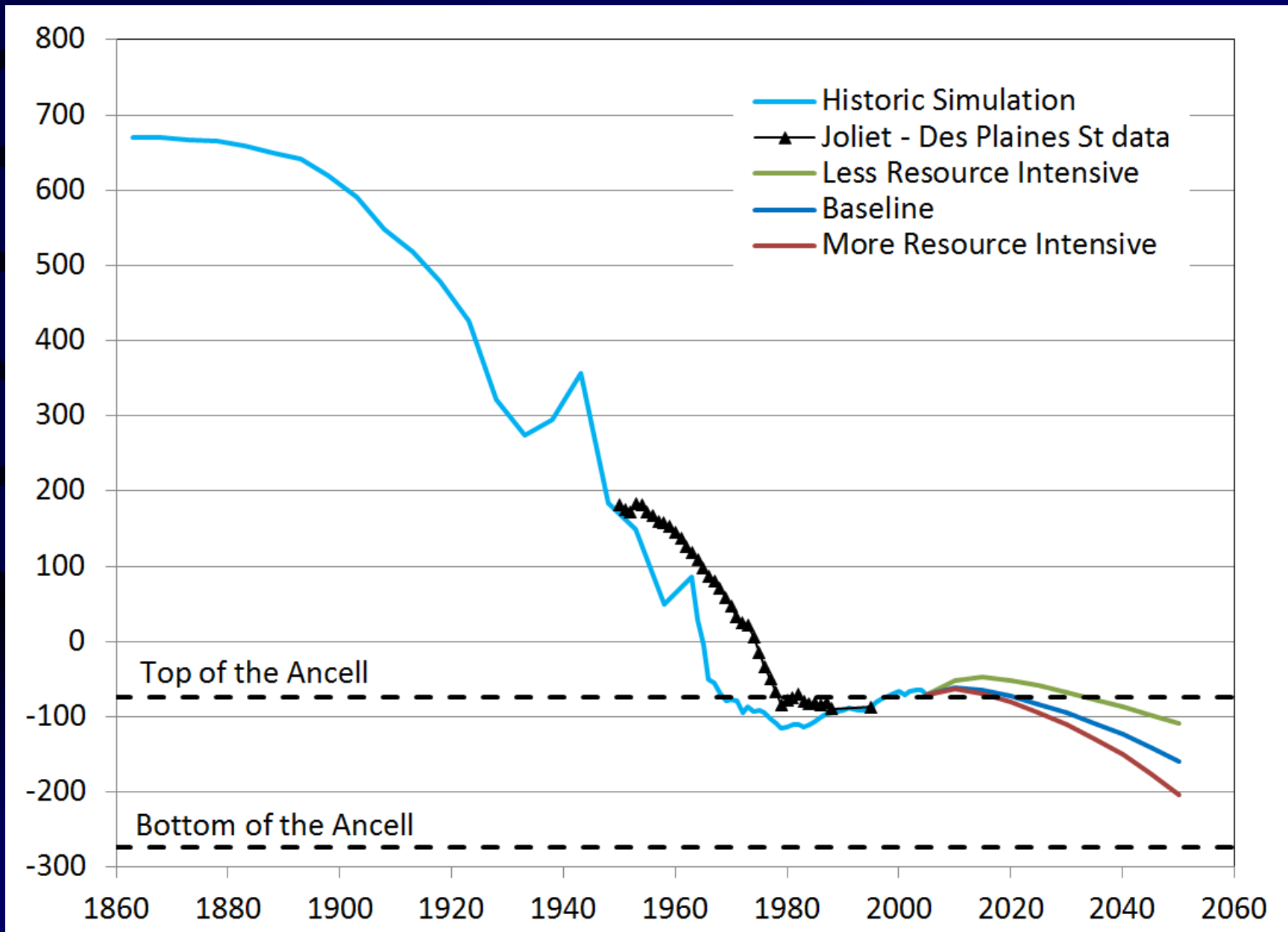
Groundwater Levels at Oswego



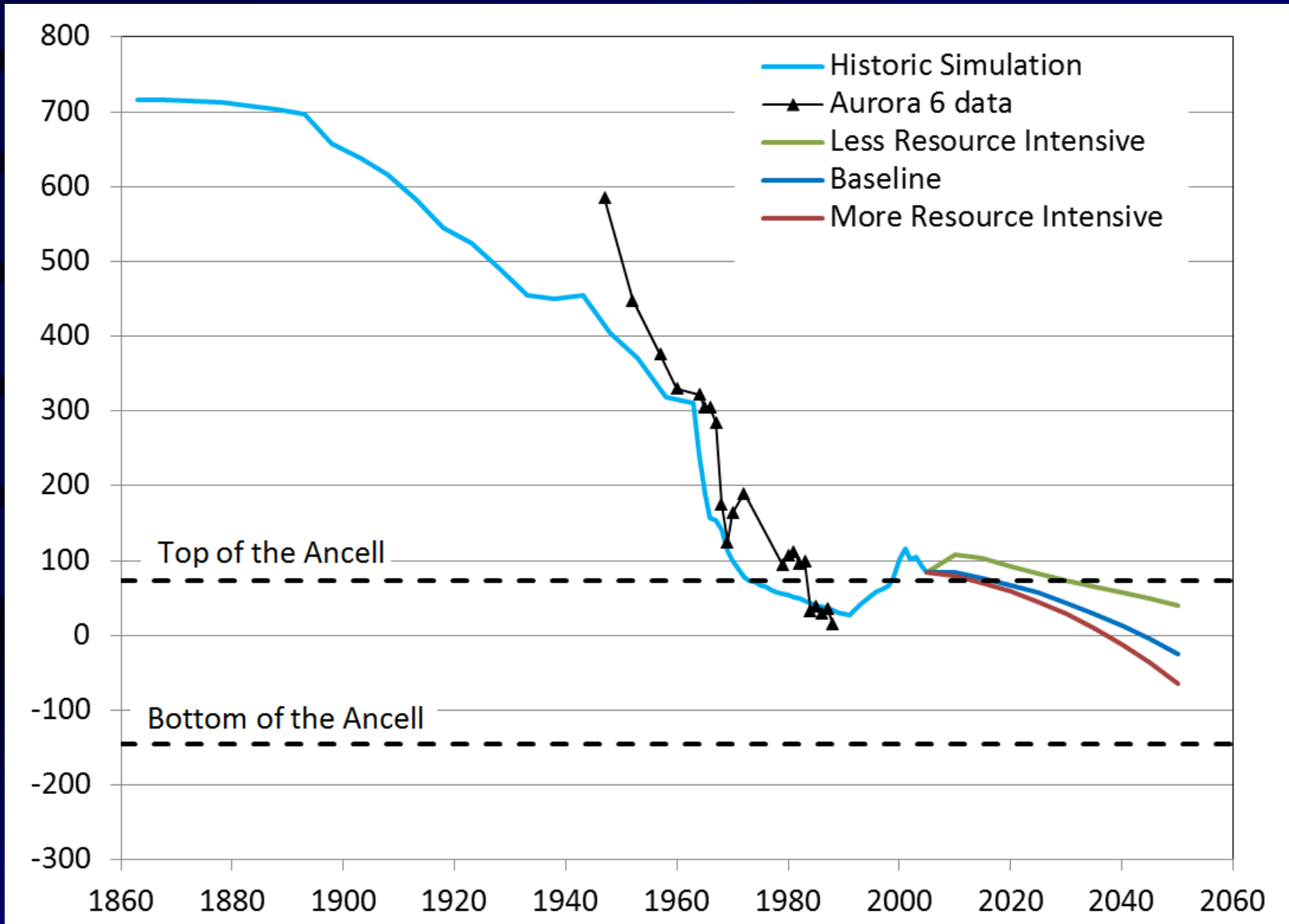
Groundwater Levels at Yorkville



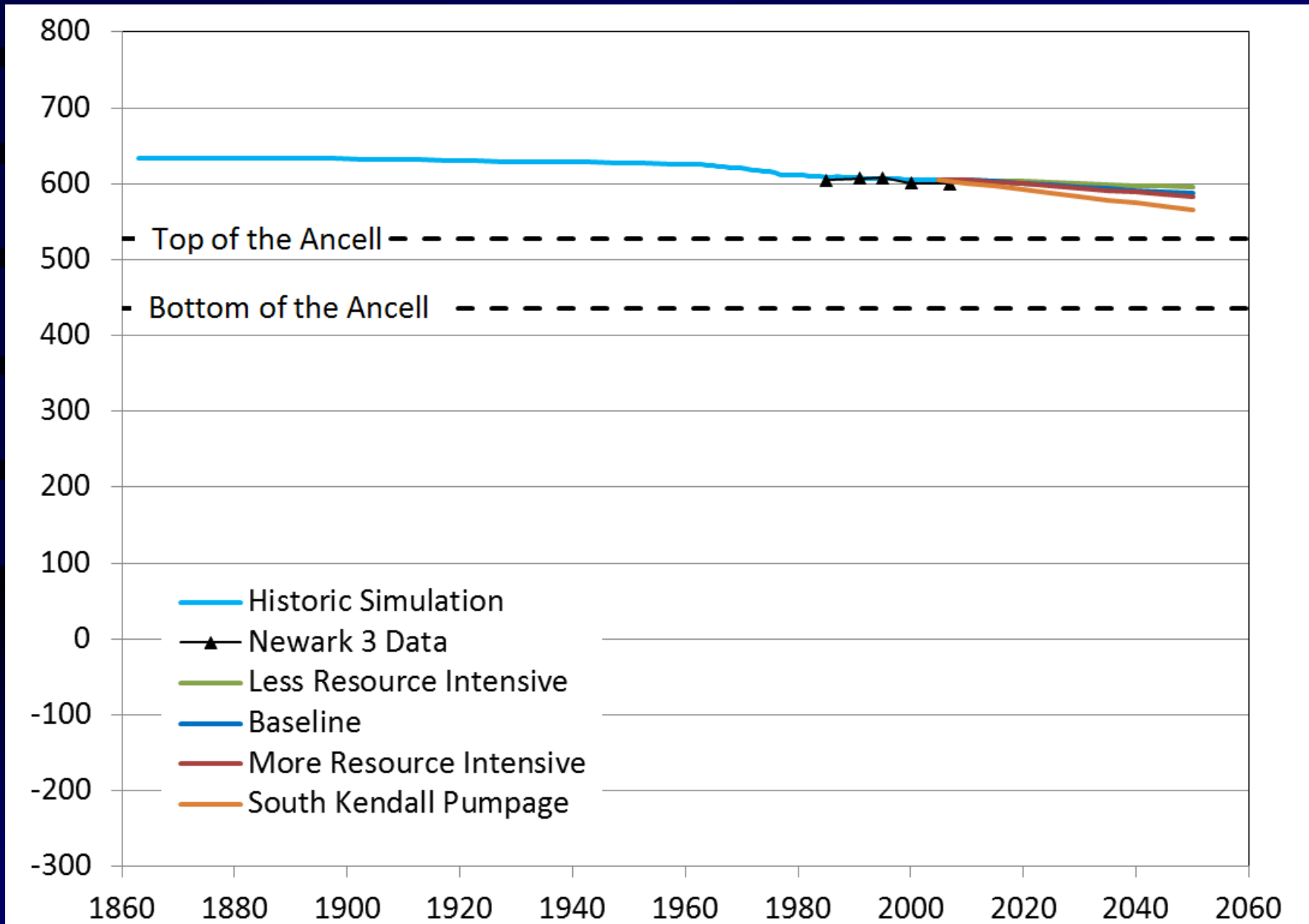
Groundwater Levels at Joliet



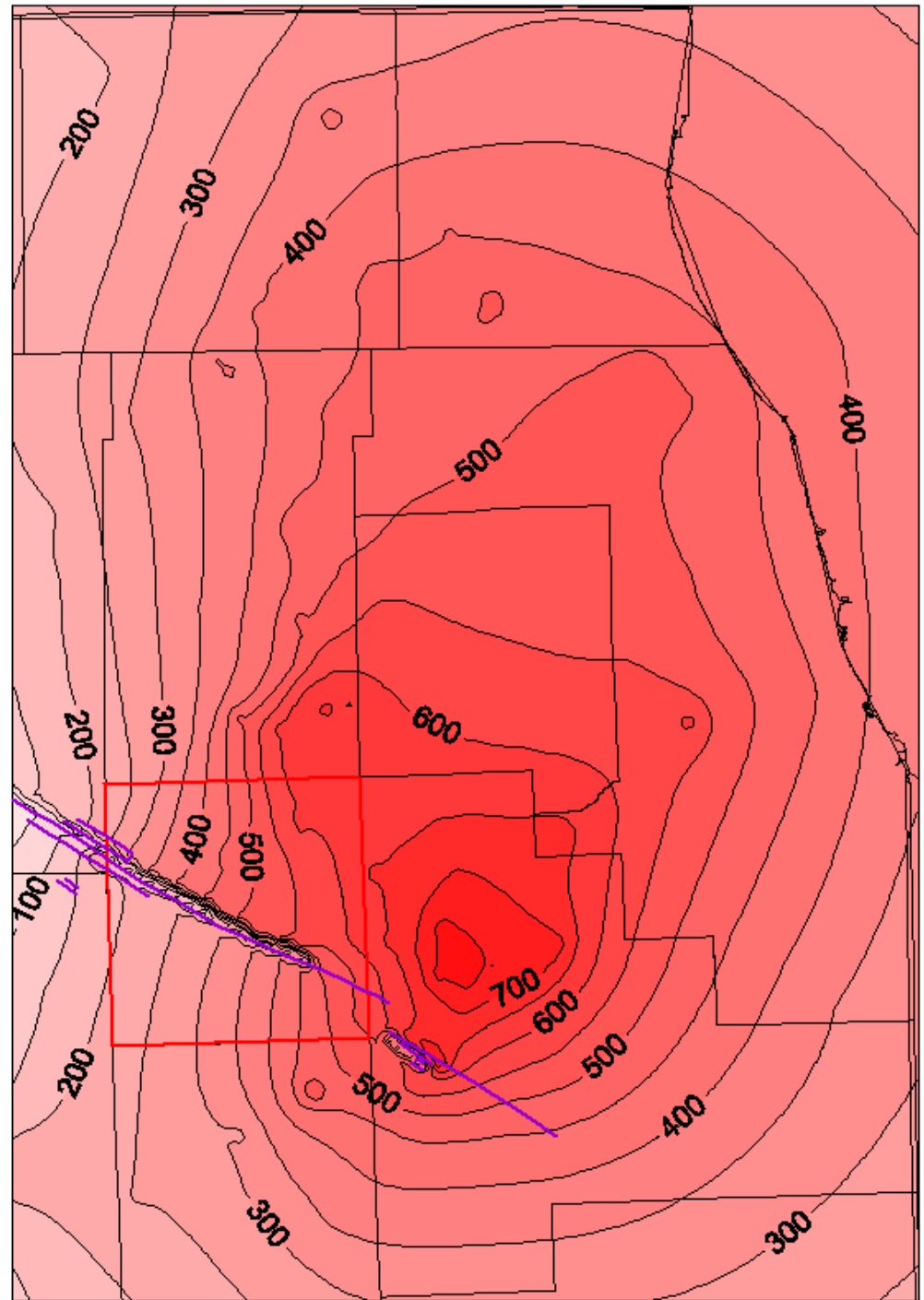
Groundwater Levels at Aurora



