Status of Water Levels in the Mahomet Aquifer near Champaign-Urbana

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This status report contains hydrographs, maps, and animations of water levels in the Mahomet Aquifer around Champaign-Urbana updated to December 31st, 2014. This field data collection effort was funded by our contract with Illinois-American Water Company for the 2011 to 2014 period. By monitoring water levels in the aquifer, we can observe long-term trends and the response to individual events, such as droughts or irrigation pumpage. The continued collection of data also contributes to the general understanding of flow and water use in the aquifer as described in our 2011 report "*Meeting East-Central Water Needs to 2050: Potential Impacts on the Mahomet Aquifer and Surface Reservoirs*". The long term trend in water levels has remained fairly flat during the period from 2009 to 2014 with some small shifts in water levels as pumpage has increase at the Bradley Ave wellfield. In the short term, however, the aquifer has witnessed significant episodic drawdown due to pumpage by the City of Decatur and irrigators during the drought that started in 2011 and extended through 2012. The heavy seasonal water use in 2011 and the lack of storms in the winter of 2012 may have reduced the amount of stored groundwater in the watershed, and thus contributed to the no-flow conditions on the Sangamon River in the summer of 2012.

Observation Well Network

The observation network in the Mahomet Aquifer in the Champaign-Urbana area consists of wells drilled and maintained by the Illinois State Water Survey and the Illinois State Geological Survey (Figure 1 and Table 1). The first two observation wells in the area, Petro North and Petro South, were installed in 1953 to observe the impact of Petro Chemical's (now Equistar) four new production wells near Bondville on the water supply wells installed by Northern Illinois Water (now IAWC) in the late 1940s and early 1950s. Under the ISWS Aquifer Assessment program, 25 observation wells at 21 sites were constructed between 1994 and 2000 along the deepest part of the Mahomet Bedrock Valley where the aquifer should be at its thickest (Burch, 2008). Nested wells were installed at 4 of these sites. With funding from Illinois American Water Company and additional state funding, the Illinois State Geological Survey installed 56 observation wells at 36 sites between 2007 and 2009 with two additional wells in 2012; Nested wells were placed at 21 sites along with an additional 3 Glasford Aquifer wells placed next to existing Mahomet Aquifer wells. Combined with four other existing observation wells, a total of 65 wells at 41 sites were selected for regular monitoring in the Champaign area including 37 Mahomet wells, 26 Glasford wells and 2 in the shallower sands. The start dates for the water level measurements and the transducer recordings are listed in Table 1 for each well.

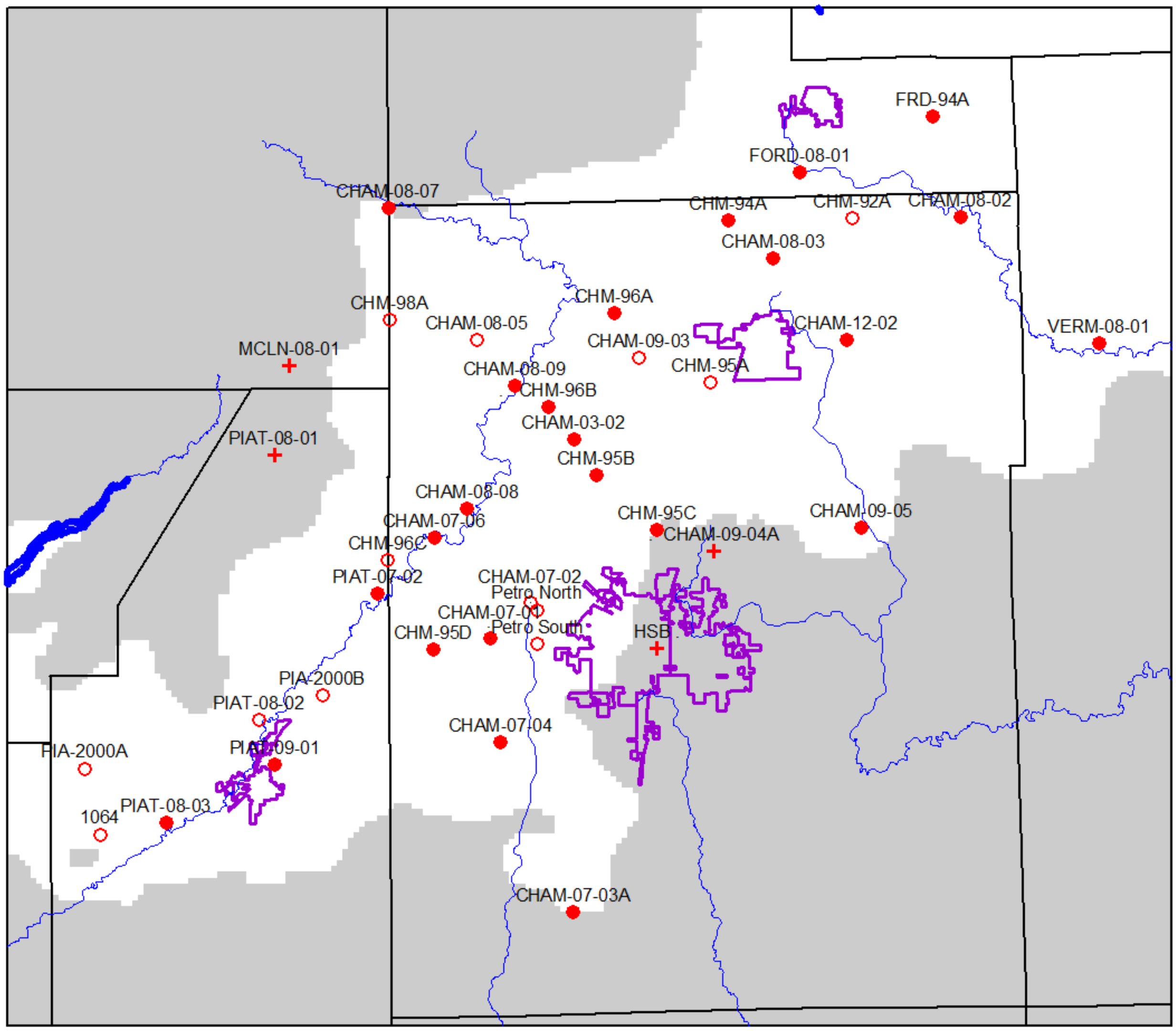


Figure 1. Location of observation wells in the Champaign County area. Open circles represent Mahomet wells, crosses represent Glasford wells, and closed circles represent nested Mahomet and Glasford wells.

ISWS staff have collected quarterly measurements from all of the wells shown on Table 1 with more frequent measurements during the unusual hydrologic conditions that existed during the 2012 drought. During field visits the electronic dataloggers on the continuously-recording pressure transducers were downloaded and an electric dropline measurement taken to ensure the quality of the data. Three of the wells are equipped with telemetry and can be downloaded more frequently from the office via a cell phone connection. ISWS staff have performed any needed repair or maintenance on the observation wells which may include: redeveloping wells that fill or clog with fine sands and silts, chlorinating wells that become clogged with iron bacteria, mowing around wells at the request of landowners, and repairing wells struck by large mowers.

Table 1. Observation well names, depths, and period of record.

Site Name	*Mahomet well*	*Depth (ft)*	*Glasford well*	*Depth (ft)*	*Start of Record*	*Start of Continuous Data*
Cisco	PIA-2000A	304			8/2/2000	10/27/2009
Allerton Garage	PIAT-08-03A	186	PIAT-08-03B	138	8/1/2008	
Lodge Park	PIAT-08-02	155			9/11/2008	9/10/2012
Railroad Museum	PIAT-09-01A	290	PIAT-09-01B	135	6/25/2009	10/27/2009
White Heath	PIA-2000B	268			8/2/2000	8/6/2010
Sangamon Park	PIAT-07-02A	320	PIAT-07-02B	59	11/8/2007	
County Line	CHM-96C	340			7/26/1996	6/16/2004
Hwy 54	CHAM-08-07A	271	CHAM-08-07B	183	8/1/2008	
Lotus	CHM-98A	245			9/23/1998	
Seymour	CHM-95D	290	CHAM 07-07	105	9/15/1995	1/24/2007
River Bend	CHAM-07-06A	293	CHAM-07-06B	88	8/11/2008	
Lake of the Woods	CHAM-08-08A	215	CHAM-08-08B	100	8/1/2008	
I-72 Pond	CHAM-07-01A	315	CHAM-07-01C	150	4/15/2008	4/22/2008
Bondville Site	CHAM-07-04A	307	CHAM-07-04B	138	10/30/2007	8/30/2008
Sangamon Riv FP	CHAM-08-09A	264	CHAM-08-09B	171	11/6/2008	7/18/2011
Cardinal Road	CHAM-07-02A	320			10/9/2008	
Petro North	Petro North	255			1/27/1953	3/14/2008
Petro South	Petro South	216			10/1/1966	4/24/2014
Big Ditch	CHM-96B	341			7/26/1996	1/24/2007
CR 2550N ISGS #5	CHAM-03-02	308	CHAM 03-03	128	1/24/2007	
North Mattis	CHM-95B	280	CHAM-08-06	172	9/15/1995	9/15/2009
Dewey	CHM-96A	351	CHAM-07-05	137	7/26/1996	1/24/2007
CR 1100E	CHAM-09-03	307	CHAM-09-03C	59	7/8/2009	
Leverett	CHM-95C	317	CHAM-07-08	169	9/15/1995	
Rantoul	CHM-95A	265			9/15/1995	
Ludlow West	CHM-94A	385	CHM-94B	265	9/7/1994	
Ludlow South	CHAM-08-03A	320	CHAM-08-03B	145	8/1/2008	
Ludlow North	FORD-08-01A	350	FORD-08-01B	175	8/1/2008	
Ludlow East	CHM-92A	368			9/22/1992	
Stanton TWP	CHAM-09-05A	152	CHAM-09-05B	105	7/8/2009	9/15/2009
Paxton	FRD-94A	375	FRD-94B	200	9/7/1994	
Middle Fork	CHAM-08-02A	306	CHAM-08-02B	75	10/16/2008	2/13/2013
Armstrong	VERM-08-01A	244	VERM-08-01B	105	10/16/2008	9/15/2008
Dillsburg	CHAM-12-02A	244	CHAM-12-02C	90	3/15/2013	4/4/2013
Hwy 136 and 47	CHAM-08-05	214			8/1/2008	
Sadorus	CHAM-07-03A	270	CHAM-07-3B	103	3/3/2008	
Pink house	ISWS-1064	198			4/24/1978	
Healy St Basin			ISGS-HSB1	130	3/5/2009	
Somer TWP			CHAM-09-04A	162	7/8/2009	
Mansfield			PIAT-08-01	175	8/1/2008	
Bellflower			MCLN-08-01	78	7/9/2009	

The hydrographs for each individual well or nest of wells are shown in Appendix A. For better visual comparisons, 5-foot gridlines and a 30-foot scale were used for each figure unless there was more than 30 feet of change (Petro North and South) or if water levels in the overlying Glasford Aquifer were significantly higher. The hand depth to water measurements are represented by symbols and connected by dashed lines while the transducer data are represented by solid lines without symbols.

Conditions around the IAWC wellfield

As shown in the hydrographs in Appendix A, the water level trends in the observations wells have remained largely flat since 2009. Therefore, the overall potentiometric surface of groundwater levels in the Mahomet Aquifer in 2014 has not significantly changed from the potentiometric surface created from the 2009 mass-measurement (Figure 2).

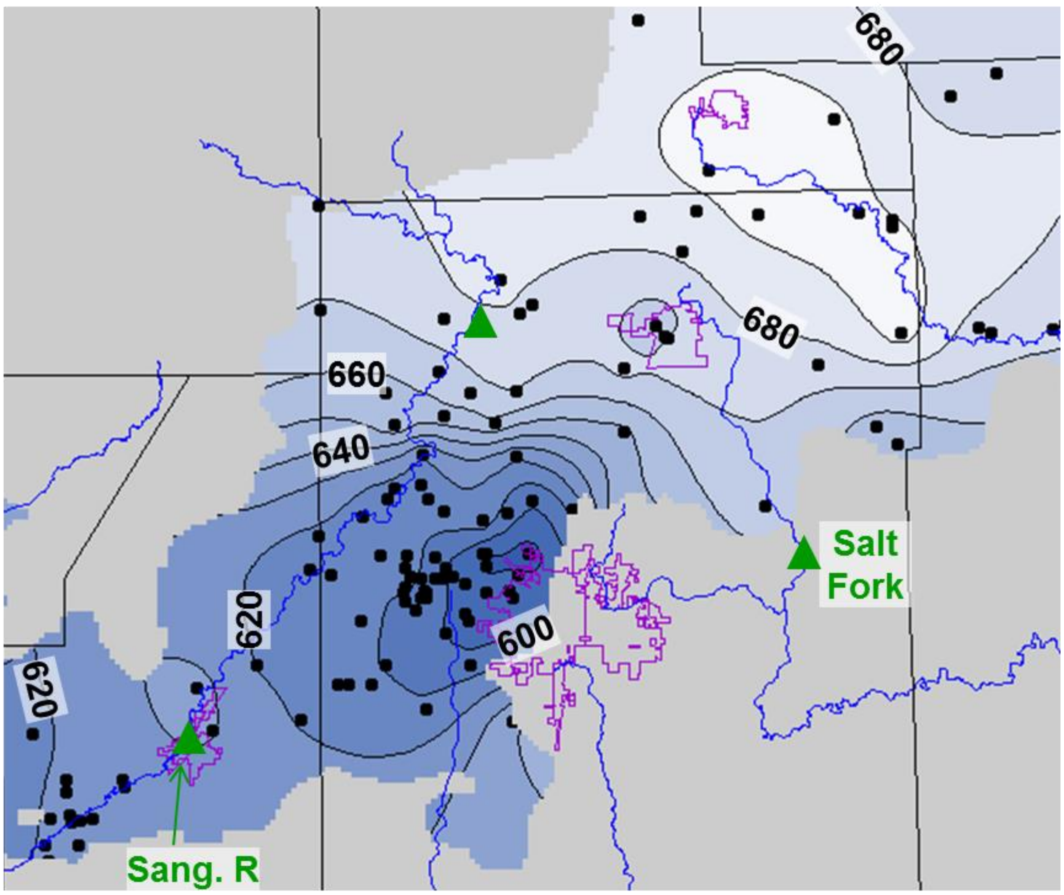


Figure 2. Potentiometric Surface of the Mahomet Aquifer in 2009 (from Roadcap et al., 2011). U.S. Geological Survey gaging stations are shown with green triangles.

