

MEMO

To: Supervisors, Town of Spring Green, WI

From: Madeline Gotkowitz

Date: October 1, 2009

Re: Update on groundwater levels and long-term rainfall record

Groundwater elevations declined through late summer in the Town of Spring Green. The depth to groundwater in August in four Spring Green wells is shown in Table 1. Figure 1 shows changes in groundwater elevation at these wells and a Mazomanie monitoring well (well DN83). In August, we also placed a measuring and recording device in well 5, located at Reutten Road. We are currently collecting records from the five wells and the Mazomanie well.

Table 1. Measurements from Spring Green wells.

Well number and location	Depth to Water Table 05/04/2009	Depth to Water Table 07/13/2009	Depth to Water Table 08/24/2009
1 Jones Rd	2.3'	3.0'	3.4'
2 G and JJ	15.8'	16.8'	17.0'
3 Airport	5.2'	6.4'	6.4'
4 Kennedy Rd	4.0'	4.5'	4.5'

Figure 1. Groundwater elevations since 2008.

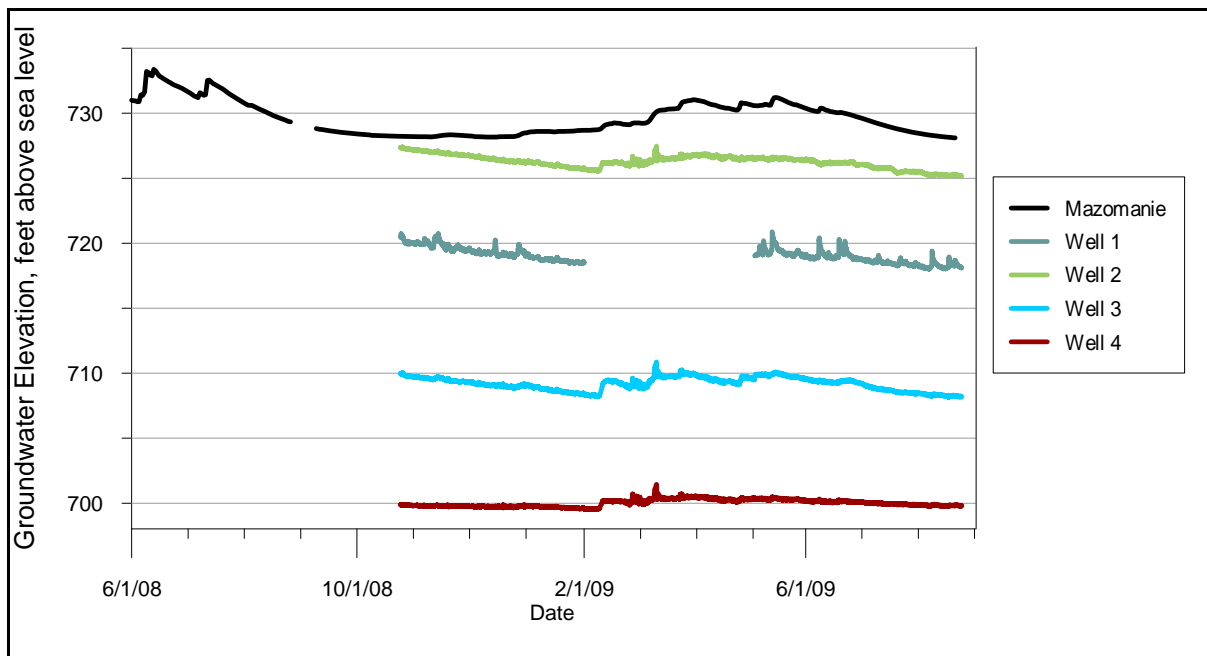


Figure 2 shows the depth to groundwater in Mazomanie and the annual total precipitation (inches per year) recorded at the Madison airport. This well and rainfall record are the closest to Spring Green with reliable, long-term records. Although rainfall is not the same as in Spring Green, the long-term record for Madison is similar. As you can see in the graph, 1993, 2007 and 2008 were years of high precipitation. 1993 and 2008 had very high groundwater levels, too. 1996 had high groundwater levels but was not a year of elevated total precipitation. This suggests that the factors that contribute to high groundwater are more complicated than simply high total precipitation.

Figure 2. Depth to groundwater in Mazomanie and annual precipitation in Madison, WI.