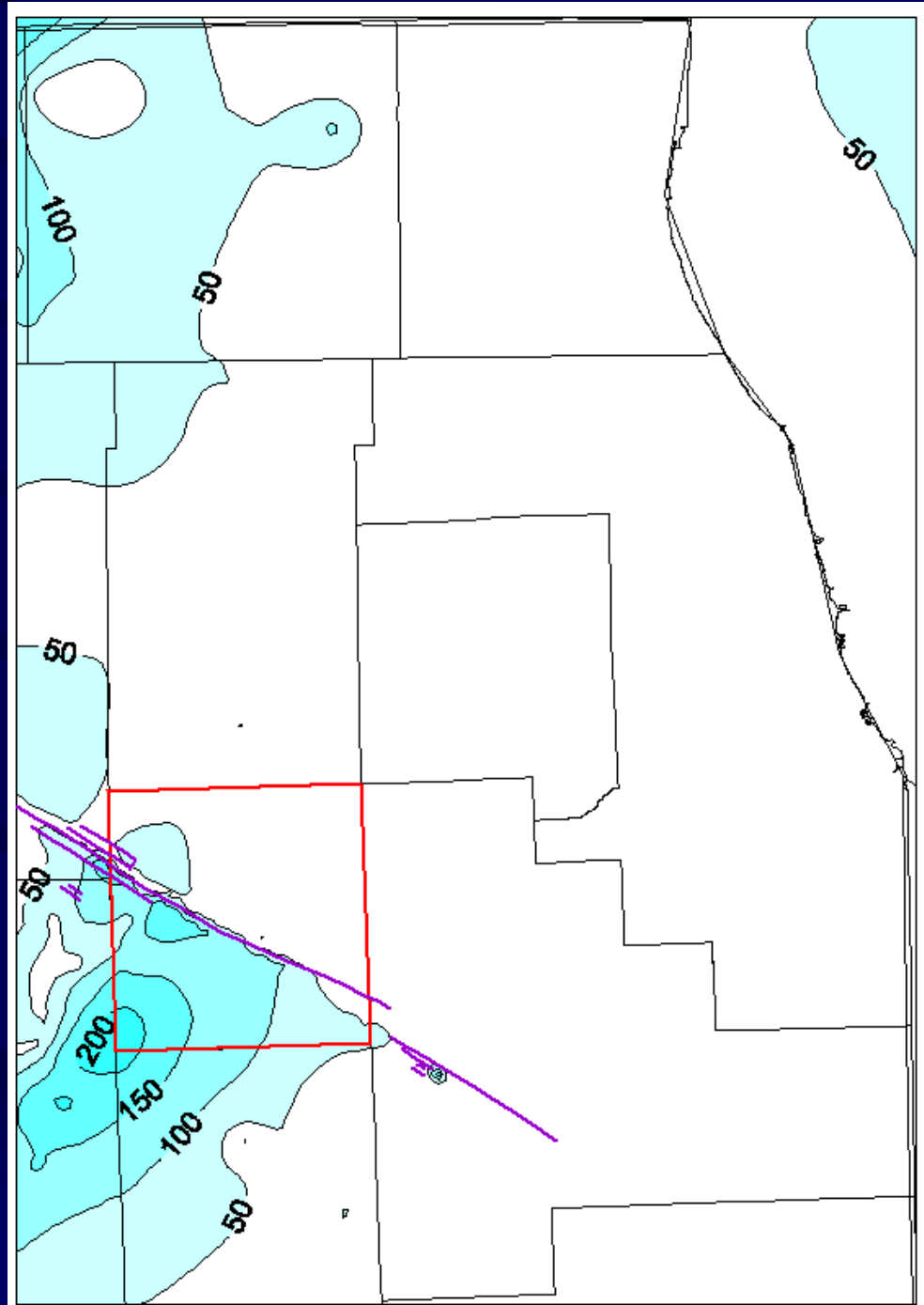
Groundwater Levels at Newark



2005 Drawdown Ironton Galesville



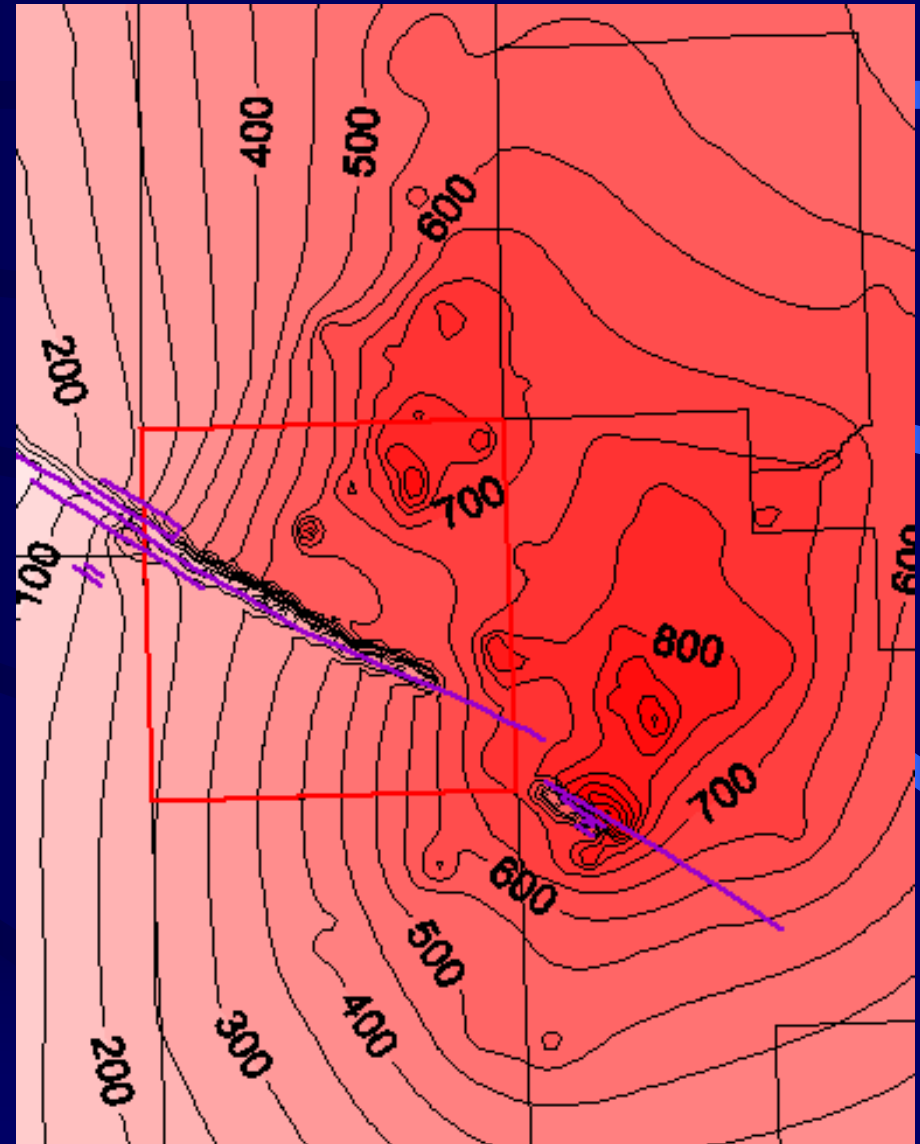
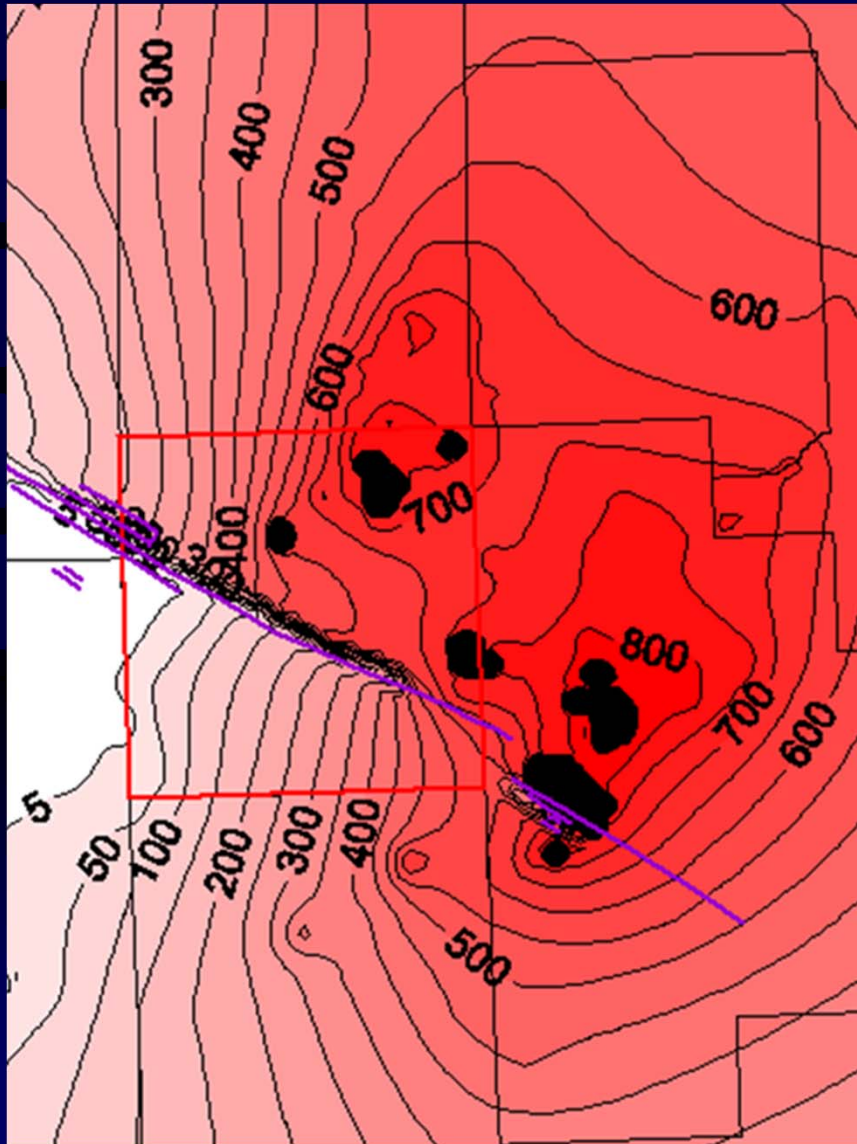
Head Difference Between the Ancell and Ironton- Galesville Sandstones