Conditions in the Mahomet Aquifer near Champaign are best observed in the Petro North observation well because it is located near the center of the cone of depression and it has a very long period of record dating back to 1953. Water levels in the Petro North well have remained largely stable since 2000 after the steady decline of previous decades (Appendix A). There were small water level dips during the dry conditions in 2007 and 2012 but there was not the substantial drop of 5-10 feet after the 2012 drought as was observed after previous droughts (see 2011 report). The water level is closely tied to pumpage which, for IAWC, has remained relatively stable in the annualized daily range of 20.4 to 23.2 million gallons per day (Mgd) since 2000 with the peak coming in 2007 (Figure 3). Industrial pumpage near Bondville was in an annualized range of 1 to 2 Mgd except between 2007 and 2009 when annualized pumpage exceeded 5 Mgd.

Because the Petro North well sits between the older west wellfield and the new Bradley Avenue wellfield, the water level does not appear to have been impacted by the shift in pumpage to the new wellfield that has occurred since 2009. However, some changes have occurred with the shift in pumpage at the surrounding observation wells. Water levels have dropped roughly 5 feet in CHAM-07-01 and CHM-95D to the south and west of the new wellfield while water levels have risen 5 feet in CHM-95C and CHM-95B to the northwest of the old wellfield (Figure 4). Further away from the IAWC wellfields, long-term water level trends have remained fairly stable, such as at CHAM-07-04 south of Bondville, PIA-2000A at White Heath, CHAM-08-08 at Mahomet, or CHM-96B northeast of Mahomet. The water level in CHAM-07-04 was impacted by nearby irrigation pumpage starting in the summer of 2011. The water level in CHAM-07-03 is anomalously low and may be completed in an isolated section of the Mahomet sand that has been drawn down by local domestic pumpage.

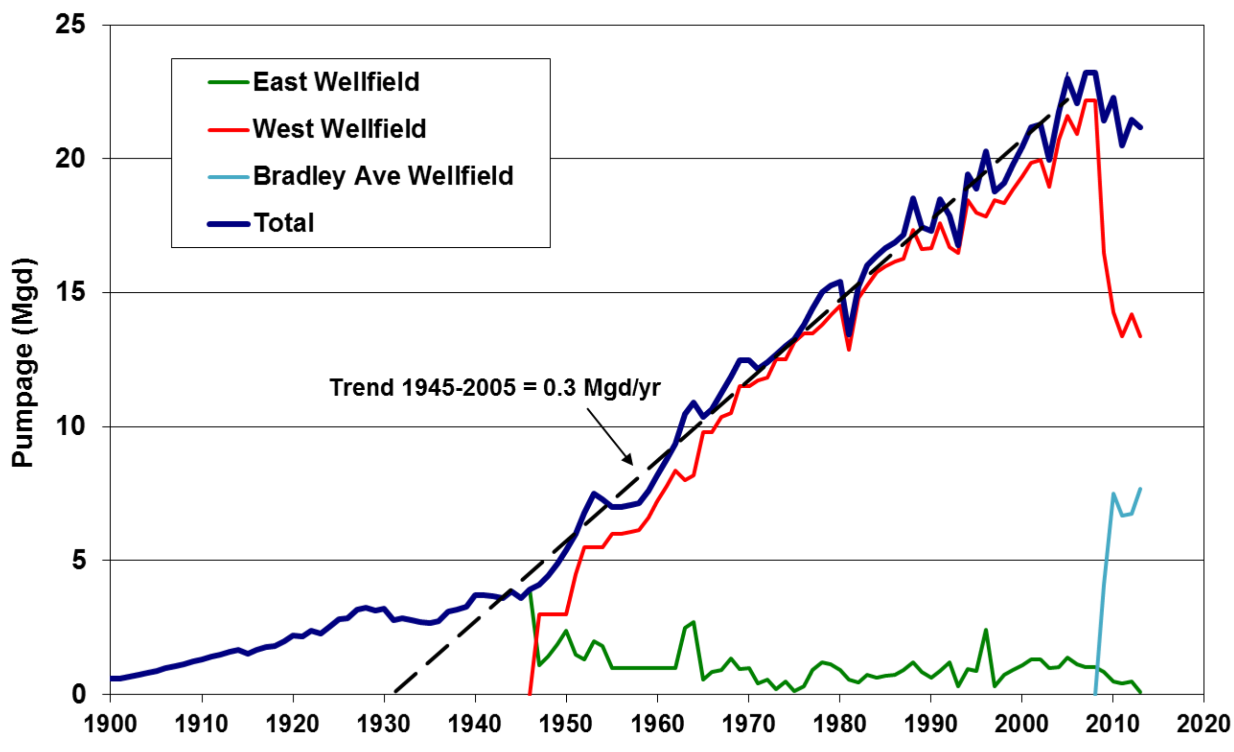


Figure 3. Pumpage at the IAWC Champaign-Urbana facility by wellfield.

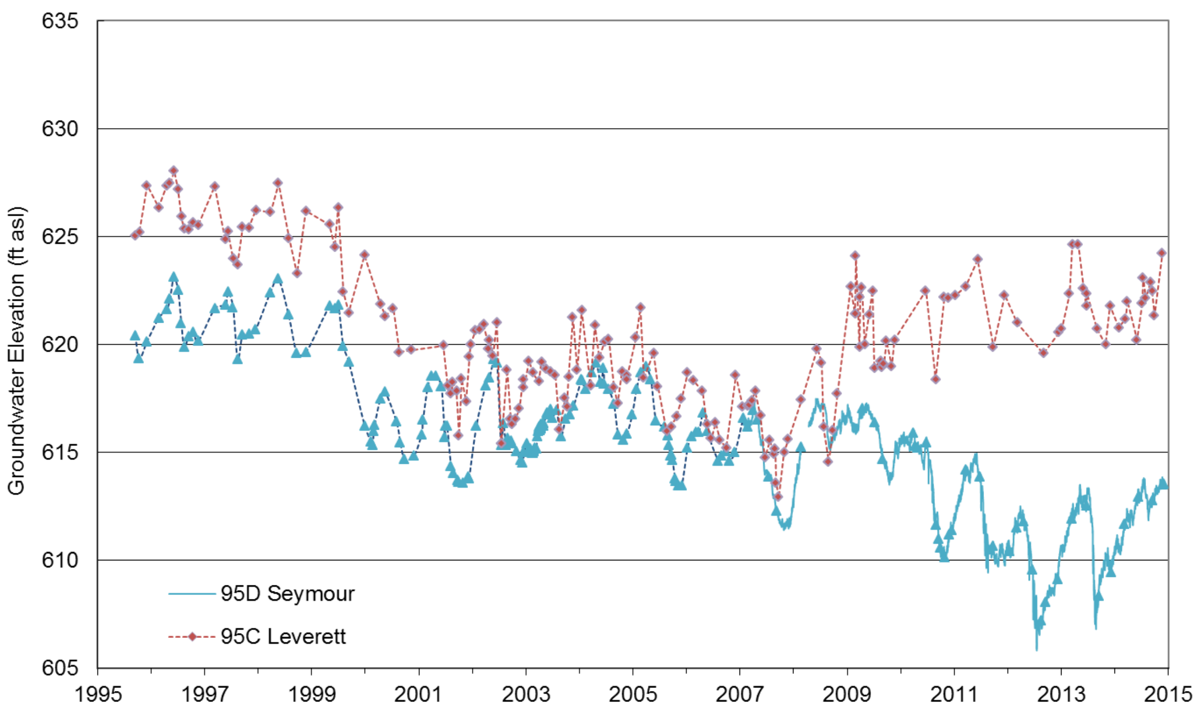


Figure 4. Hydrographs of wells CHM-95C and CHM-95D.

Irrigation in Northern Champaign County

In northern Champaign County over 50 irrigation pivots where identified in 2012 in the Rantoul region with many of the systems having been constructed since 2007. The increase in irrigation is largely due to more requirements for irrigation by seed corn companies who want a guaranteed crop in a dry year; however, irrigation was also observed on some soybean fields. According to the well records, some of these wells were test pumped at rates of between 1.4 and 3.6 million gallons per day (Mgd). Assuming the irrigation systems are pumping 1.4 Mgd, the collective pumping rate for all the systems in Champaign County is on the order of 70 Mgd or twice the rate of the public and industrial users in the county. The sharp drops in the summer water levels are shown in the hydrographs of the observation wells in this area (Figure 5) and in a map of the drawdowns (Figures 6 and 7). The summer drawdown was widespread throughout the northern half of the county and into Ford and Vermillion Counties with the greatest drawdowns of more than 12 feet occurring immediately north and west of Rantoul. The sharp water level drops and rises in well CHM-96A at Dewey indicate that the nearby pumping wells were started between May 25 and June 25, 2012 and were shut off between August 1 and August 24, 2012. The irrigation systems were not used after the rainfall associated with Hurricane Isaac, so a sharp water level recovery was observed in the September 2012 measurements. The nearby irrigation systems were also heavily used during the dry periods in the summers of 2011 and 2013, but not during the relatively wet summers of 2009, 2010, and 2014.

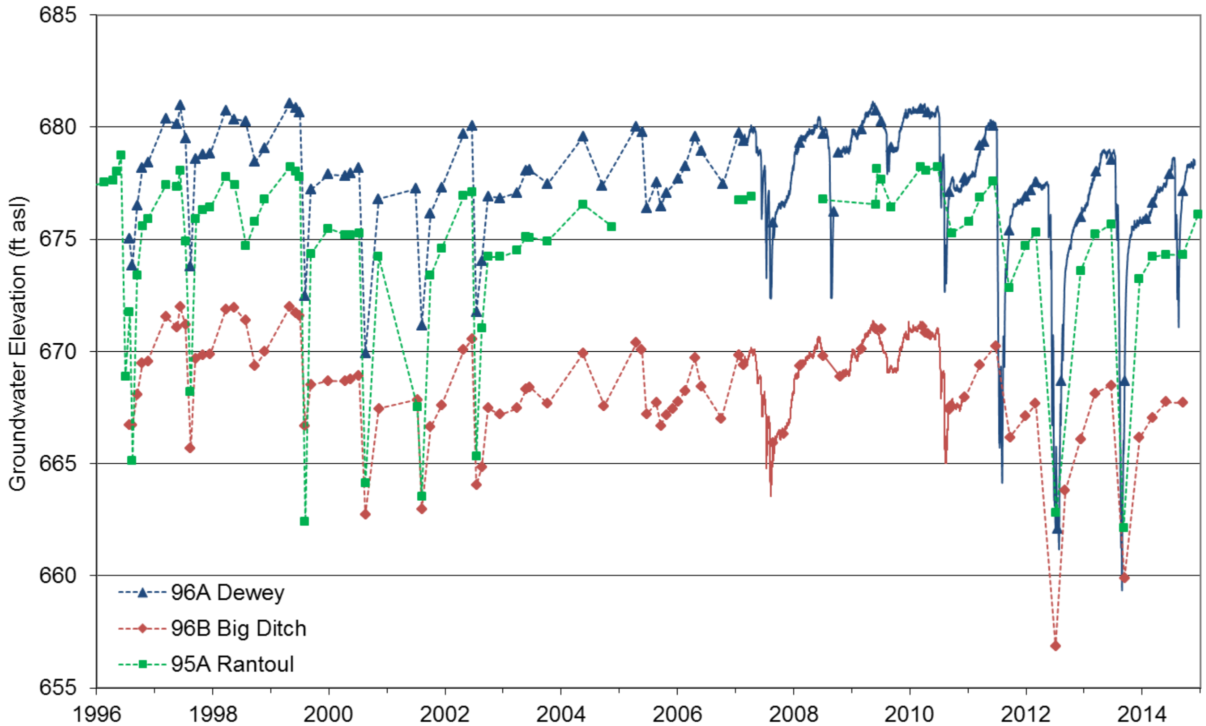


Figure 5. Hydrographs from wells CHM-95A, CHM-96A, and CHM-96B.

A sharp drop in water levels was also observed around the Village of McLean in southwestern McLean County where several irrigation systems have been installed since 2009. In the quarterly measurements from a nearby monitoring well, the summer of 2012 was the first time a significant amount of drawdown had been observed in this portion of the aquifer (Figure 6). Because the aquifer in Mason County is unconfined and can release water from storage that is readily recharged, the drawdown due to the heavy irrigation in 2012 was generally less than 4 feet.

Operation of the Decatur Emergency Wellfield

Due to the very dry conditions during the 2011-2012 drought, Decatur operated their emergency wellfields in DeWitt and Piatt Counties to help supply water to Lake Decatur from September 6 to December 27, 2011 (113 days) and from August 6 to October 22, 2012 (78 days). With the irrigation systems and the Decatur wellfields both operating in August 2012, the combined stress of all the pumpage was the greatest the eastern region of the Mahomet Aquifer has ever experienced. The impact of Decatur's pumpage is shown on the drawdown map from September 2012 (Figure 7) and in the hydrographs of the observation wells in Piatt County (Figure 8). The maximum drawdown in September of 2012 at Decatur observation well OW-1 in the center of the DeWitt wellfield was 40 feet, dropping in elevation from 606 feet to 566 feet (data from Guillou and Associates). However, the static water level prior to pumping in 2012 was already 9.15 feet lower than the static water level prior to the 2011 pumping period. The drawdown from the Decatur wellfields extends eastward to wells PIAT-08-03 and PIAT-09-01 near Monticello where a lack of recovery in the winter of 2012 is also apparent (Figure 8).