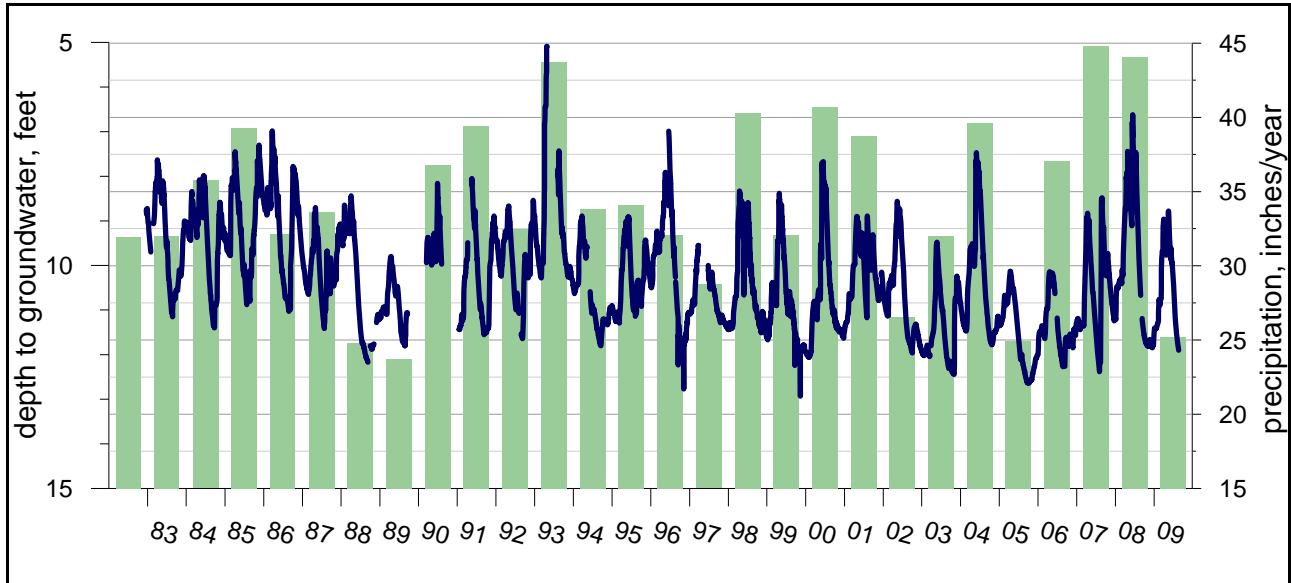
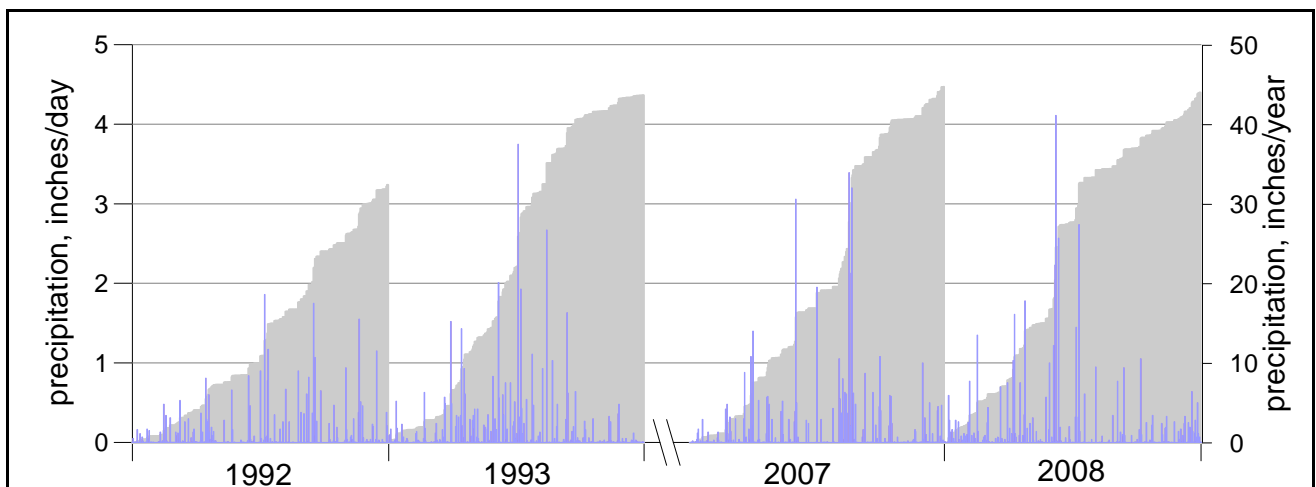


Figure 3 shows the daily and total precipitation in Madison for 1992-1993 and 2007-2008. There were several large storms in 1993 and 2008. However, 2008 was different than 1993 in that 2008 was preceded by a very wet year. Perhaps the 2008 Spring Green flooding was worse than 1993 because 1993 followed a drier year. The research project I am working on now addresses these types of questions and will evaluate rainfall, snowmelt, groundwater levels, and the potential for more flooding in southwest Wisconsin.

Figure 3. Daily and cumulative precipitation in Madison, 1993 - 1994 and 2007 - 2008.



I will continue to send updates on water levels this year. Please feel free to call or email if you have questions, comments or concerns.