2050 Drawdown – Baseline Scenario

Ancell – St Peter

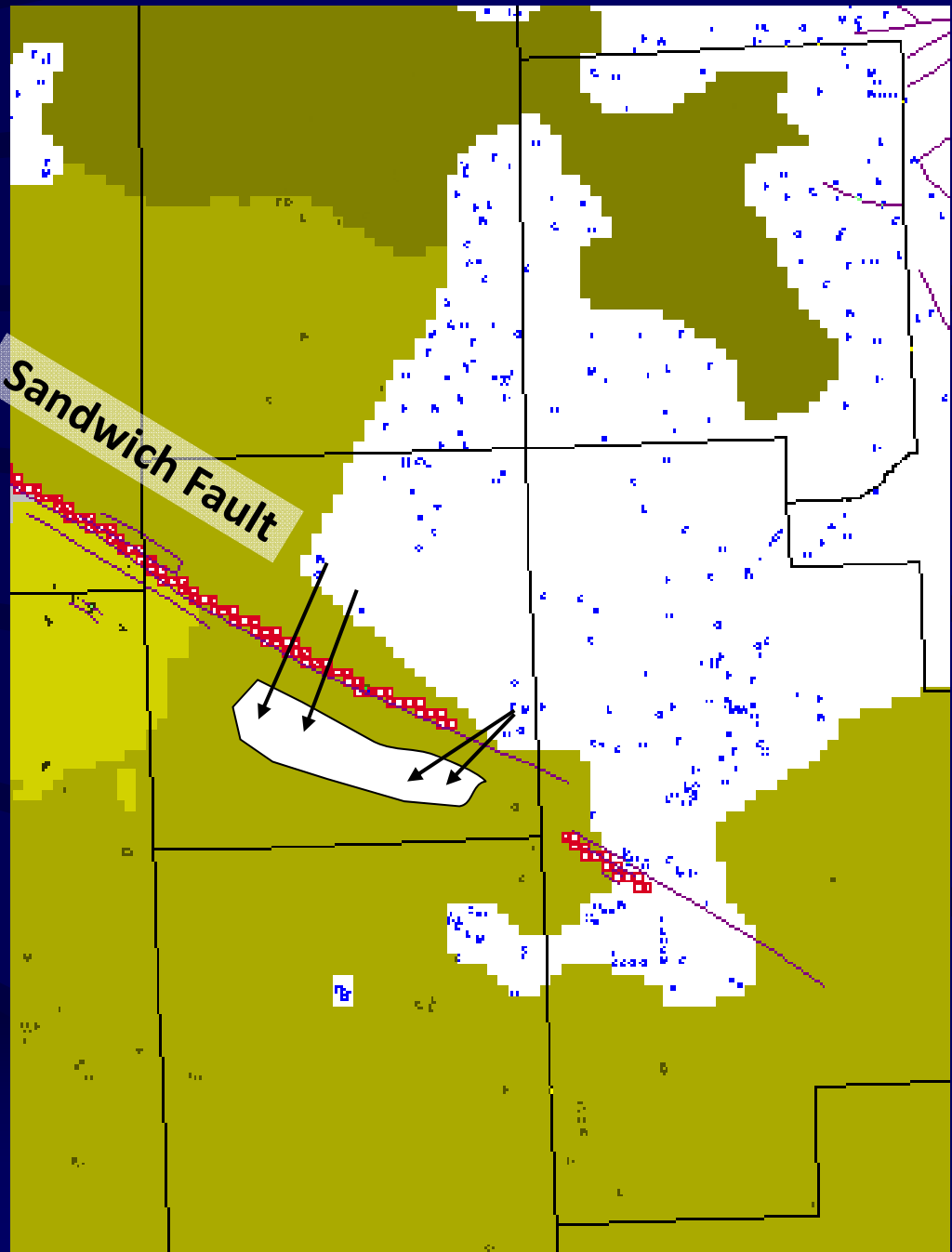
Ironton - Galesville



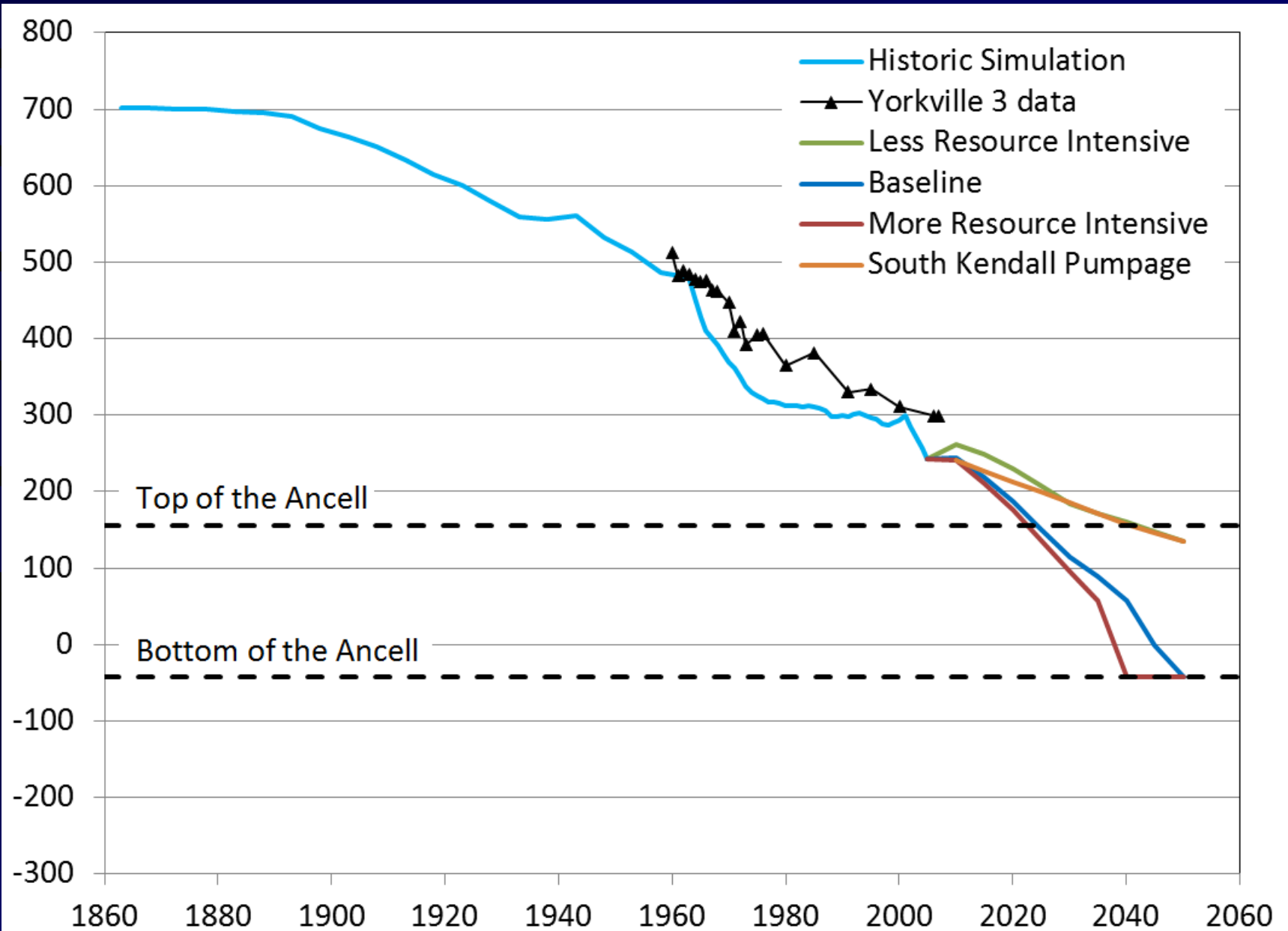
Scenario With Moved Yorkville and Joliet Wells