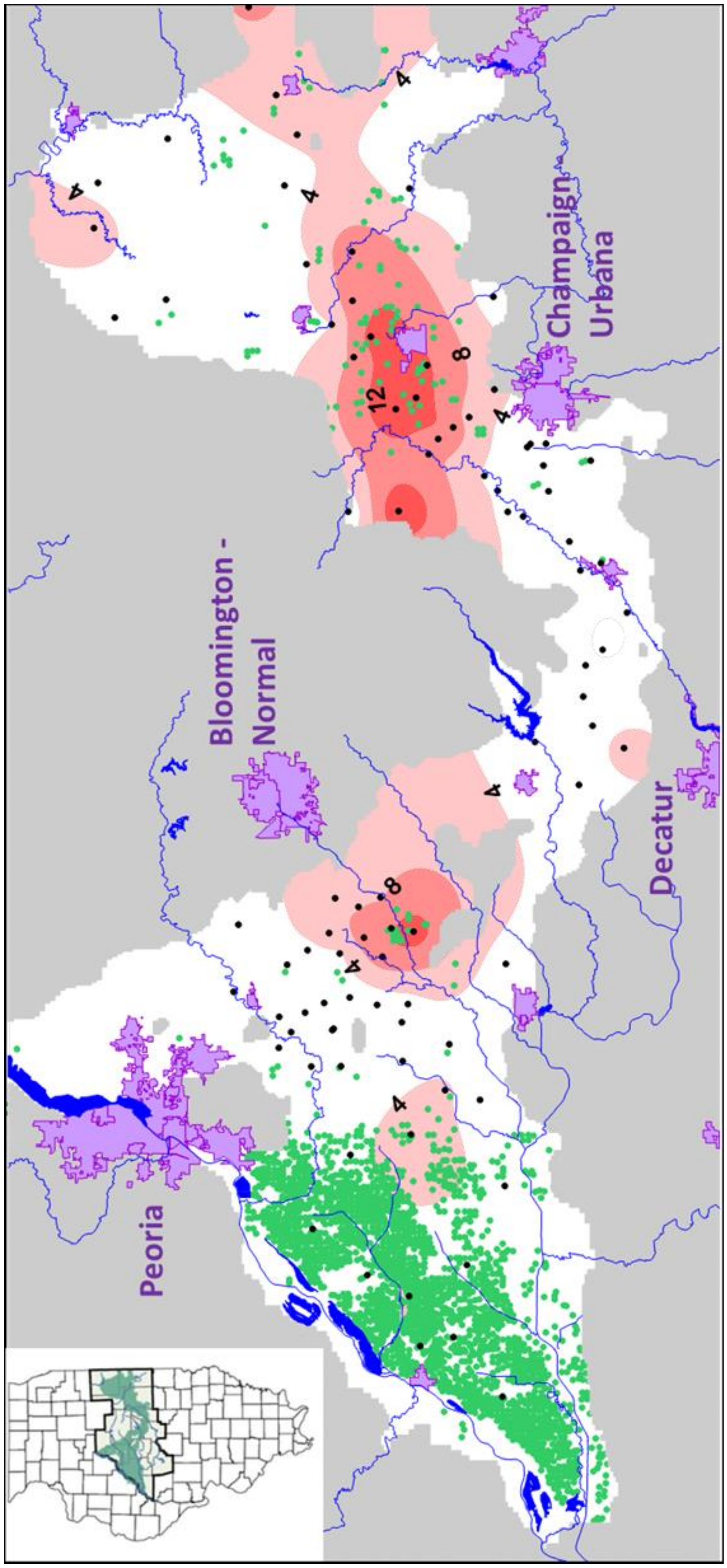


Figure 6. Drawdown (ft) in groundwater levels in the Mahomet Aquifer from March to July, 2012. Observations wells are represented with black dots and irrigation wells are represented with green dots.

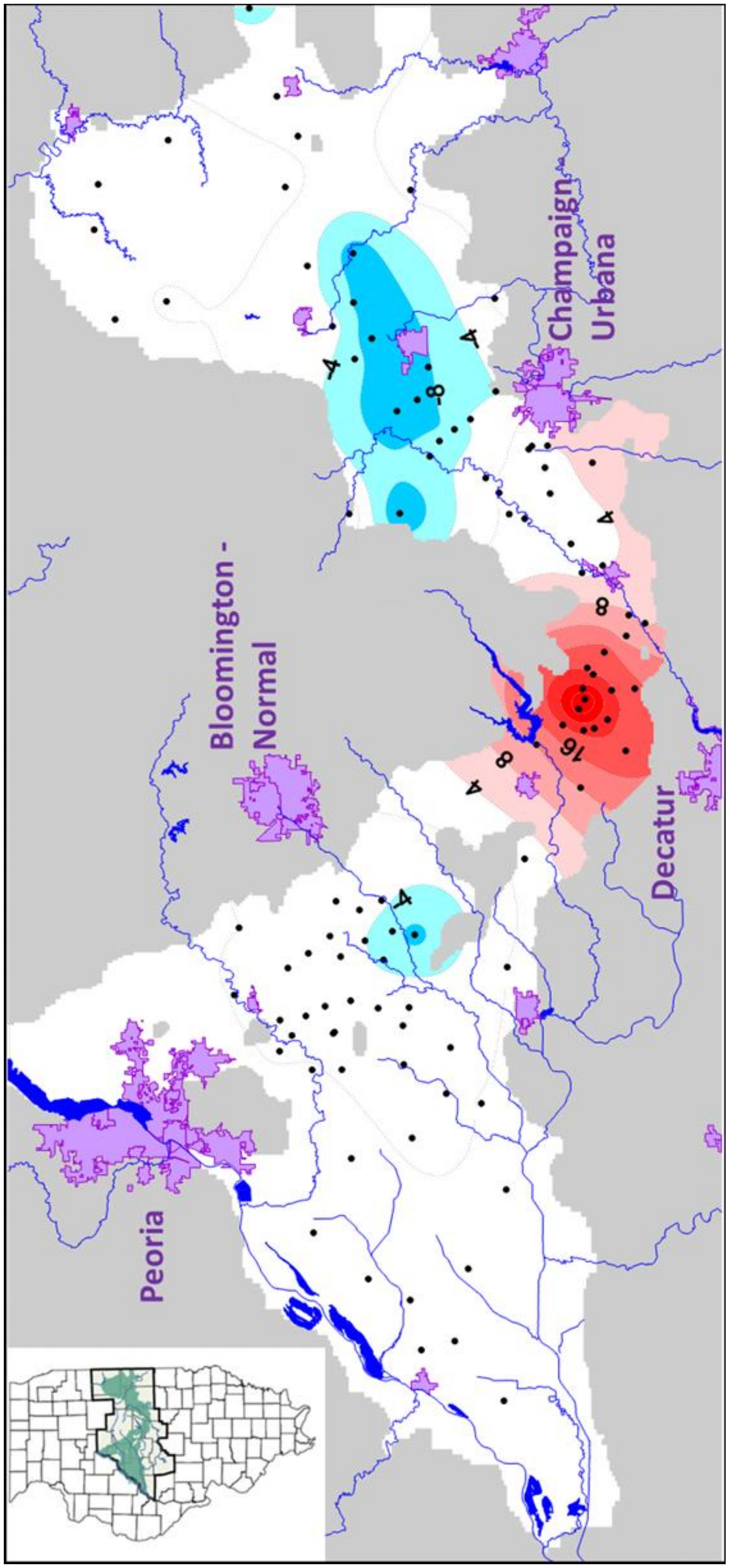


Figure 7. Drawdown (ft) in groundwater levels in the Mahomet Aquifer from July to September, 2012. Recoveries are shaded blue. Observations wells are represented with black dots.

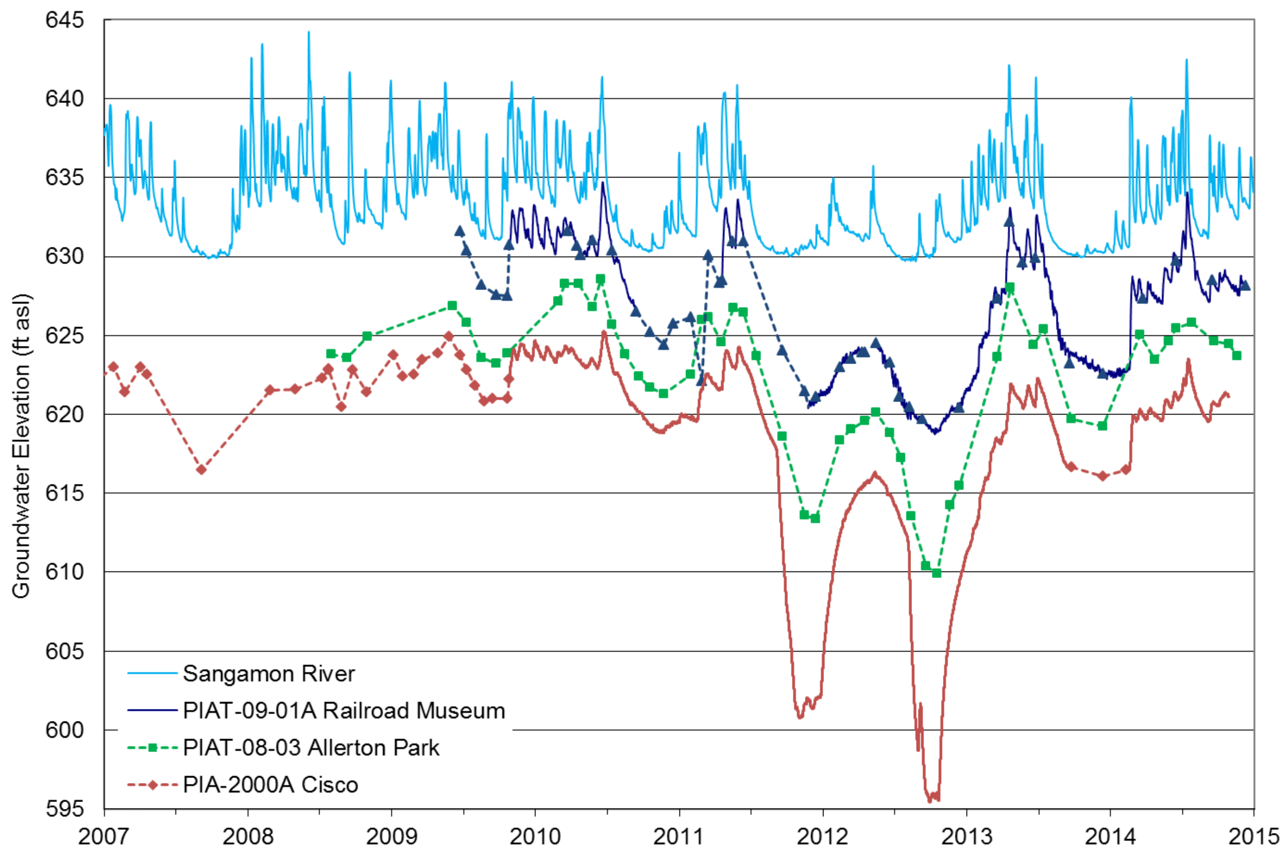


Figure 8. Hydrographs of PIA-2000A, PIAT-08-03, PIAT-09-01A, and the USGS gage on the Sangamon River at Monticello.

Impacts of the 2012 Drought

One of the biggest hydrologic impacts of the drought was the no-flow conditions on the Sangamon River which extended for 26 consecutive days and for 34 of 36 days from July 21 to August 25, 2012 as recorded at the USGS gage at Monticello. Since the gaging station was installed in 1911, the record shows the river had previously gone dry only during the 1988 drought and then for only 7 days. August 2012 had the third lowest average daily flow of 1.57 cubic feet per second (cfs,) behind September and October 1988 at 0.48 cfs and 1.32 cfs, respectively. The August 2012 total was not the driest thanks to some significant rainfall at the very end of the month associated with the remnants of Hurricane Isaac. July 2012 was also very dry with the sixth lowest average daily flow. The July to September 2012 period ranks as 12th lowest in daily average flow for a 3-month period; however, all of the drier 3-month periods occurred in the late fall and early winter except for 1988. Over a longer 12-month or 18-month period, only 1930-31, 1933-34, and 1954-55 were as dry or drier. Estimates of baseflow using the online hydrograph separation program WHAT (engineering.purdue.edu/~what) produced similar rankings amongst the droughts as the flow records. The 2011-12 drought did have the longest number of consecutive days with flow below 1000 cfs (604 days), which, as discussed in the next section, could have a significant impact on groundwater recharge.

The contribution of increased groundwater use to the cause and duration of the no-flow conditions on the Sangamon River is hard to directly quantify. Where the stream was dry near Monticello (Figure 9), ISWS staff observed that the water table was very near or just below the surface of the river bed. In addition, the standing pools of water are in areas where the river has a sandy bottom and thus connected to the shallow groundwater. As shown in Figure 6, the water level in the Mahomet Aquifer was not significantly lowered during the drought west of Champaign where the large capacity Illinois-American Water Company wellfields are located. Therefore, increased seasonal demand from Champaign-Urbana was probably not an important factor in the stream going dry. The new irrigation demands in northern Champaign County may have reduced the flow in the upstream portion of the watershed by inducing water out of the stream at rates that would not have occurred in previous droughts. Other changes in agricultural practices that have occurred in the watershed since previous droughts may have resulted in lower water tables along riparian areas, which in turn may have decreased discharge to streams during dry periods. These changes include more widespread installation of intensive drainage tile networks, the conversion of many thousands of acres from pastureland to drained row crop fields, and the use of corn and soybean hybrids which use water earlier in the growing season.

Figure 9. Dry conditions on the Sangamon River as viewed from the old Route 48 bridge near Monticello.

Groundwater/Surface Water Interactions

In the 2011 report, we attributed the sharp rises in groundwater levels in well PIAT-09-01 to storm events on the Sangamon River which would indicate a nearby hydraulic interconnection. Leakage from the stream into the aquifers is variable, with a large portion of it coming during storm events when the downward gradients are the greatest. Conversely, we also noted in the 2011 report that the lowering of water levels in the Mahomet Aquifer by the regional pumping has had no observable impact on the low-flows in the stream. During the dry conditions in the winter of 2012, the water level in PIAT-09-01 did not recover to its normal level after the preceding dry period of 2011 and Decatur's emergency pumping event (Figure 8; Appendix A). There were only two small storms during the winter of less than 800 cfs which briefly raised the stream level 4 feet. It is possible that these two storms were either not big enough or did not last long enough to refill the water removed from storage in the aquifer during 2011. The complex geometry of the sands that interconnect the stream to the aquifer is unknown as is the amount of unconfined sand in the system that can store and release water. As hypothesized in the 2011 report, the release of water from storage in shallow sands likely maintains baseflow to the streams as well as preventing steep vertical gradients from forming at the interconnection during dry periods. Although more data are needed, the additional 2011-2014 data may indicate that the groundwater does not act in tandem until the stage of the river exceeds approximately 635 feet in elevation or a corresponding flow of 600 cfs.

The lack of wintertime recovery in groundwater levels is evident throughout the watershed, such as at PIA-2000B, CHM-96C, CHAM-80-08, CHAM-08-09, CHM-96A, and CHM-98A. It is possible, therefore, that the reduced amount of stored groundwater in the watershed contributed to the no-flow conditions in the summer of 2012. In the previous droughts of 1930-31, 1933-34, and 1954-55, there was not the large amount of pumpage to deplete the groundwater storage in the winter that could help maintain flow conditions during summer. While predicting droughts is not possible, special attention must be given by water users to the available water resources when a dry summer with high pumpage is followed by a dry winter.

Animation

The display of water level changes using hydrograph plots is somewhat limiting in providing an idea of how water levels in the aquifer are responding to the different stresses that are occurring in different areas. By plotting the spatial changes in head over time periods on the order of weeks or months, one can observe where the aquifer is responding to recharge and where it is being impacted by changes in pumpage. We are currently in the process of developing an animation of the water level changes around Champaign County with a bi-weekly time step. The data from the transducers were reduced to average values for bi-monthly periods using a MATLAB code and compared against the average values for the period of record dating back to July 2009. The data were the contoured using the modeling approach described in our 2011 report. Using the Groundwater Vistas software, 134 sets of data were batch processed and a contour plot of the deviation from the mean was generated. Figure 10 shows two of the frames from when some of the irrigation wells in northern Champaign County were turned on in July of 2012. Future development of the animation procedure will involve adding annotation that identifies the different events as they occur.

