Emergency flood response: An unexpected use for long-term groundwater monitoring data

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Why monitor groundwater elevation?

- To assess impact of drought, pumping, changes in land use and climate
...and to respond to natural disasters

Photo courtesy of D. Greenwood
• June 2008 wettest month on record for southern Wisconsin
• 43 cm (17 inches) of rain in 10 days
• 18 km² (4,400 acres) flooded 2-km distant from, and 7.5 km above, floodplain
• Floodwater remained for six months, $17 M damage
• Flooding result of water table rise to land surface
Groundwater Flooding

Groundwater Elevations

- Well DN83
- Well SP1

Elevation, ft msl

Year

'91 '92 '93 '94 '95 '96 '97 '98 '99 '00 '01 '02 '03 '04 '05 '06 '07 '08

735
730
725

Map of Wisconsin showing well locations.
Federal Emergency Management Agency Hazard Mitigation Grant

$5.4 M; based on 26 years of groundwater elevation data
Local impact
High quality, long-term record
Adequate spatial and temporal scales
Inter-agency cooperation