Expanded
interconnection between
the Ancell and Ironton-
Galesville Sandstones

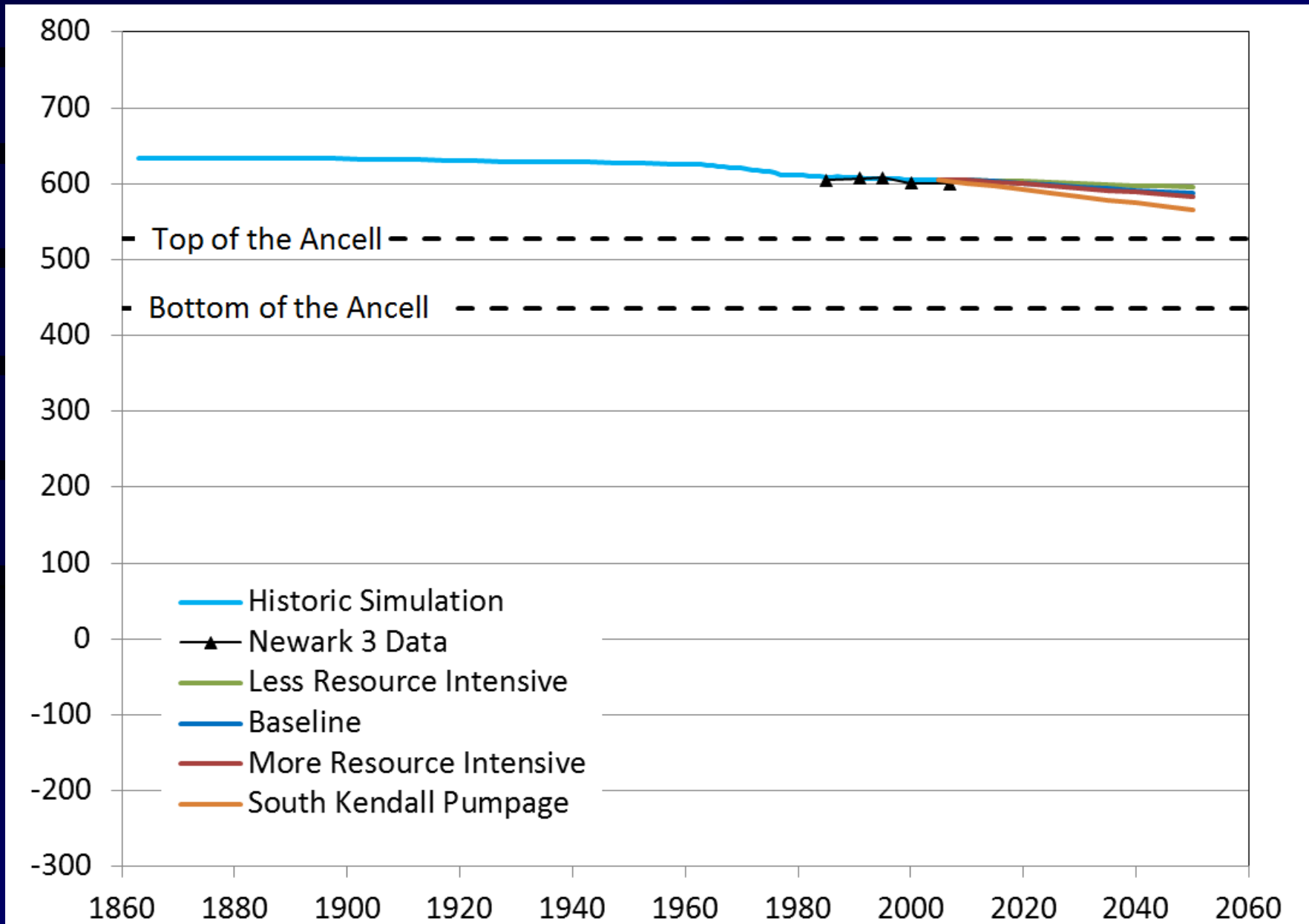
Blue dots represent deep
wells



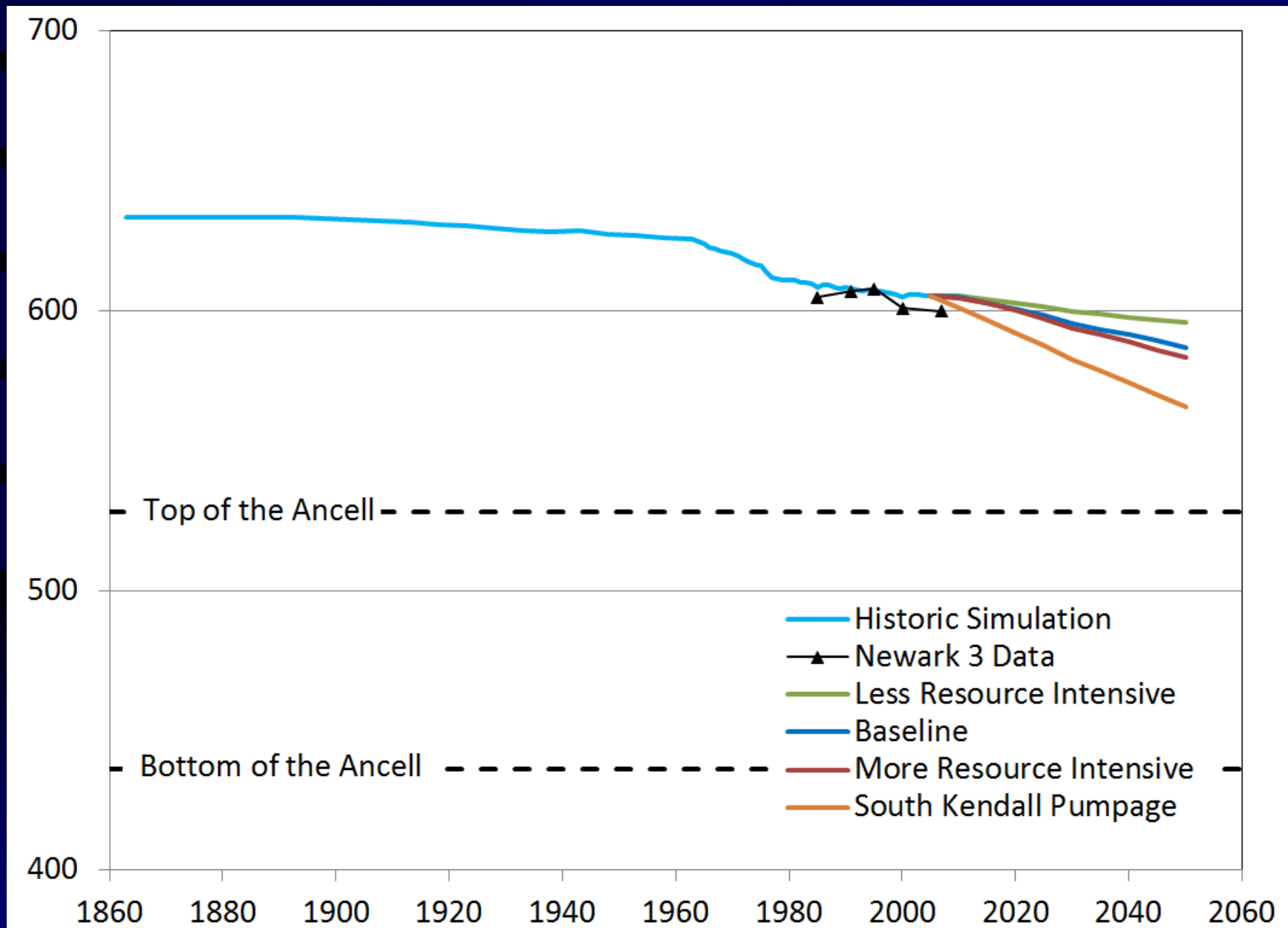
Groundwater Levels at Yorkville



Groundwater Levels at Newark

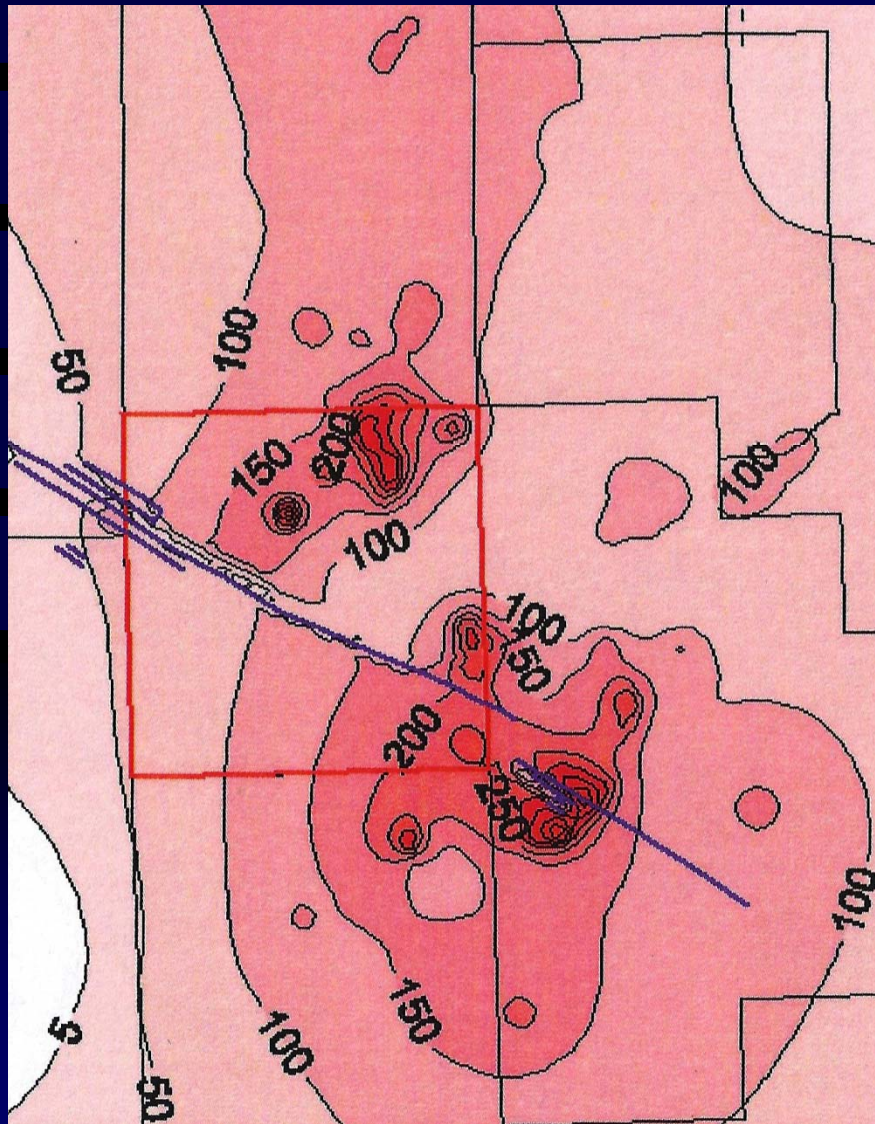