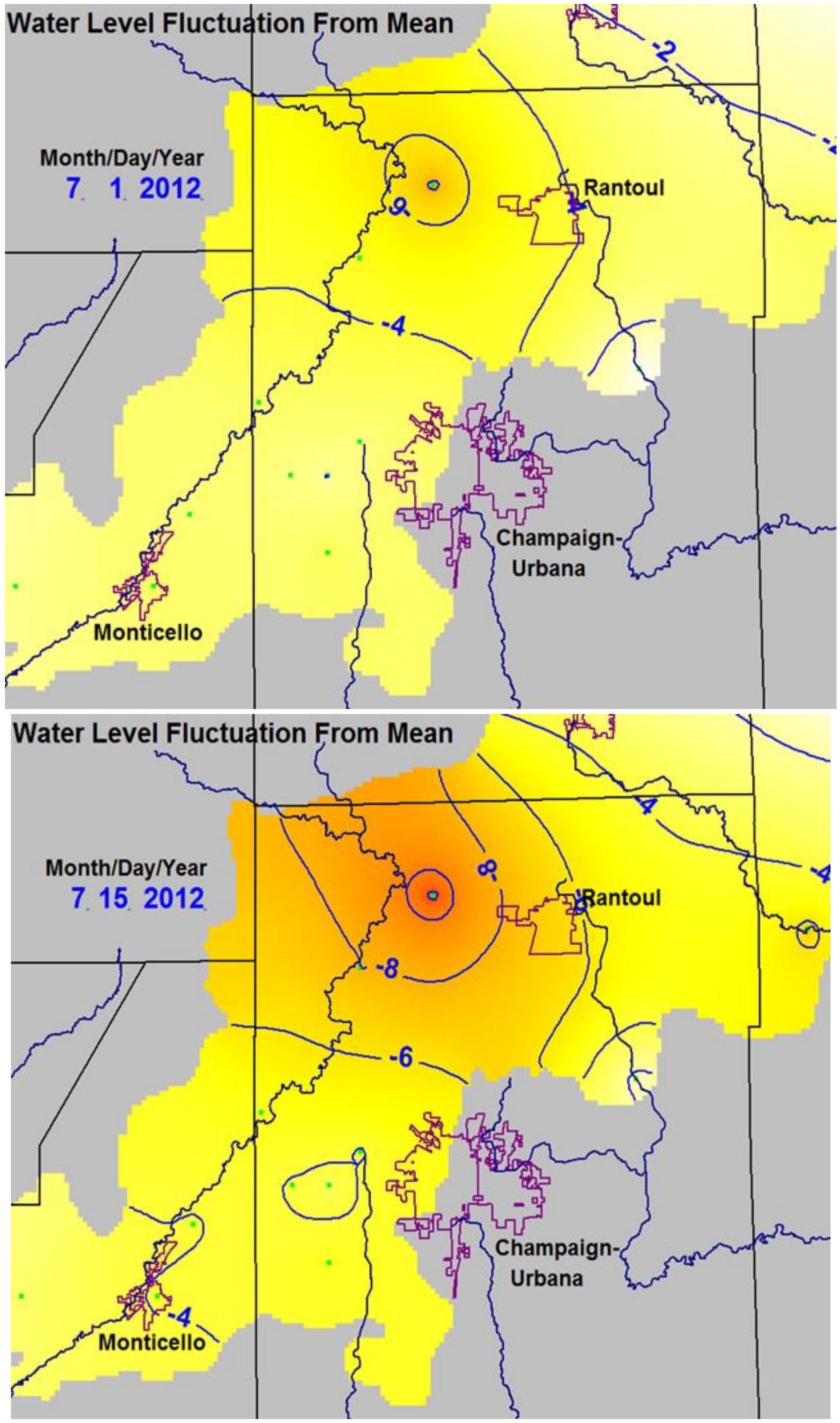
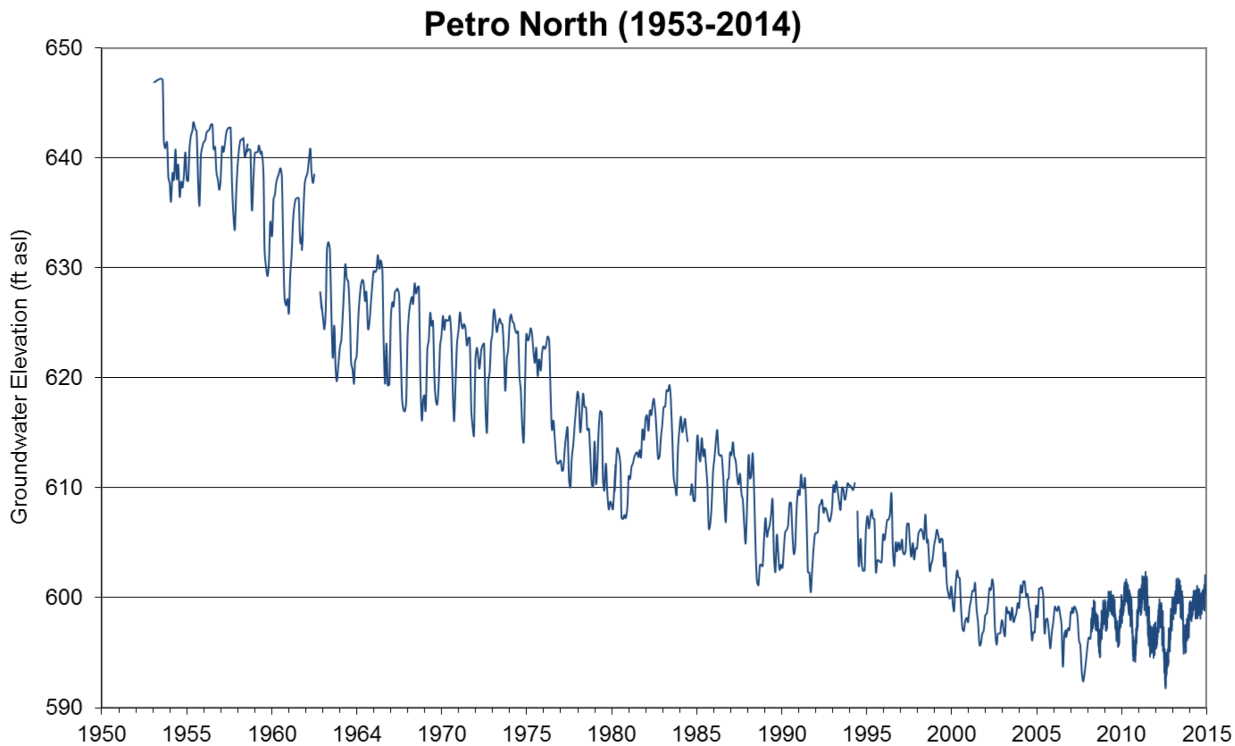
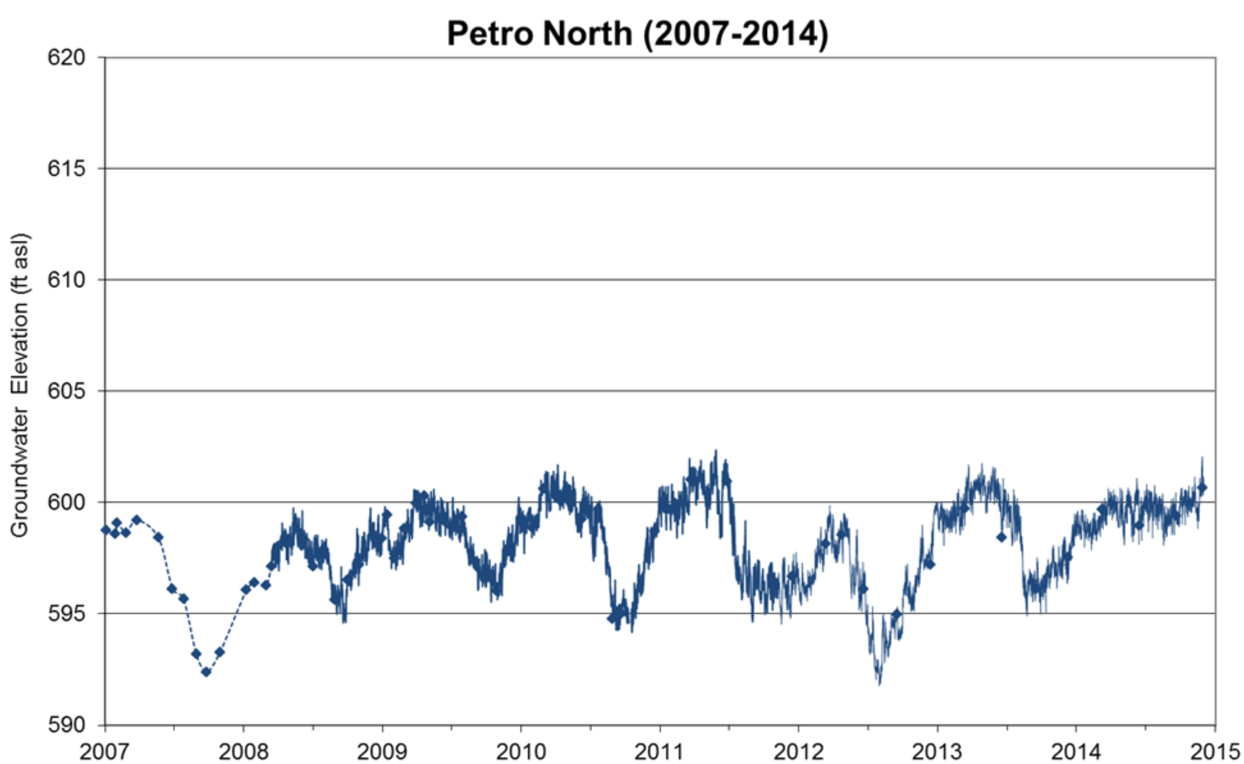
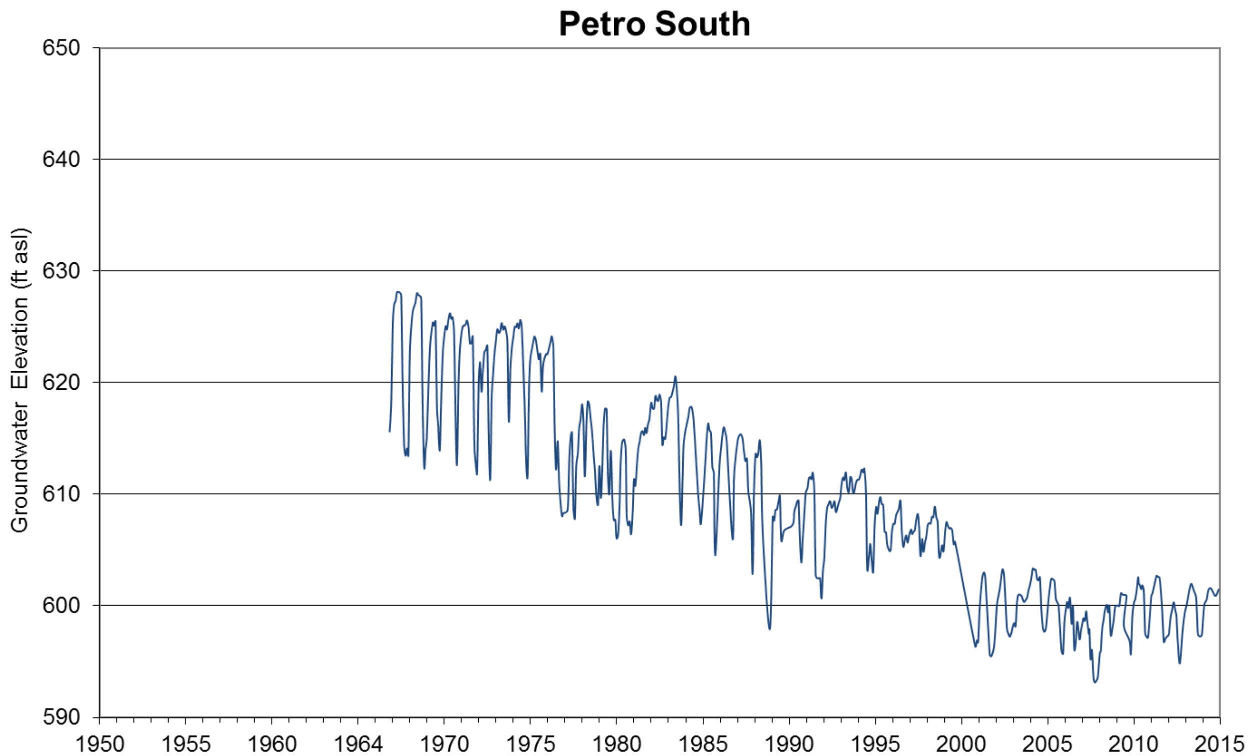


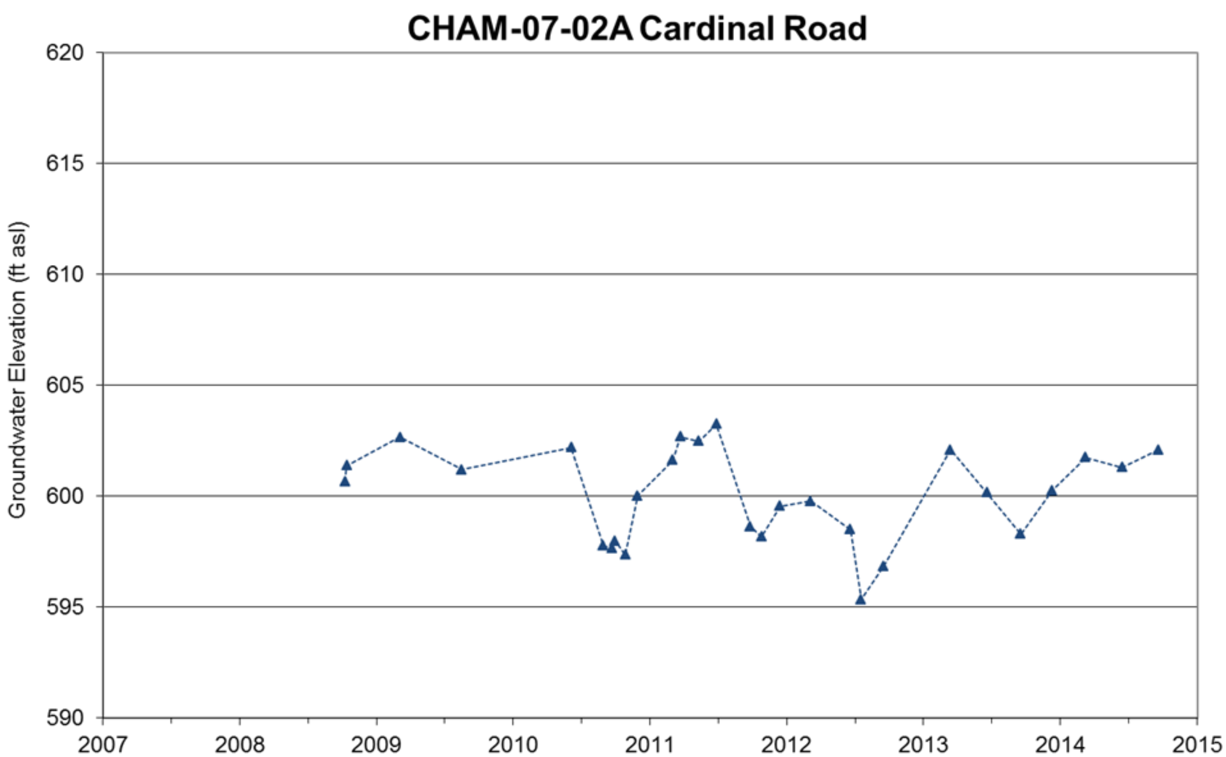
Figure 10. Two frames from the animation showing the spatial deviation in water levels from the mean values at the wells. Green squares represent wells.