Groundwater Levels at Newark

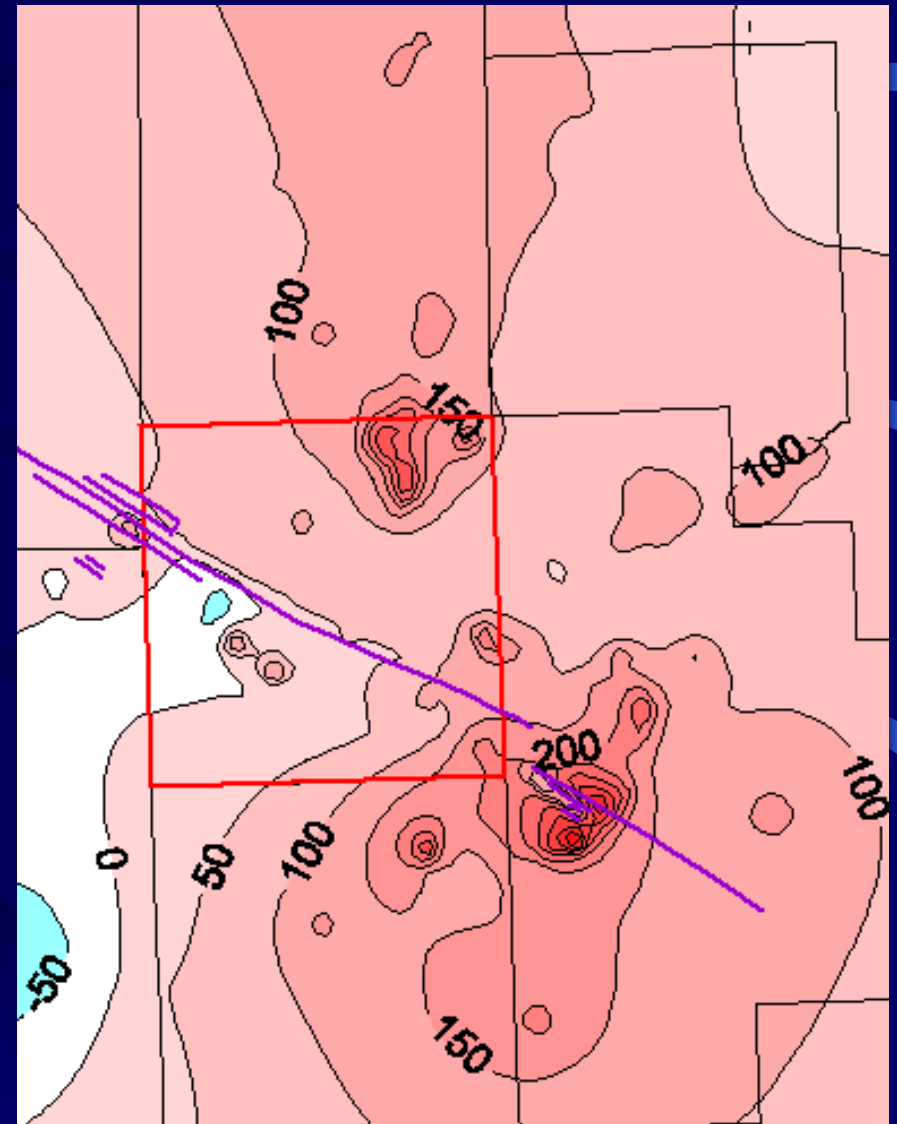


Additional Drawdown in I-G 2005-2050

Existing MRI Scenario

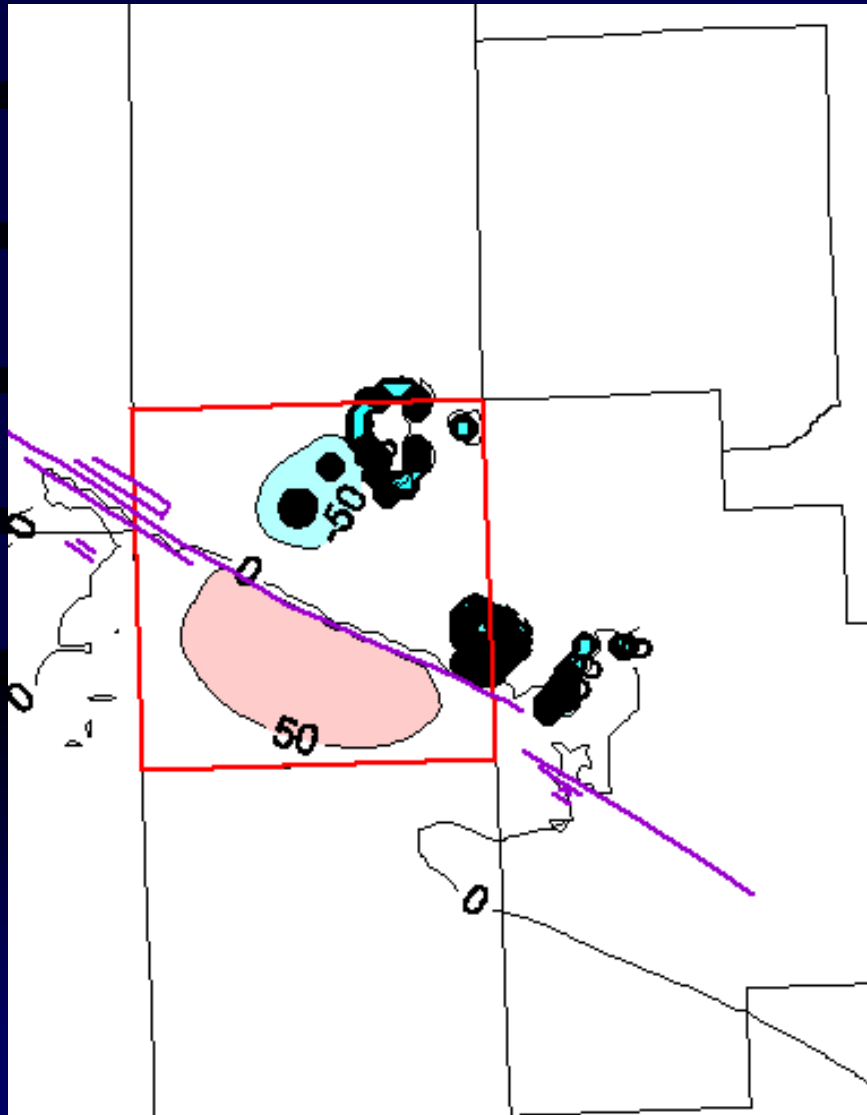


With Moved Wells

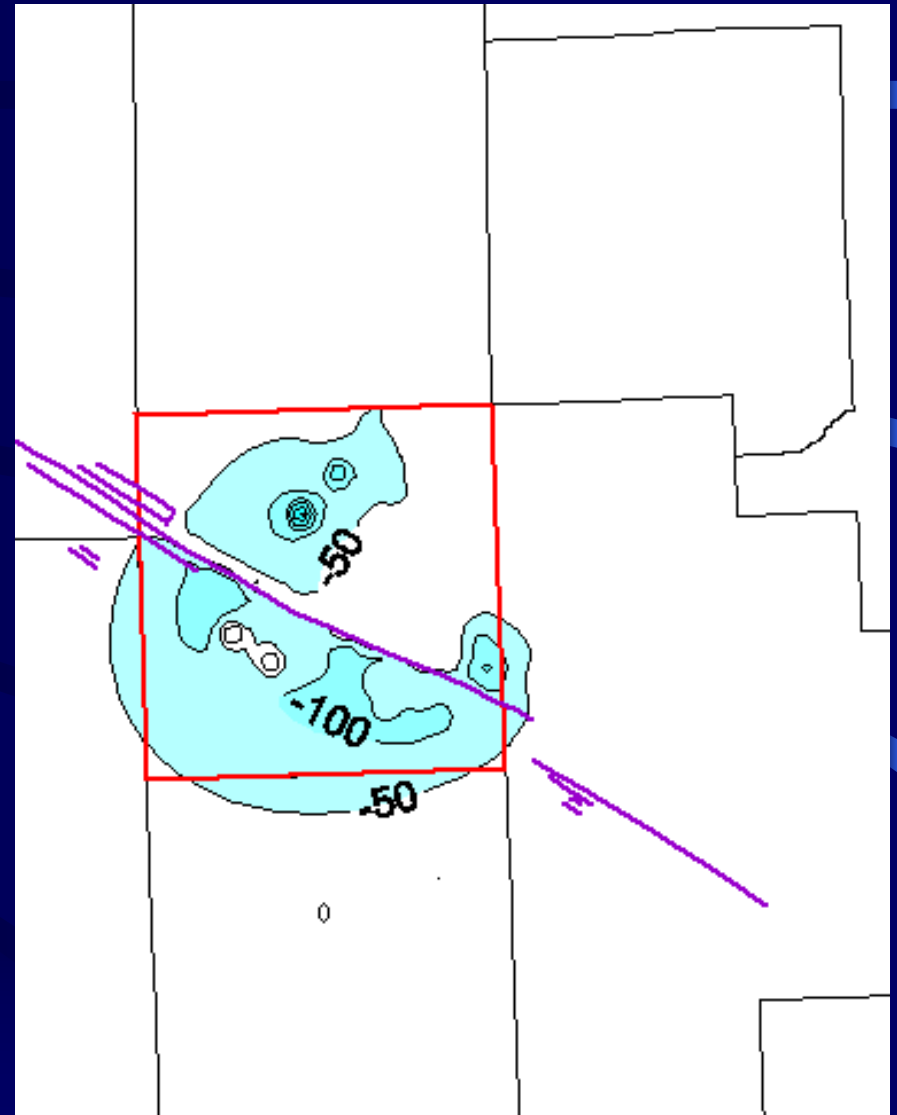


Change in Drawdown with Moved Wells

Ancell – St Peter



Ironton - Galesville



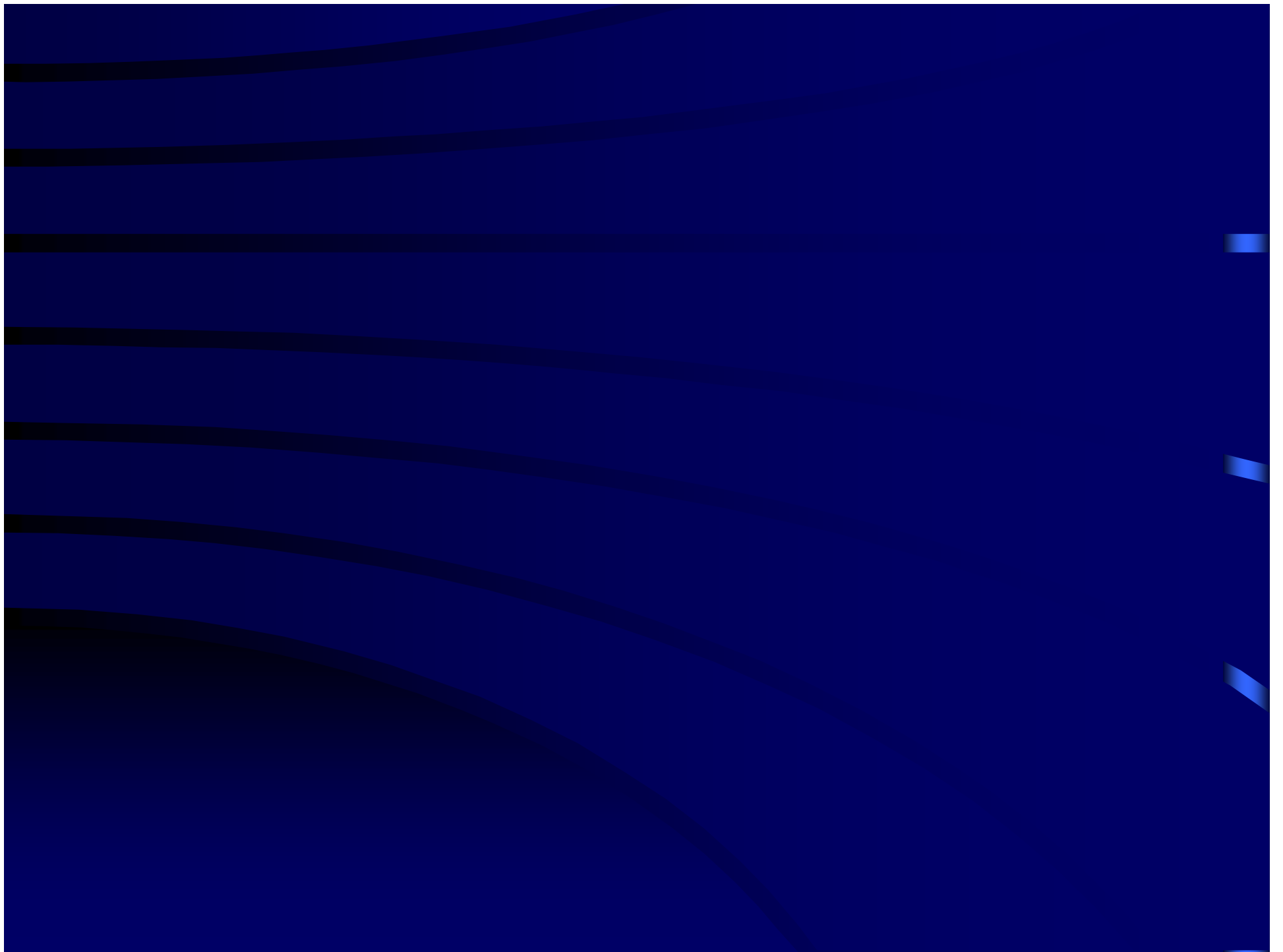
Results

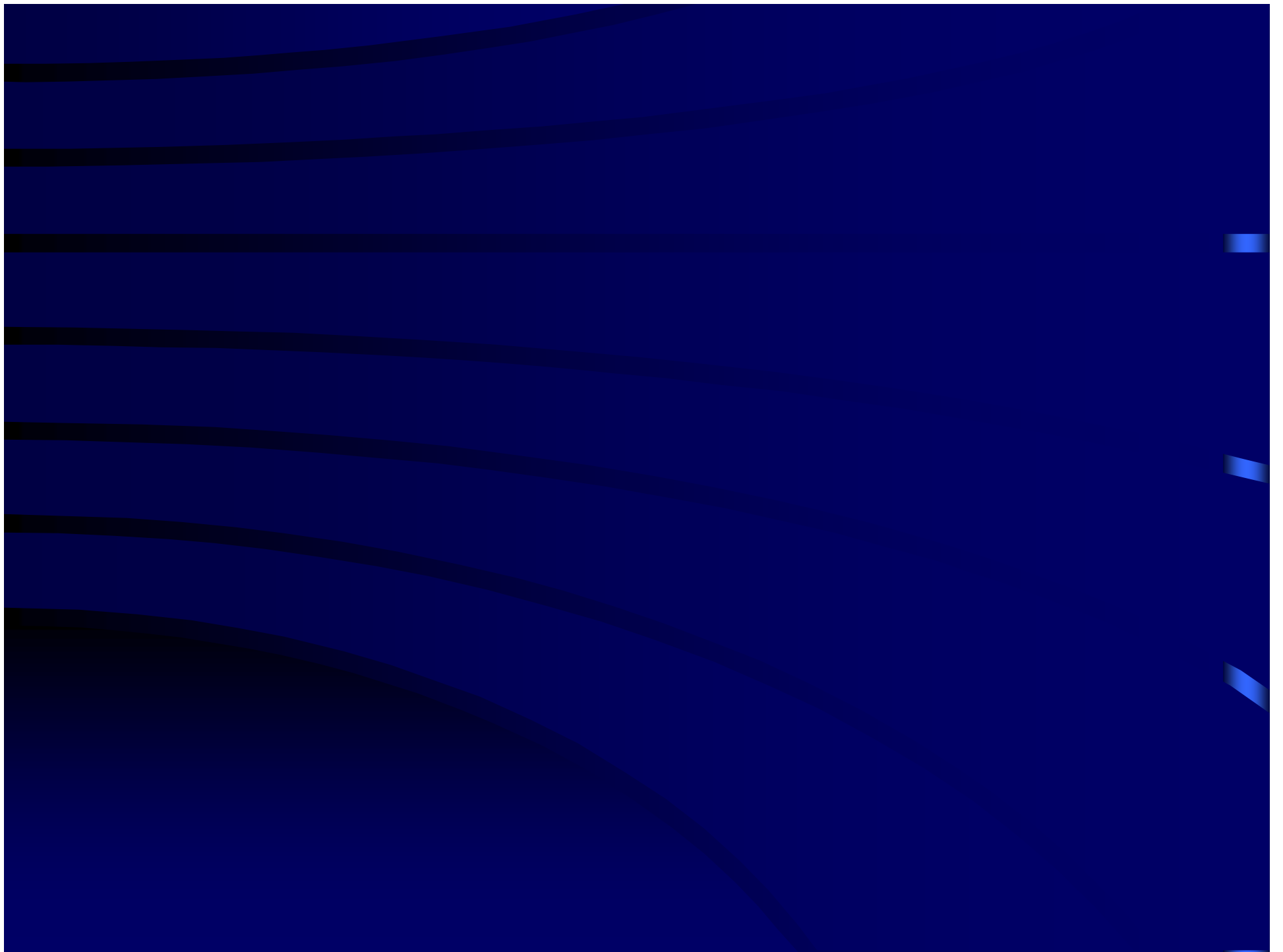
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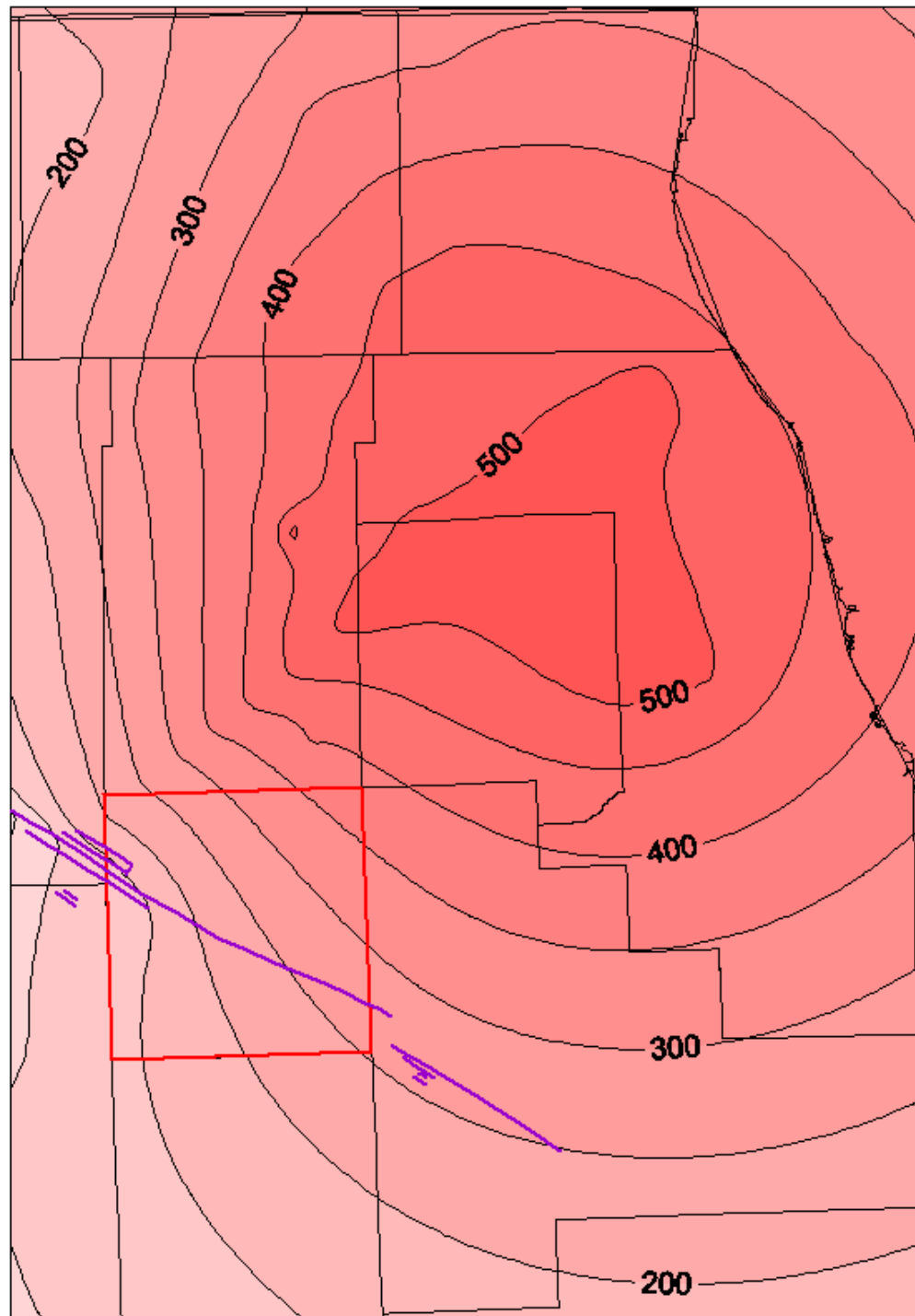
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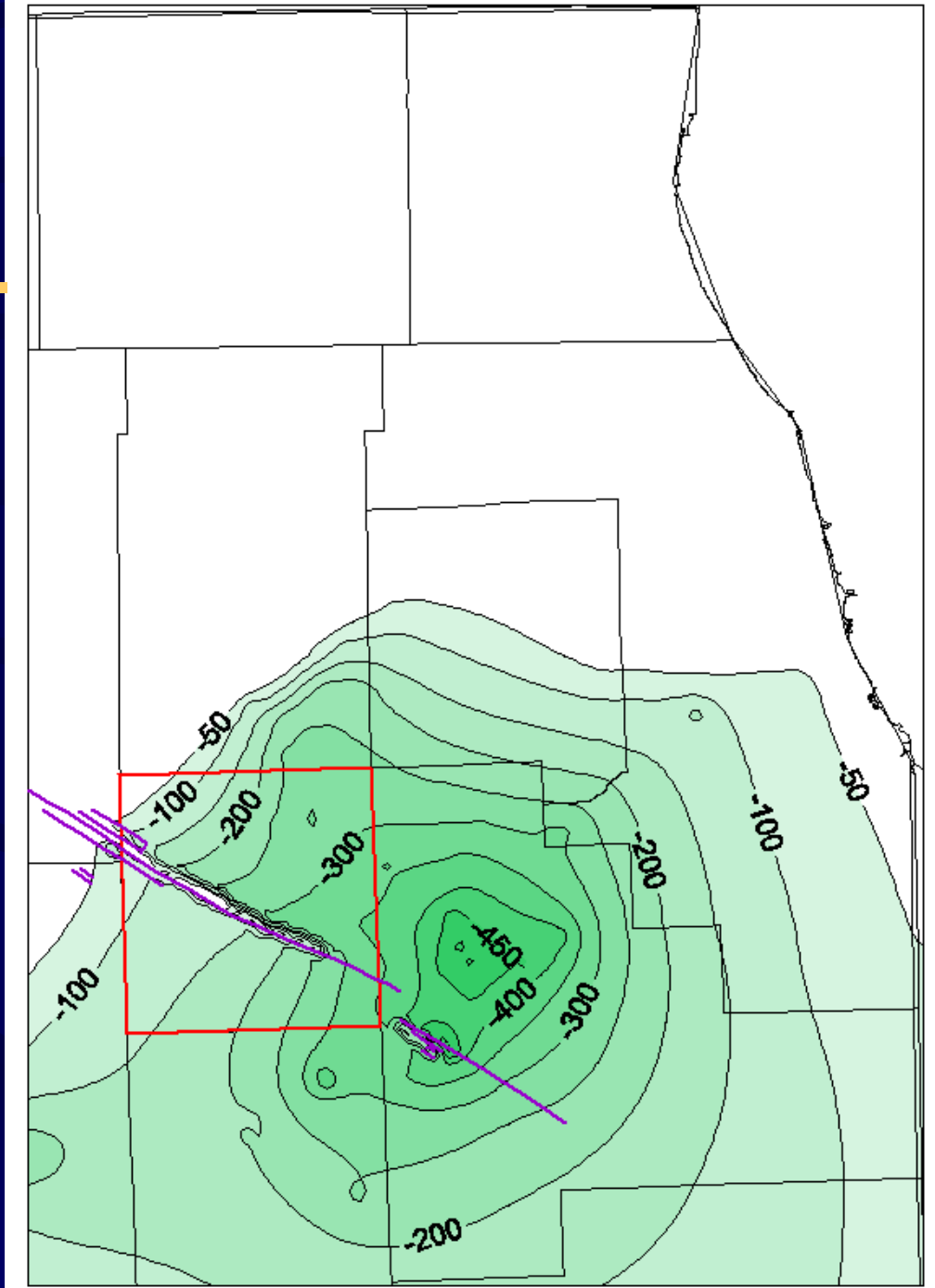