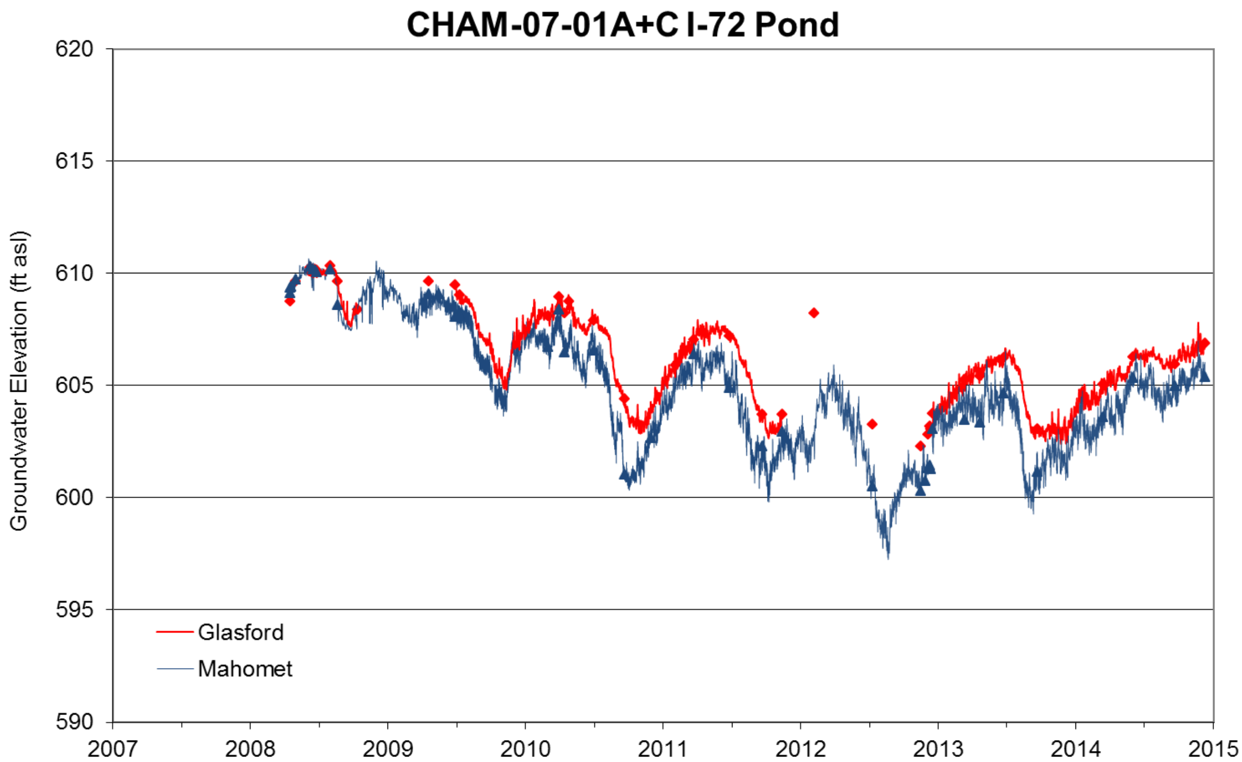
Appendix A - Individual Hydrographs

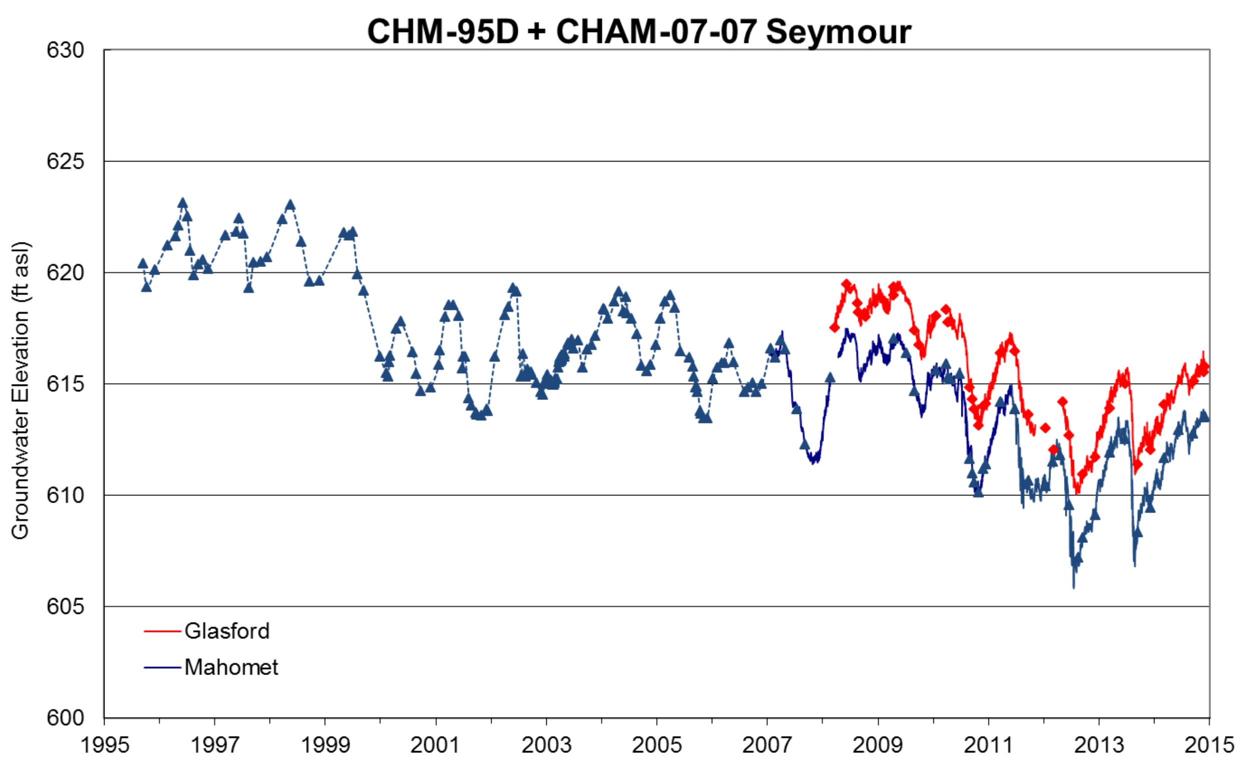


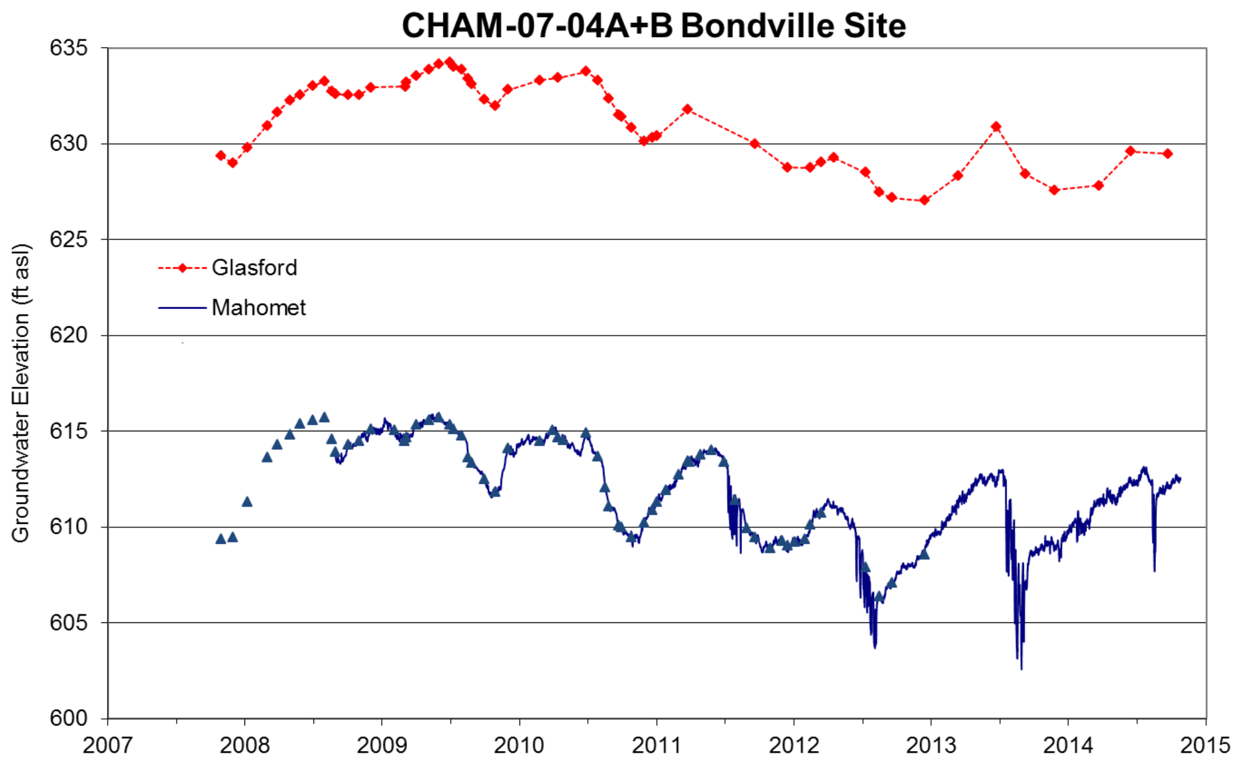


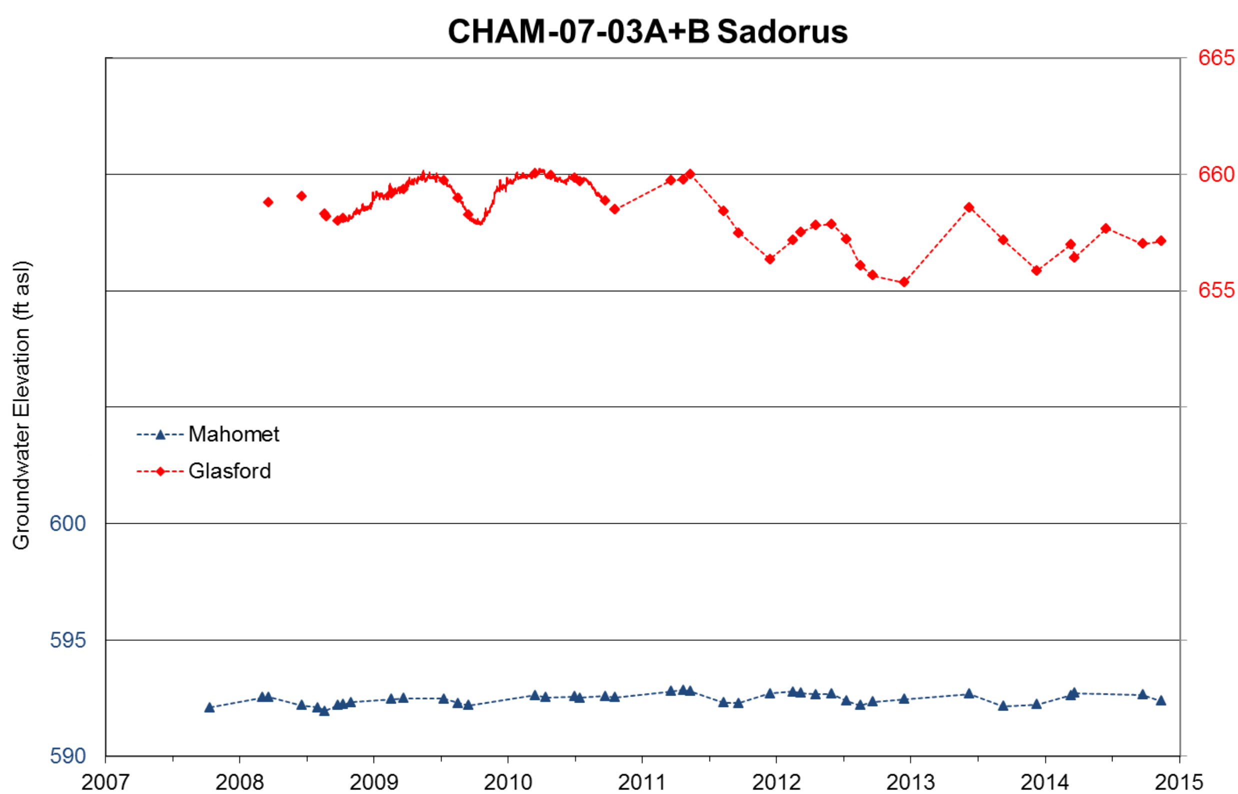

Petro South
Groundwater Elevation (ft asl)
650
640
630
620
610
600
590
1950
1955
1960
1964
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015