2005 Drawdown Mt Simon

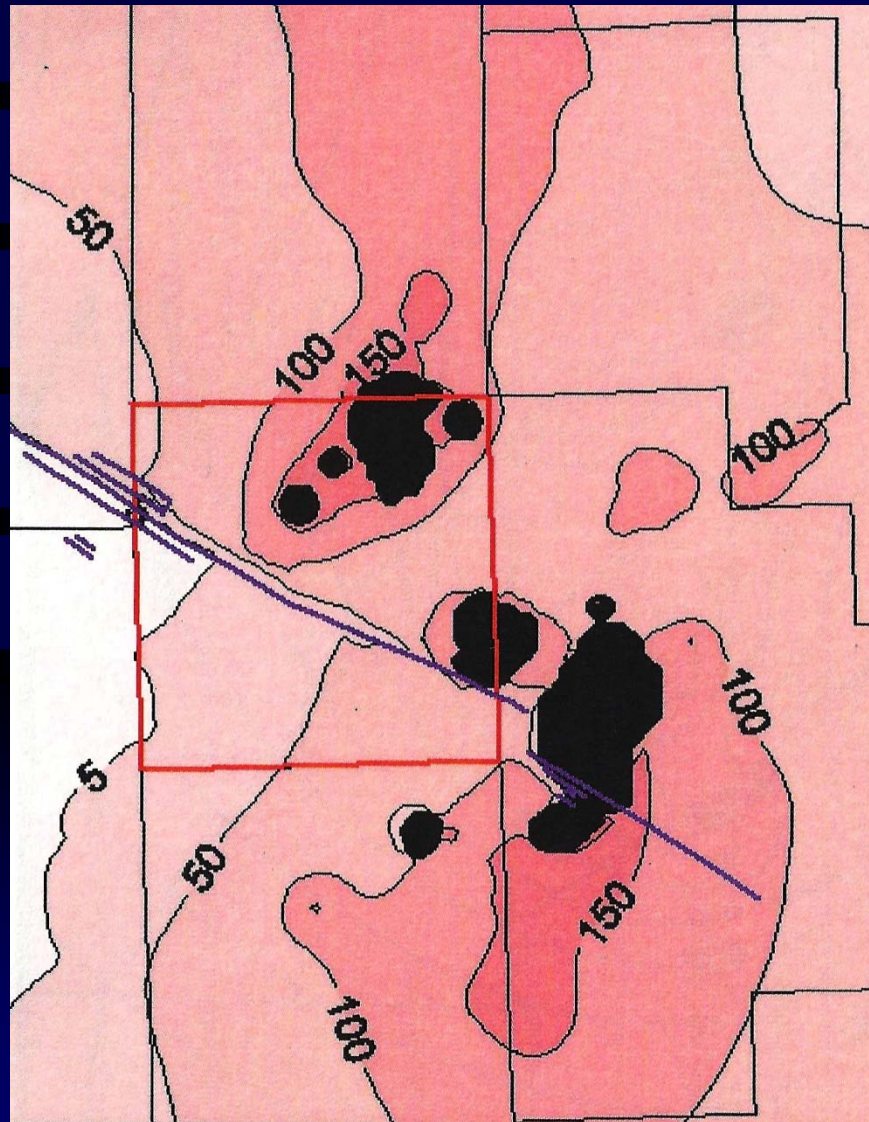


Head Difference Between the Ironton- Galesville and Mt Simon Sandstones

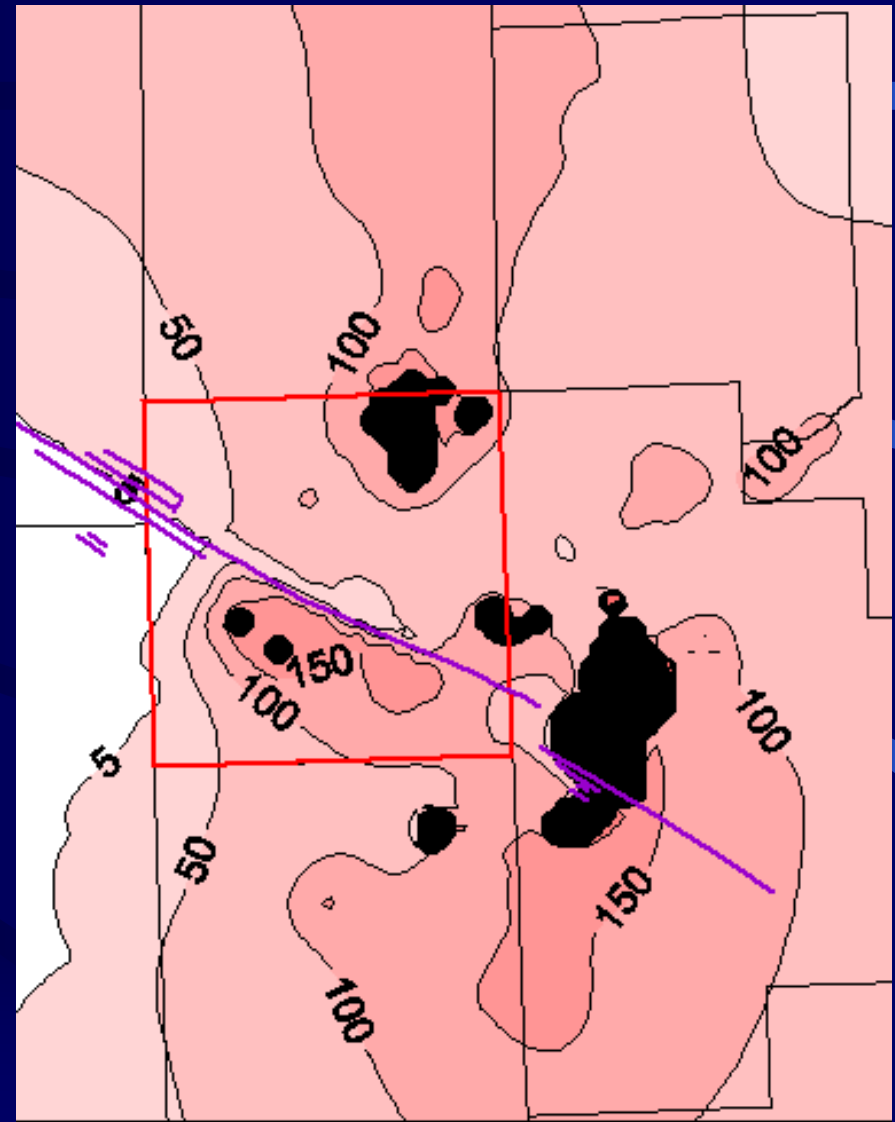


Additional Drawdown 2005-2050

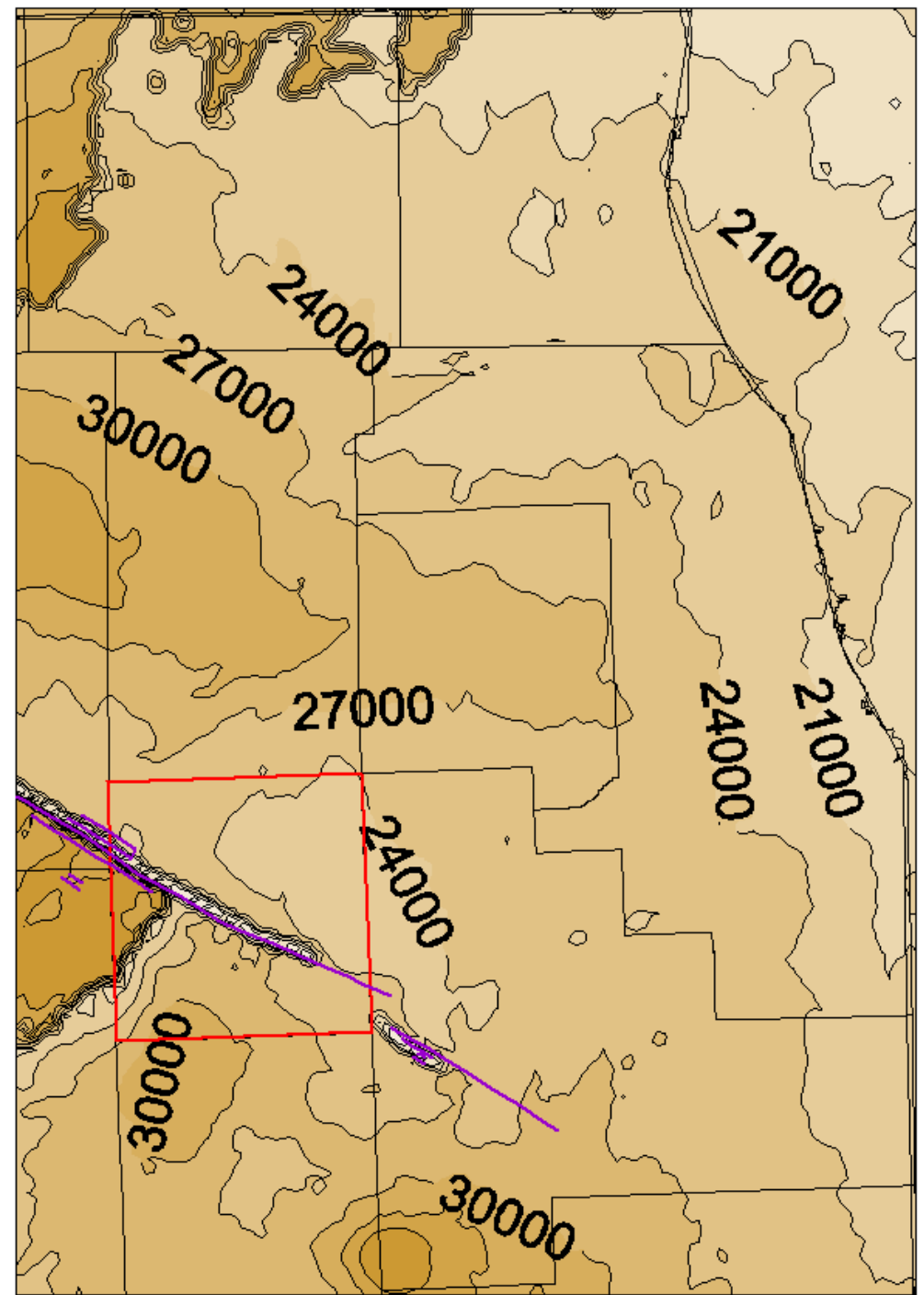
Existing MRI Scenario



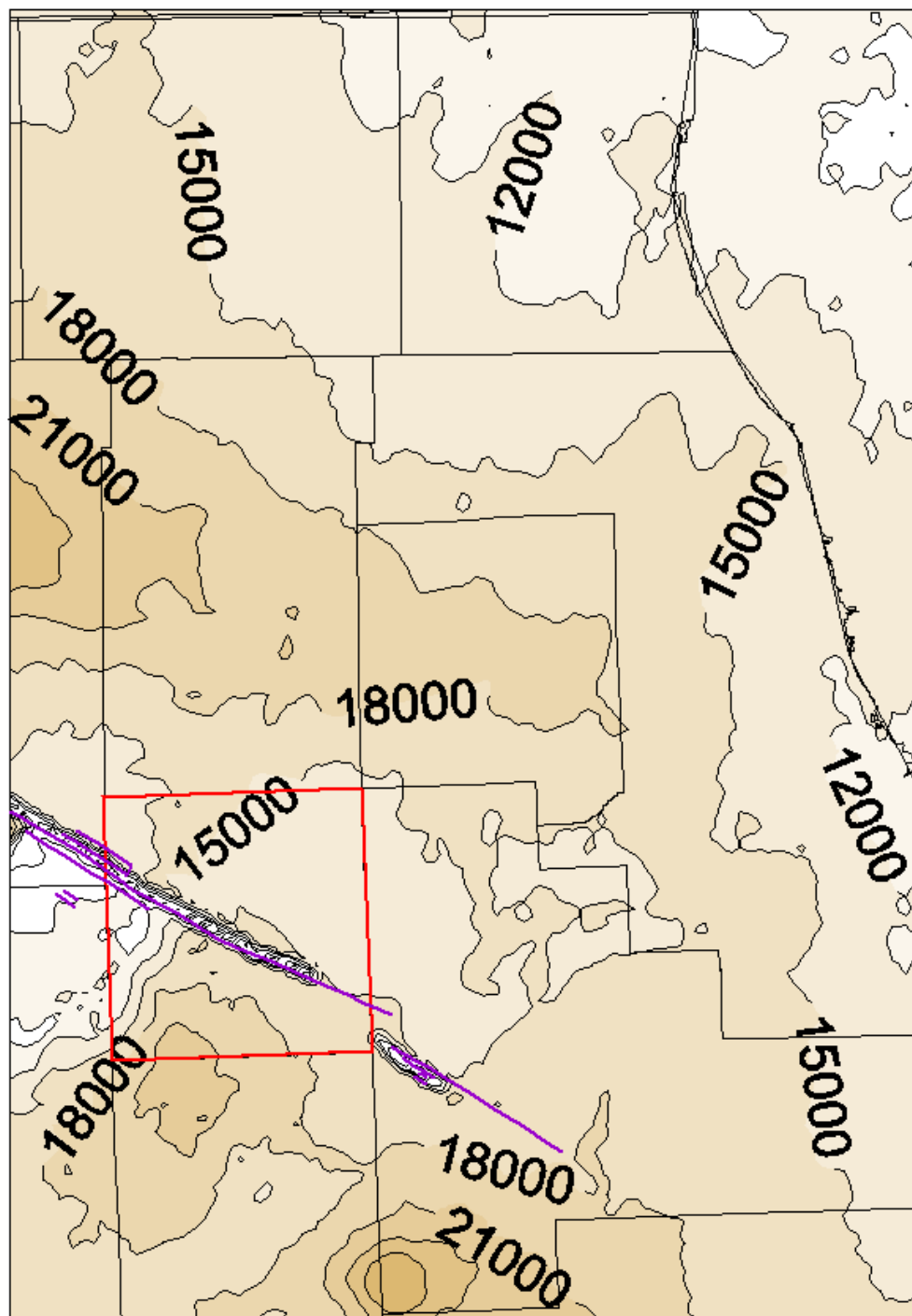
With Moved Wells

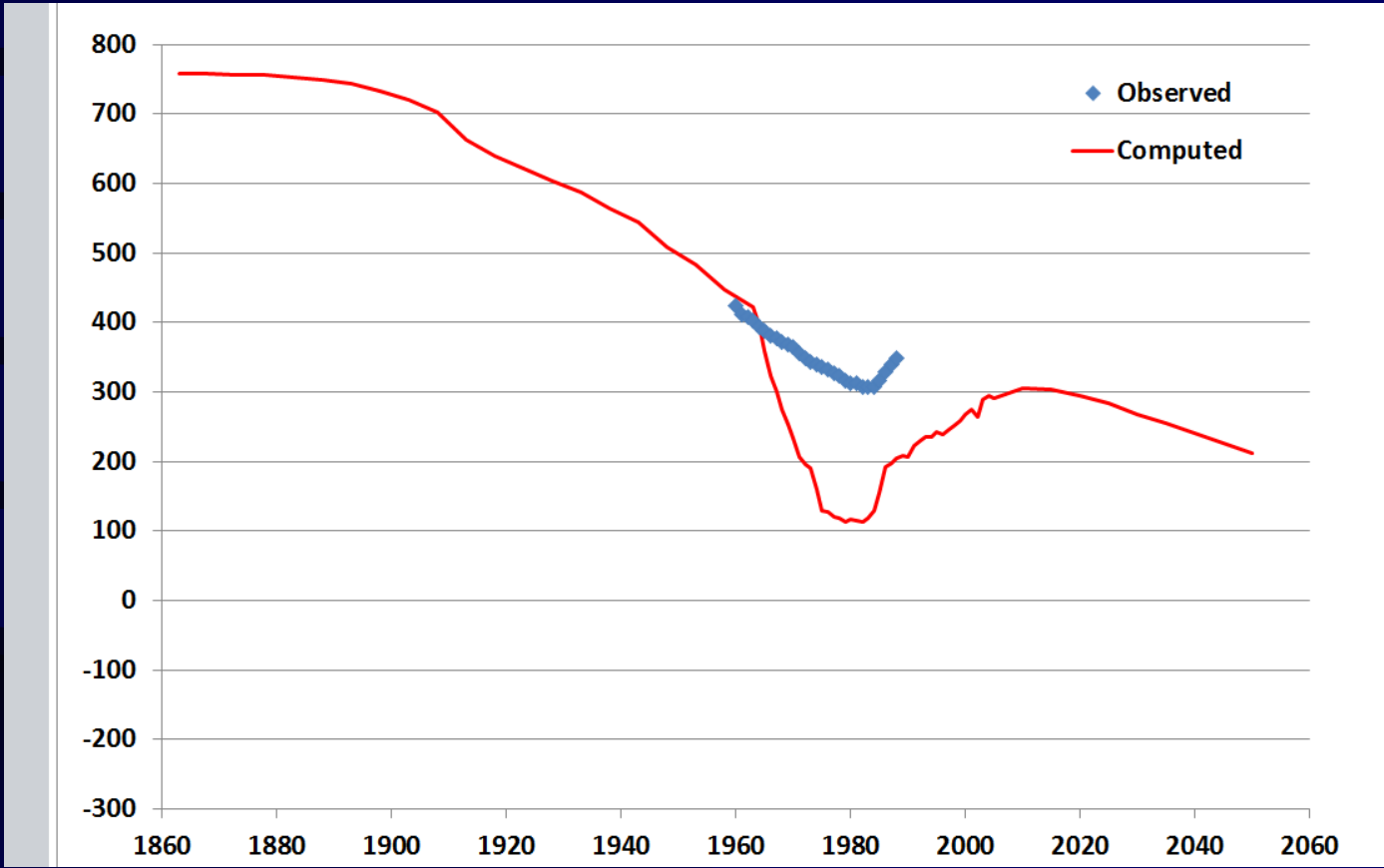