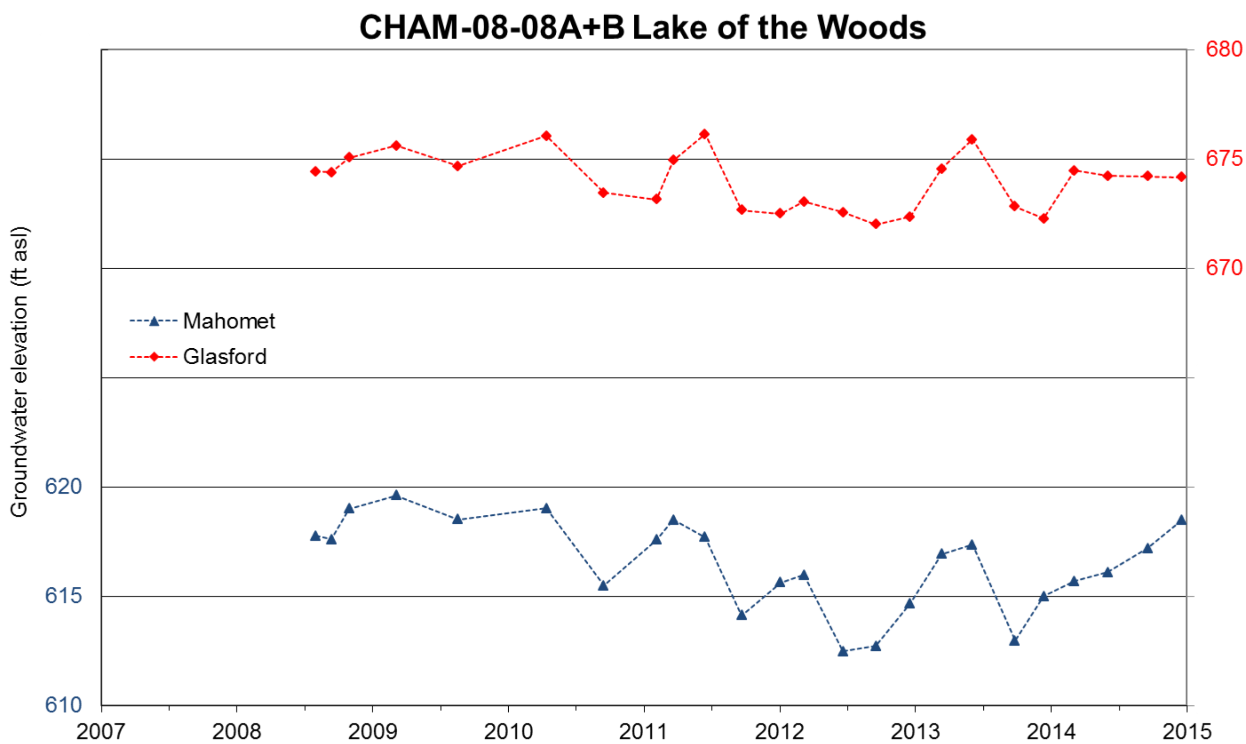

CHAM-07-02A Cardinal Road
Groundwater Elevation (ft asl)
620
615
610
605
600
595
590
2007
2008
2009
2010
2011
2012
2013
2014
2015

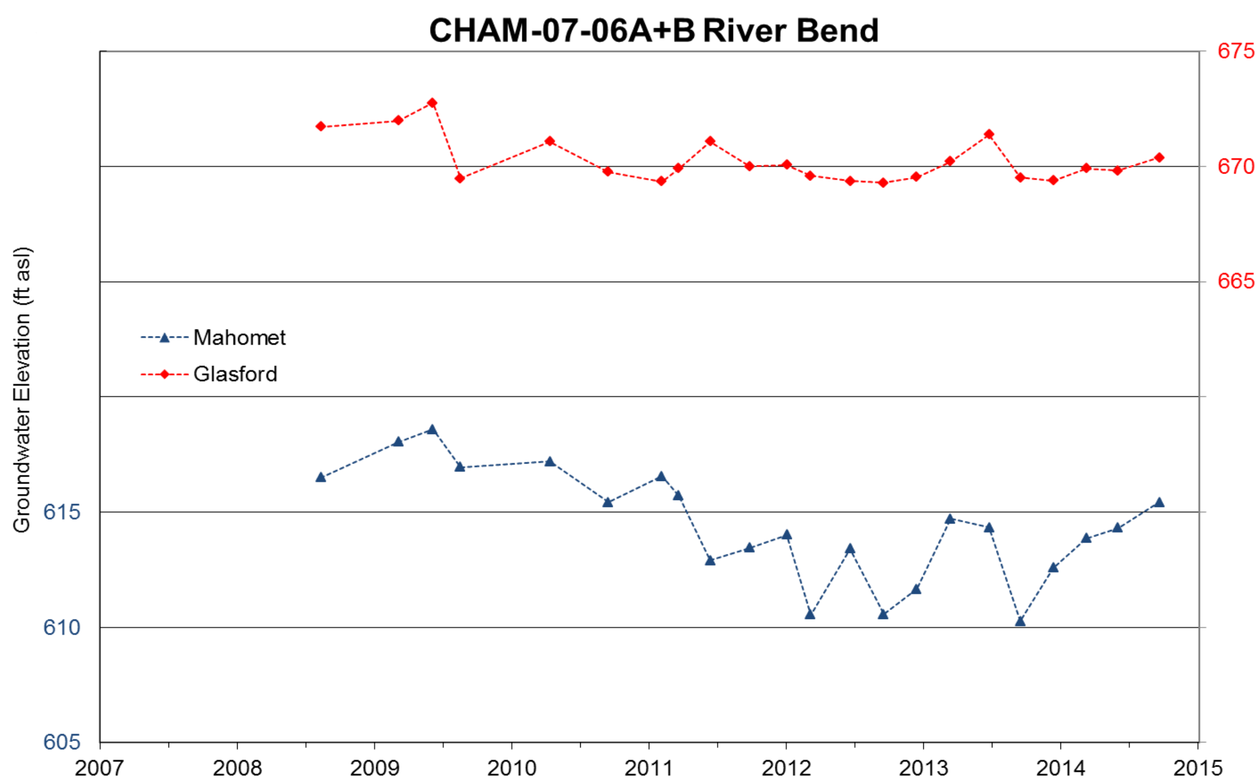

CHAM-07-01A+C I-72 Pond
Groundwater Elevation (ft asl)
620
615
610
605
600
595
590
2007
2008
2009
2010
2011
2012
2013
2014
2015
Glasford
Mahomet

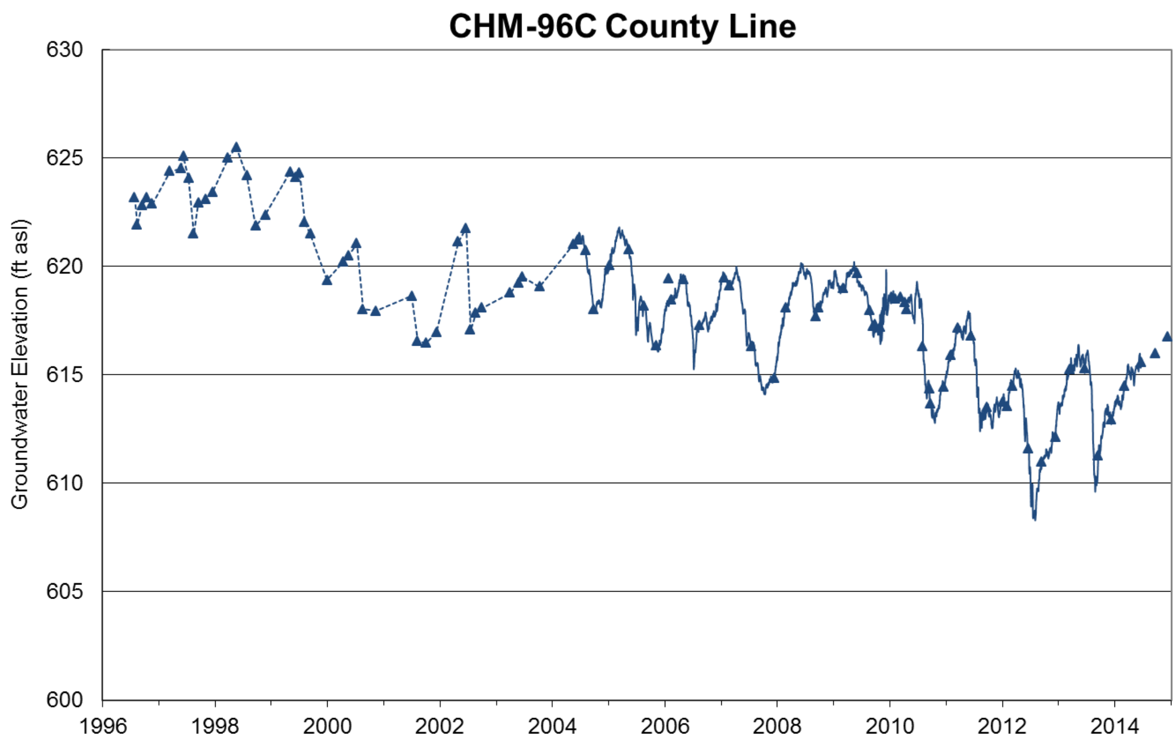

CHM-95D + CHAM-07-07 Seymour
Groundwater Elevation (ft asl)
630
625
620
615
610
605
600
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
Glasford
Mahomet


CHAM-07-04A+B Bondville Site
Groundwater Elevation (ft asl)
Glasford
Mahomet
635
630
625
620
615
610
605
600
2007
2008
2009
2010
2011
2012
2013
2014
2015

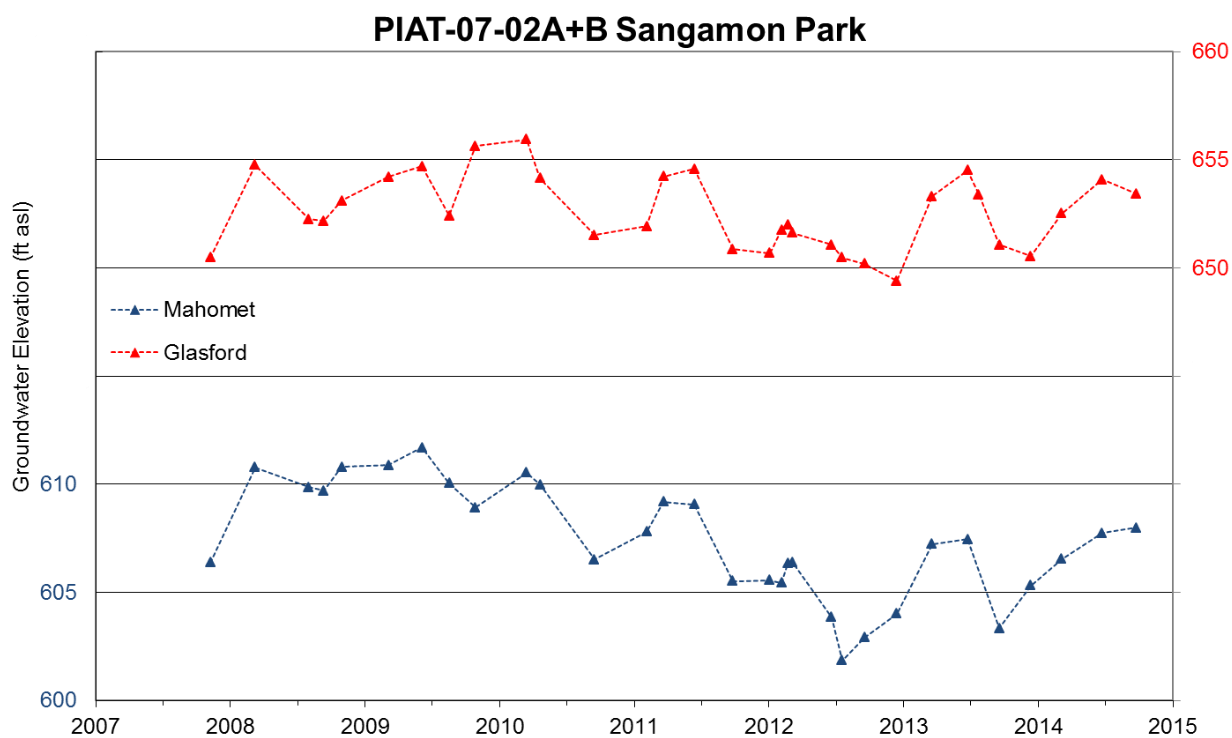

CHAM-07-03A+B Sadorus
Groundwater Elevation (ft asl)
Mahomet
Glasford
665
660
655
600
595
590
2007
2008
2009
2010
2011
2012
2013
2014
2015


CHAM-08-08A+B Lake of the Woods
Groundwater elevation (ft asl)
Mahomet
Glasford
680
675
670
620
615
610
2007
2008
2009
2010
2011
2012
2013
2014
2015

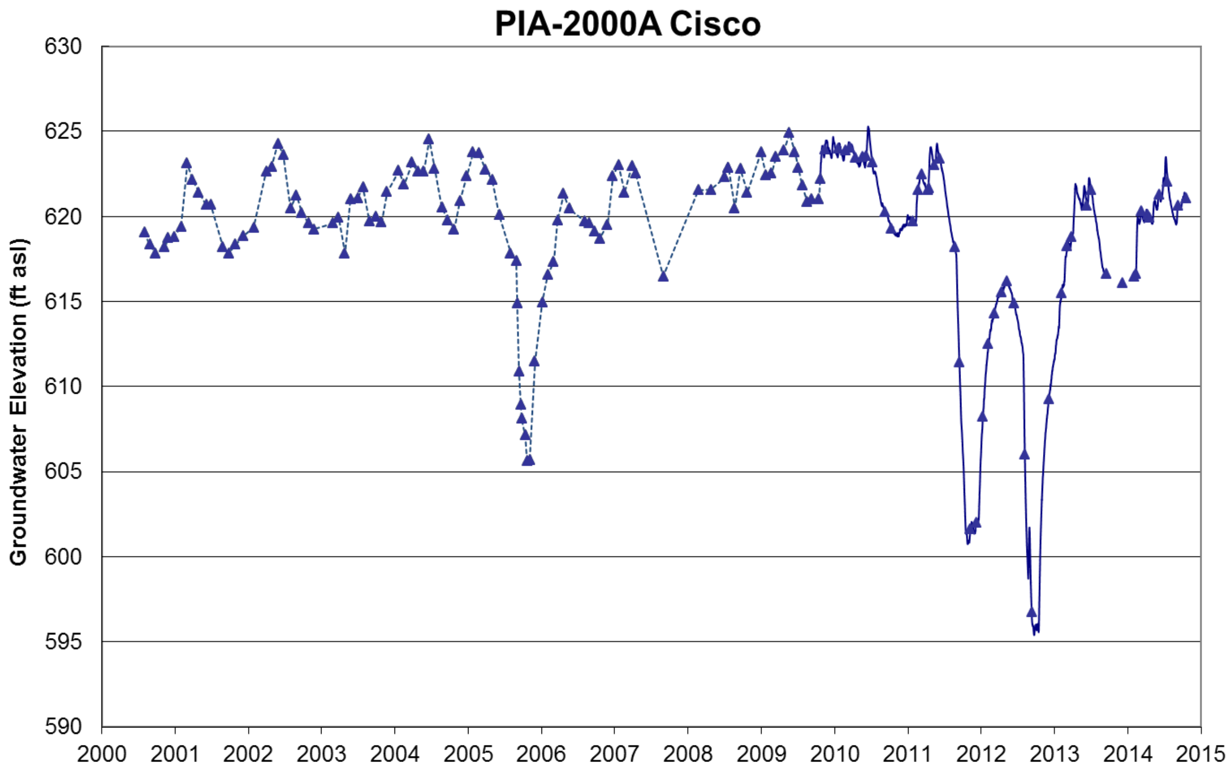

CHAM-07-06A+B River Bend
Groundwater Elevation (ft asl)
Mahomet
Glasford
675
670
665
615
610
605
2007
2008
2009
2010
2011
2012
2013
2014
2015

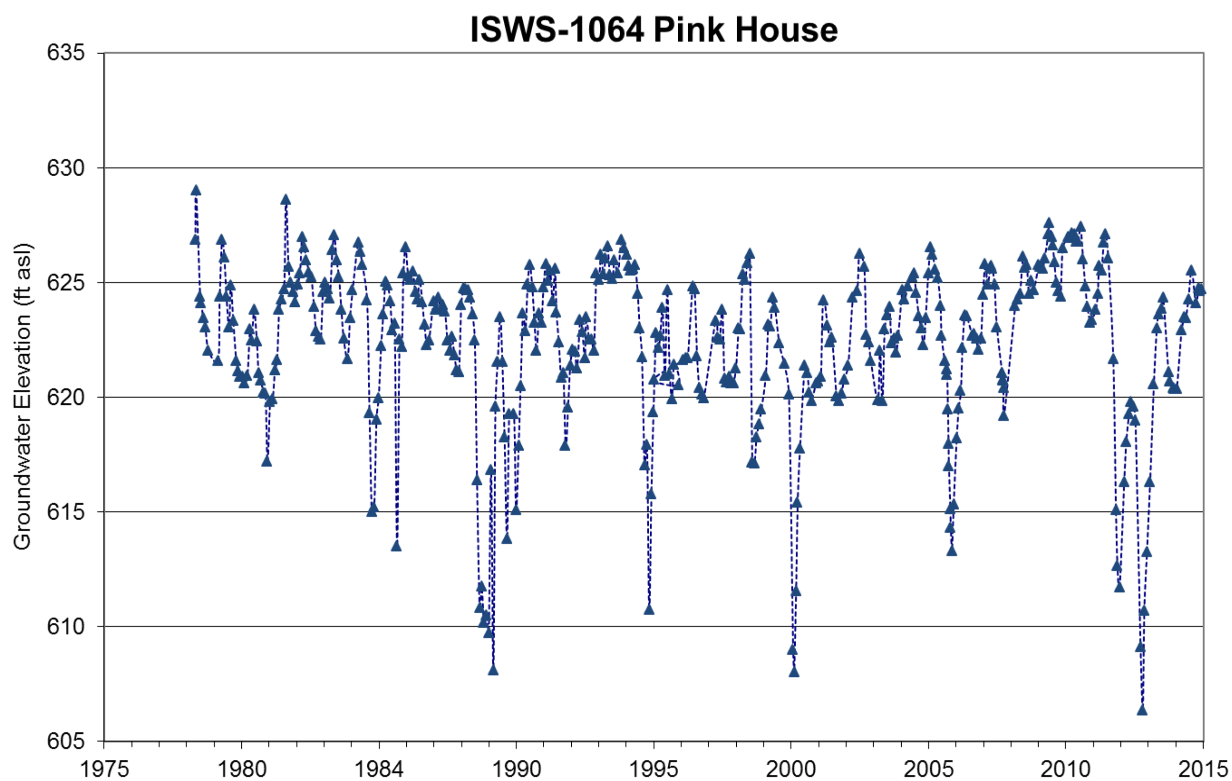


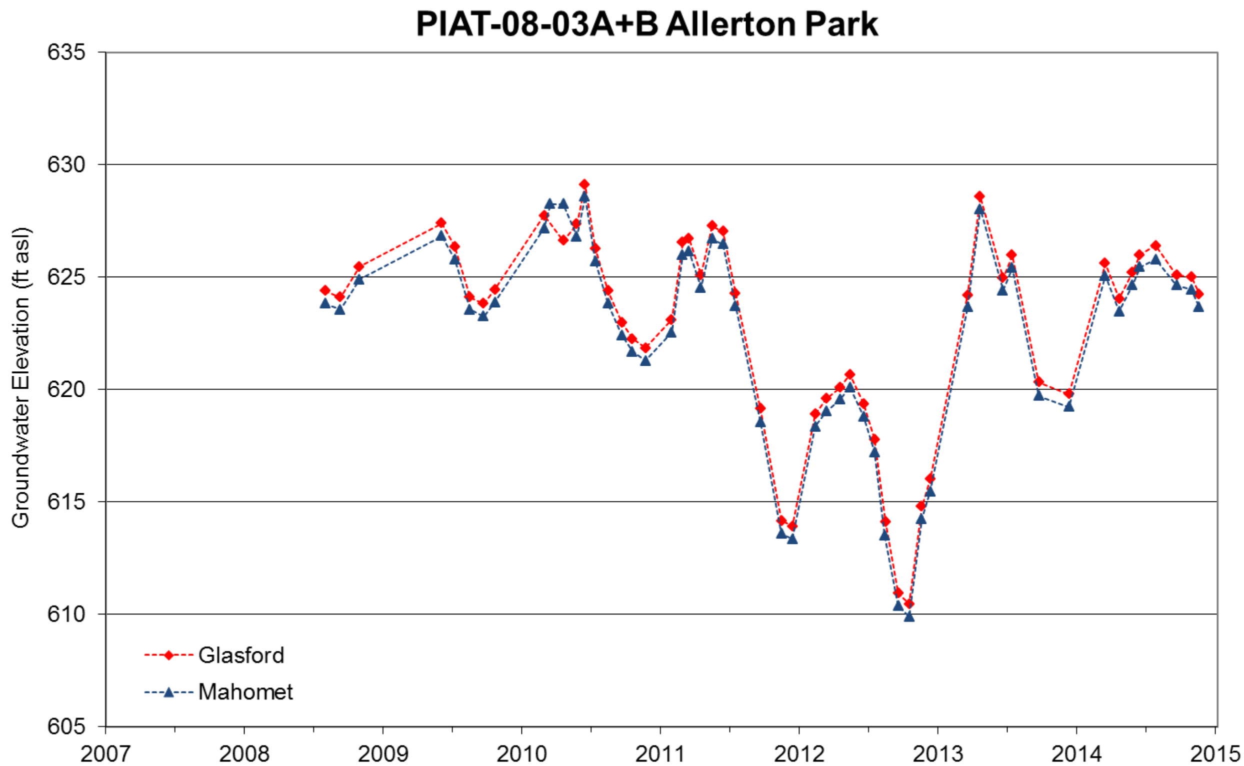
CHM-96C County Line
Groundwater Elevation (ft asl)
630
625
620
615
610
605
600
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014



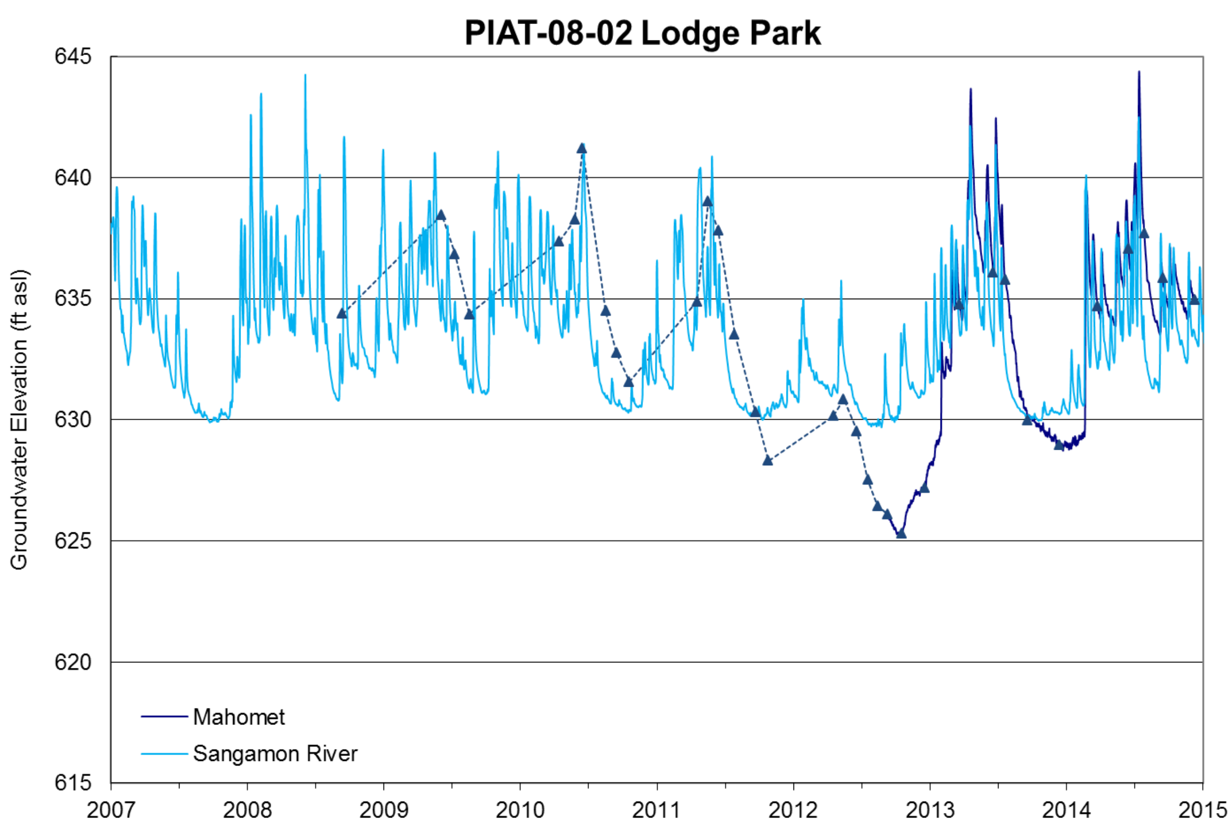
PIAT-07-02A+B Sangamon Park
Groundwater Elevation (ft asl)
Mahomet
Glasford
660
655
650
610
605
600
2007
2008
2009
2010
2011
2012
2013
2014
2015


PIA-2000A Cisco
Groundwater Elevation (ft asl)
630
625
620
615
610
605
600
595
590
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

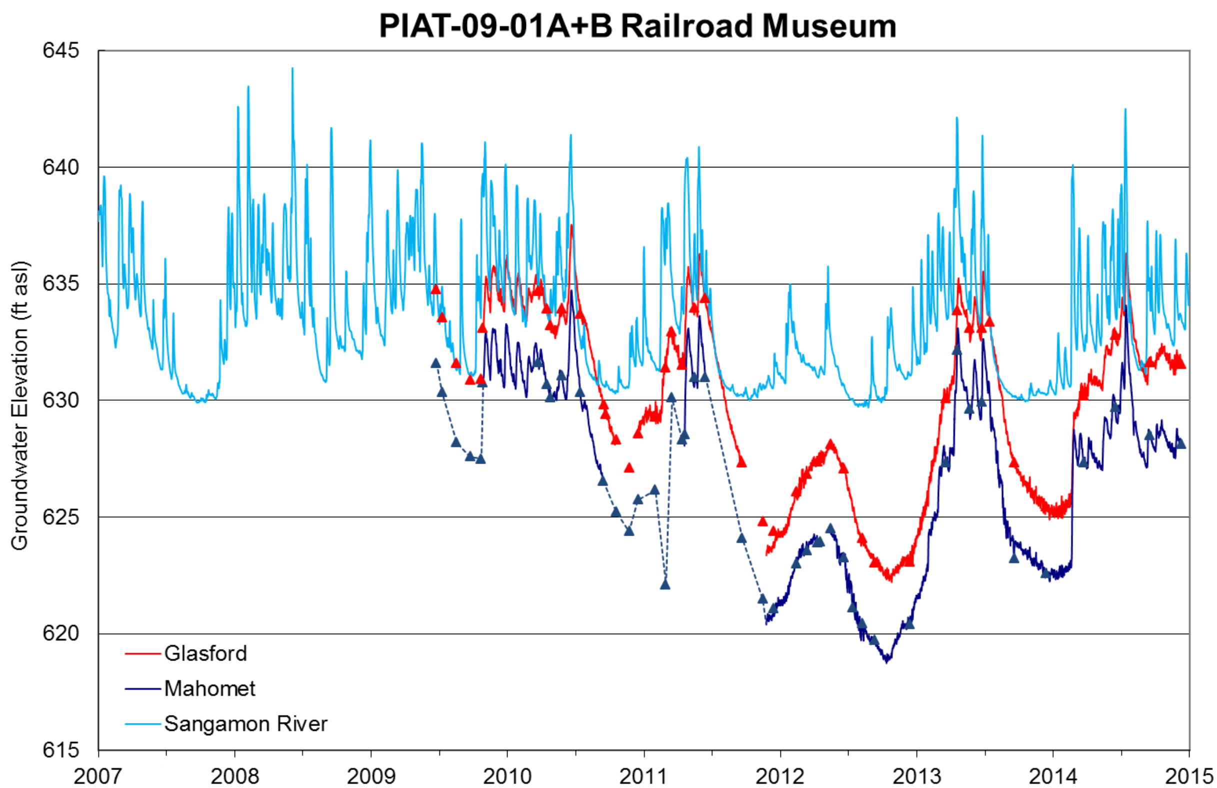

ISWS-1064 Pink House
Groundwater Elevation (ft asl)
635
630
625
620
615
610
605
1975
1980
1984
1990
1995
2000
2005
2010
2015