J8 T GP-MS

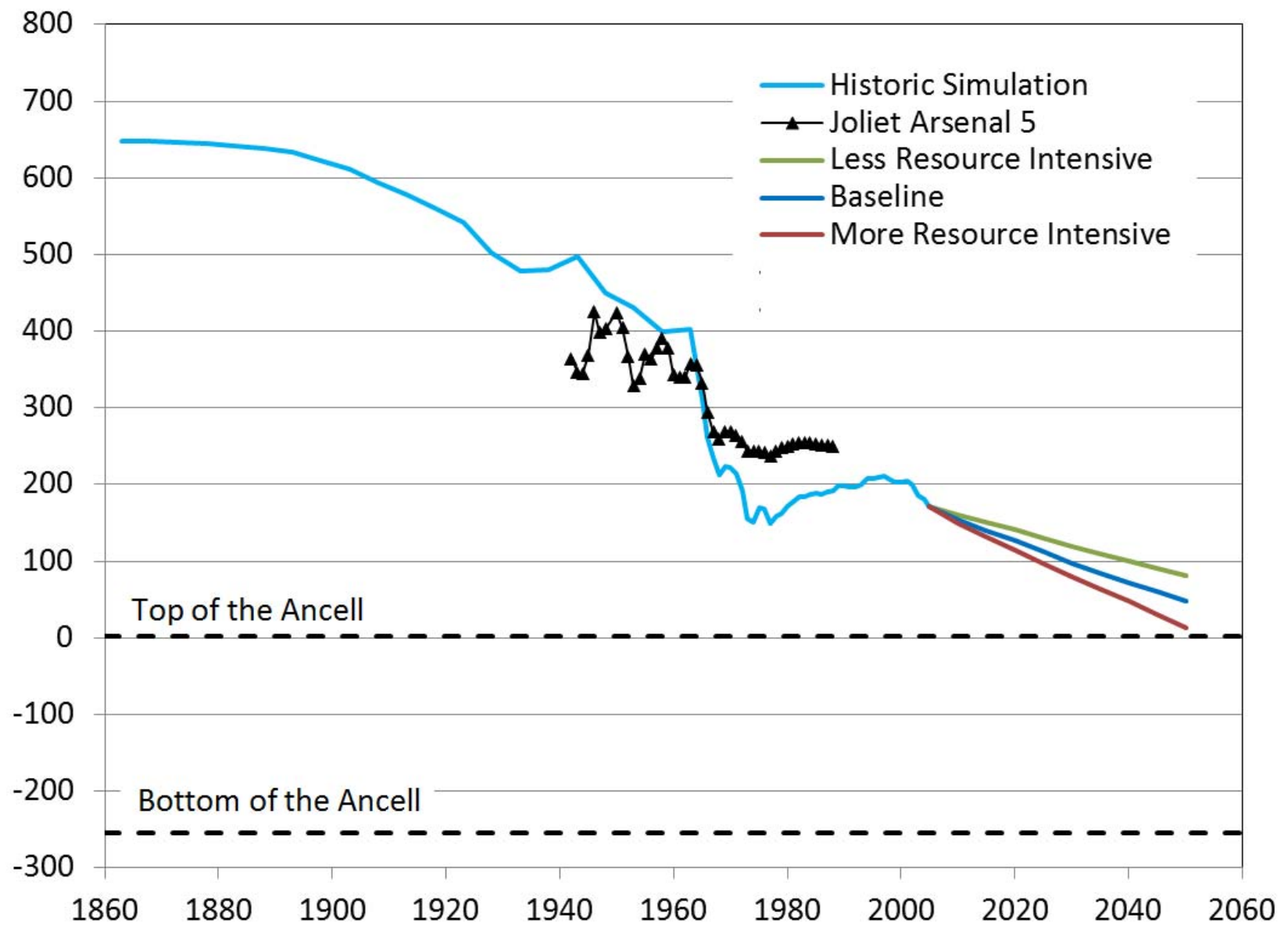


J8 T GP-IG

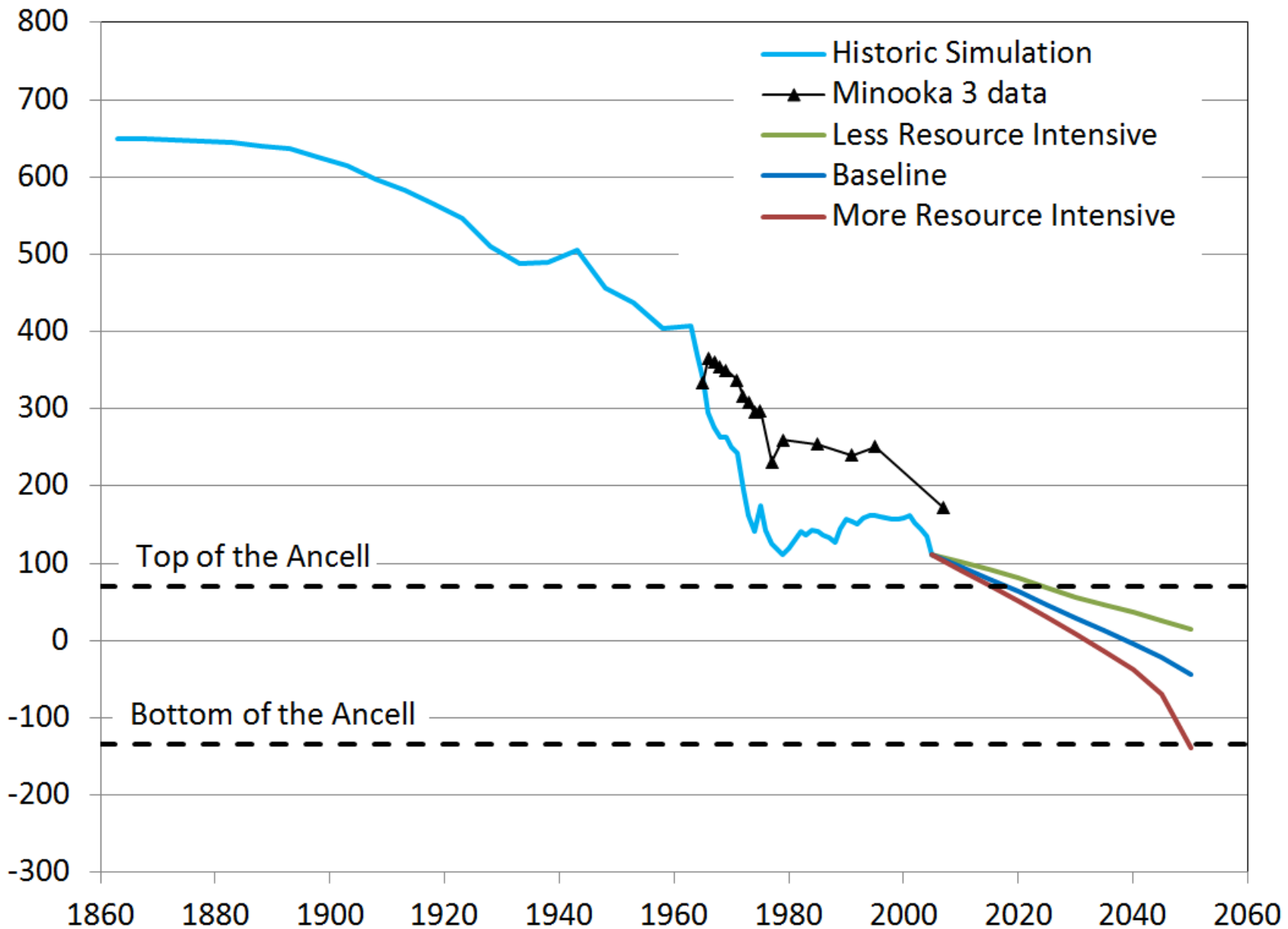




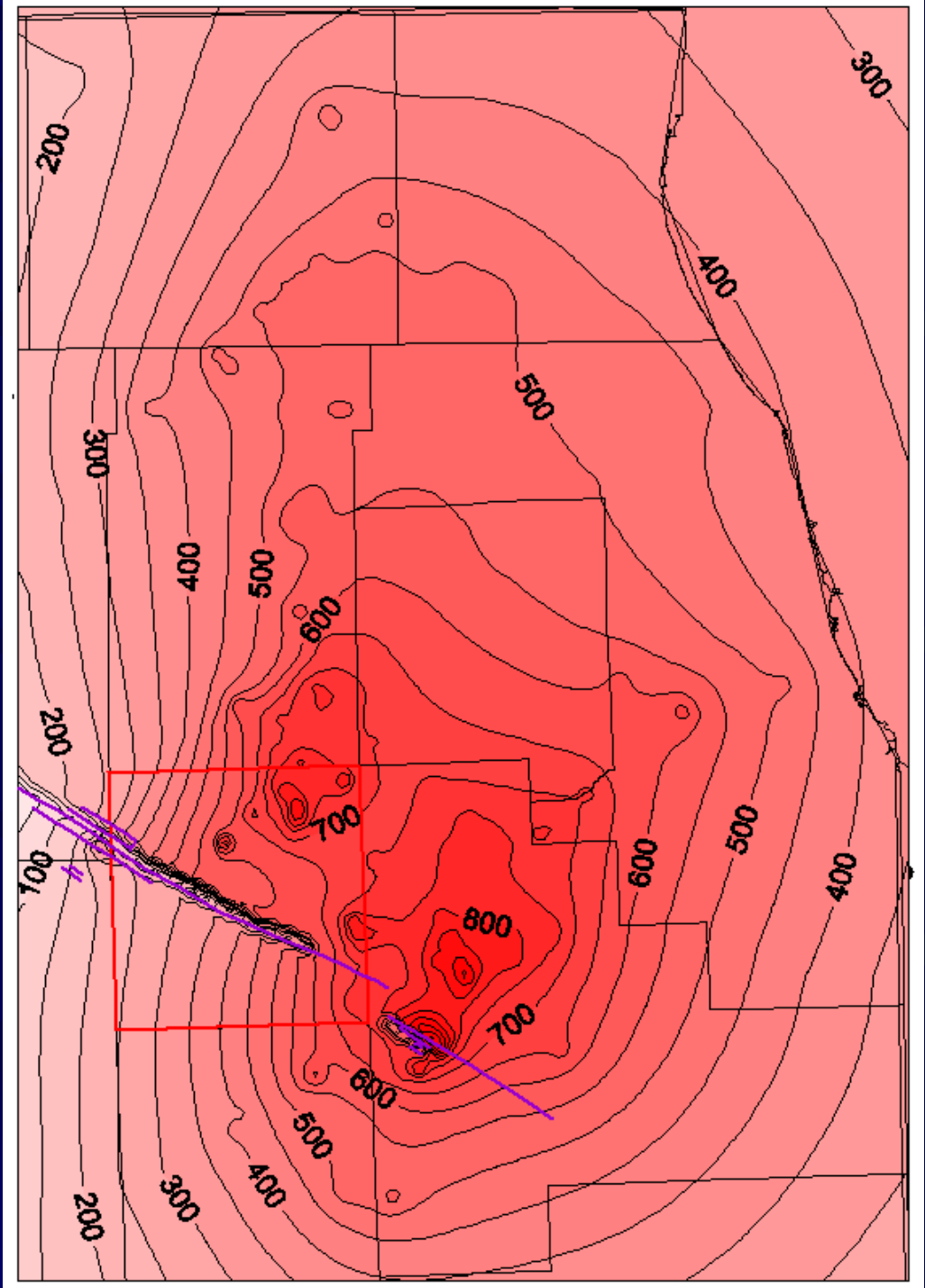
Groundwater Levels at Joliet Arsenal



Groundwater Levels at Minooka



2050 Drawdown Ironton-Galesville Sandstone Baseline Scenario



2050 Drawdown Ancell Sandstone Baseline Scenario