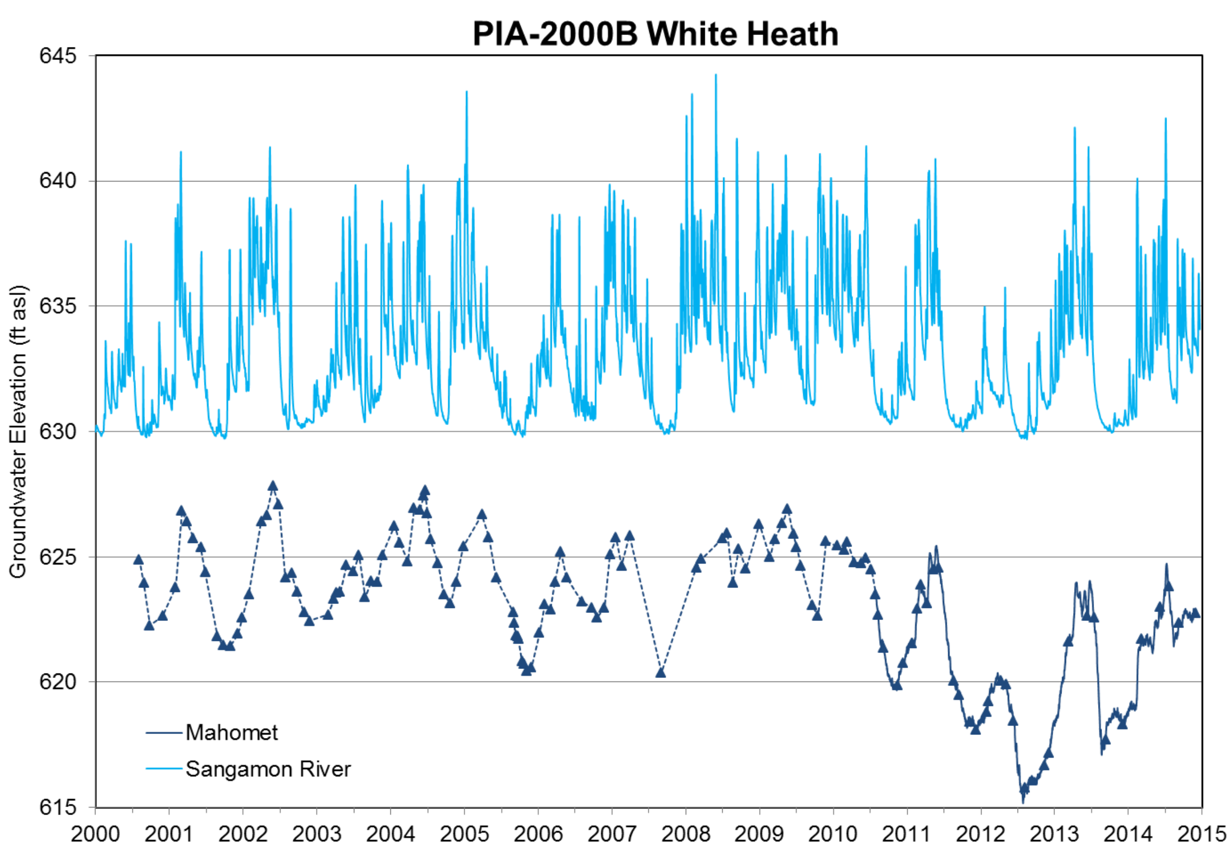


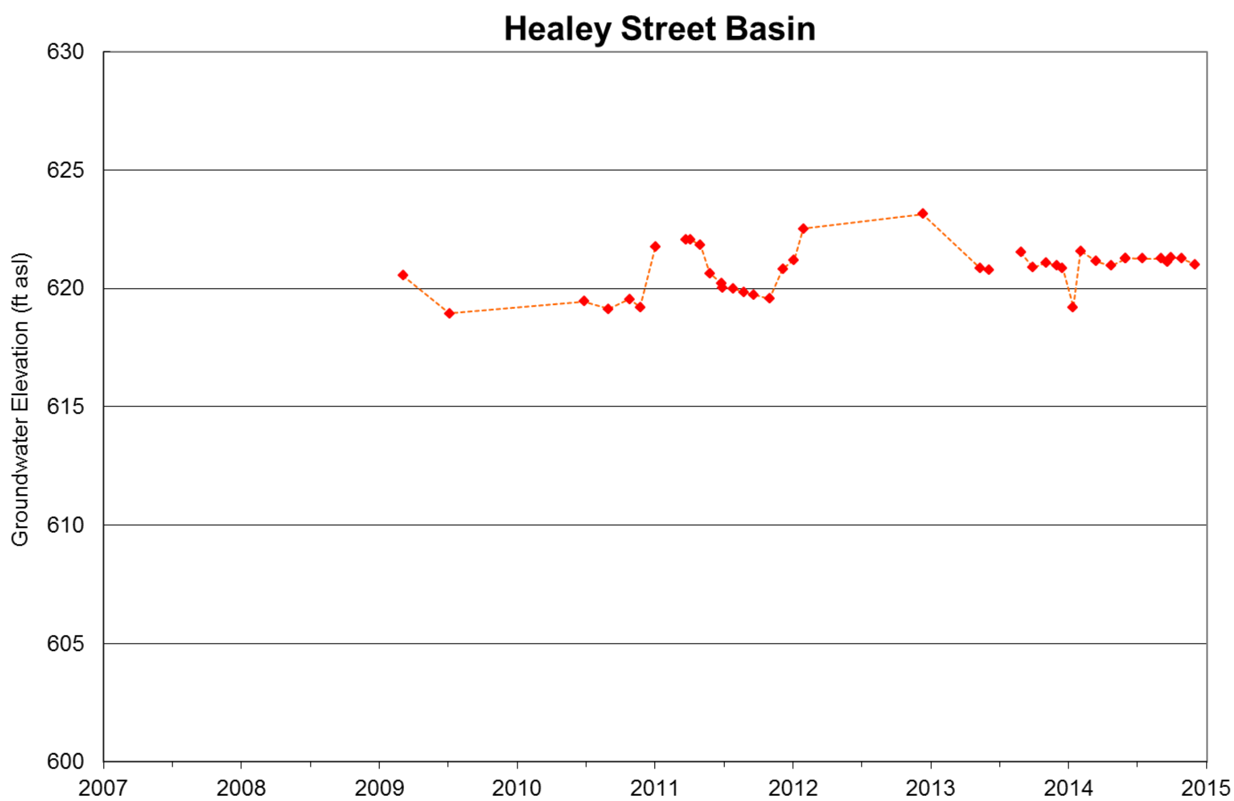
PIAT-08-03A+B Allerton Park
Groundwater Elevation (ft asl)
635
630
625
620
615
610
605
2007
2008
2009
2010
2011
2012
2013
2014
2015
Glasford
Mahomet

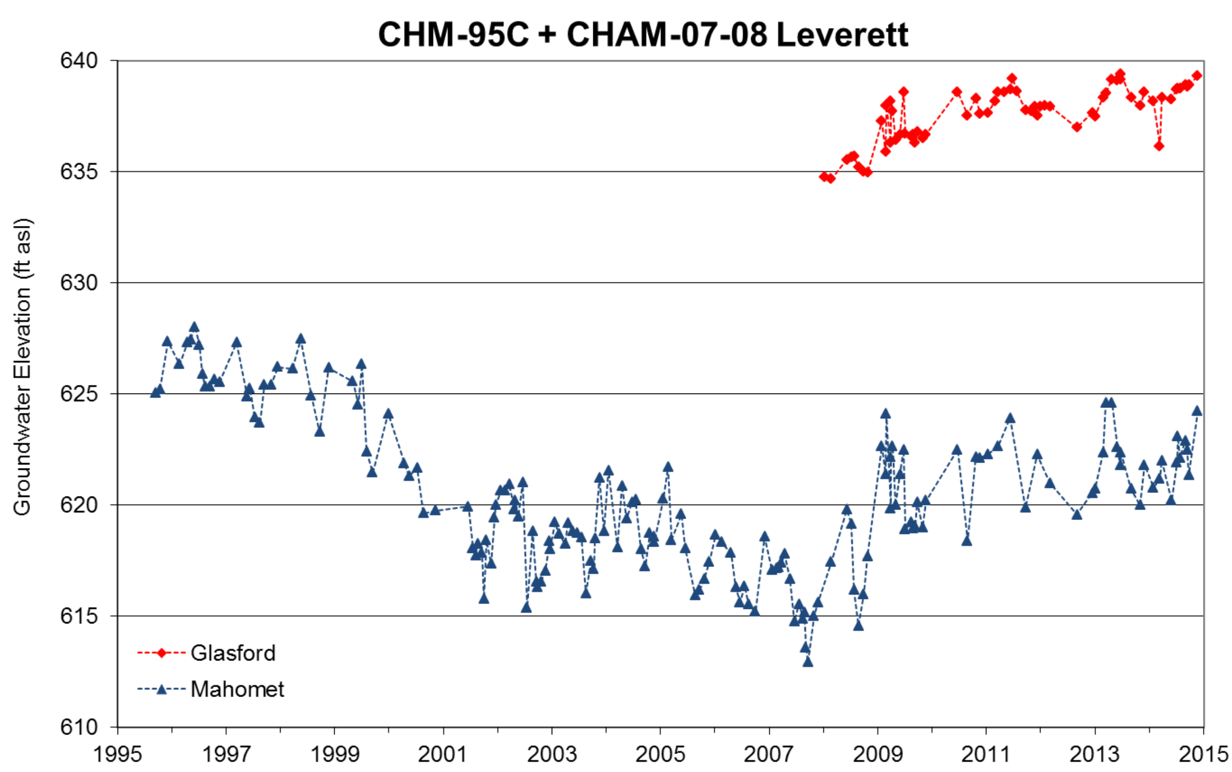


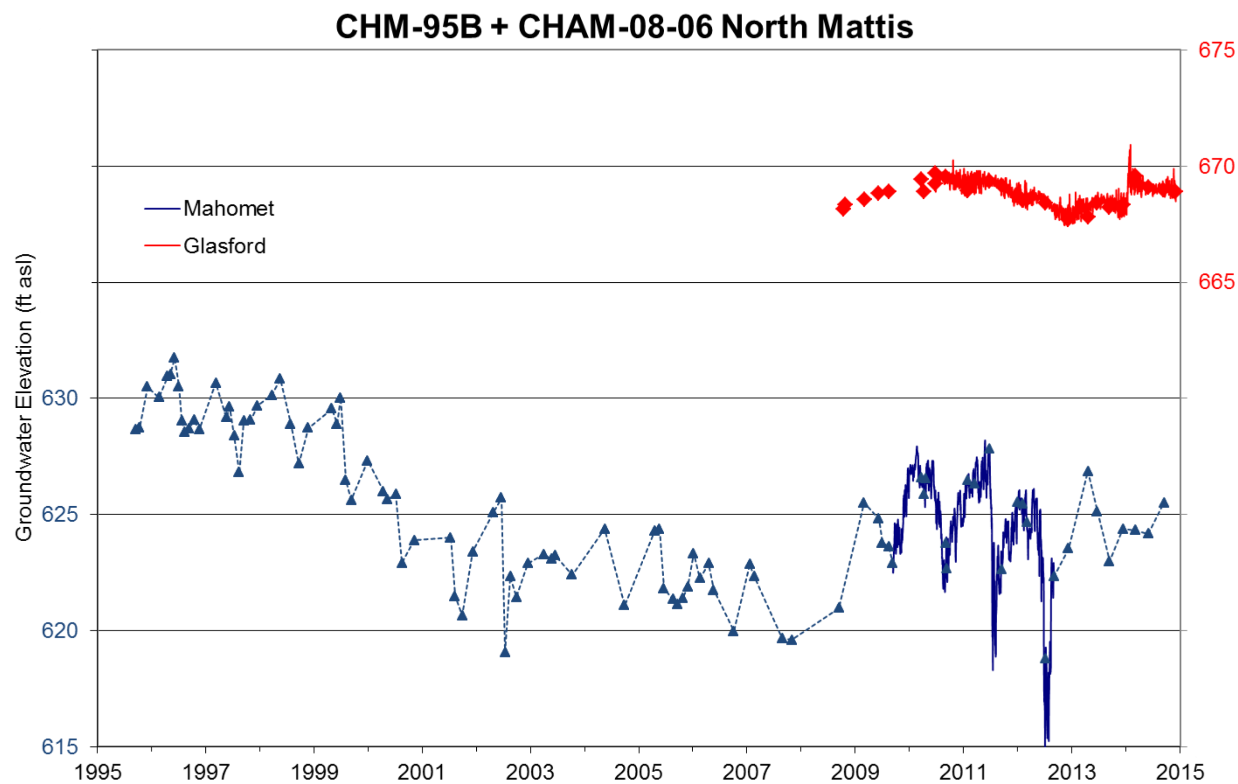
PIAT-08-02 Lodge Park
Groundwater Elevation (ft asl)
645
640
635
630
625
620
615
2007
2008
2009
2010
2011
2012
2013
2014
2015
Mahomet
Sangamon River

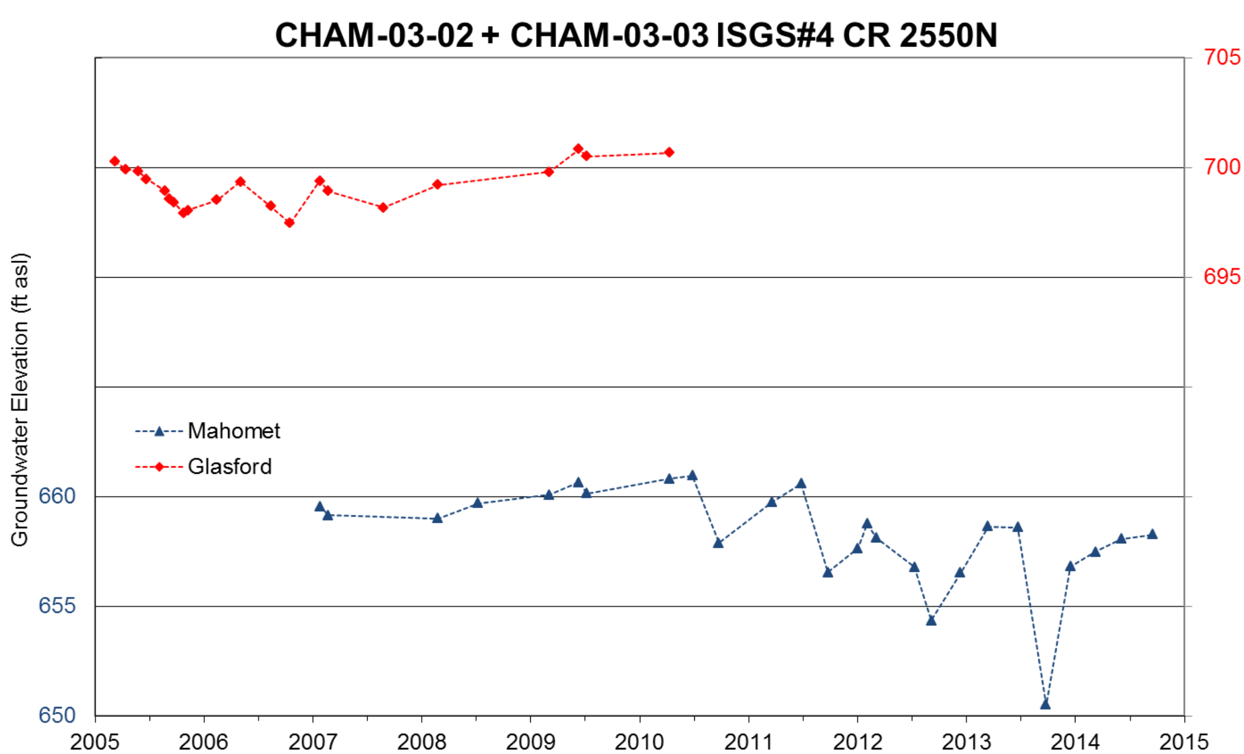

PIAT-09-01A+B Railroad Museum
Groundwater Elevation (ft asl)
645
640
635
630
625
620
615
2007
2008
2009
2010
2011
2012
2013
2014
2015
Glasford
Mahomet
Sangamon River

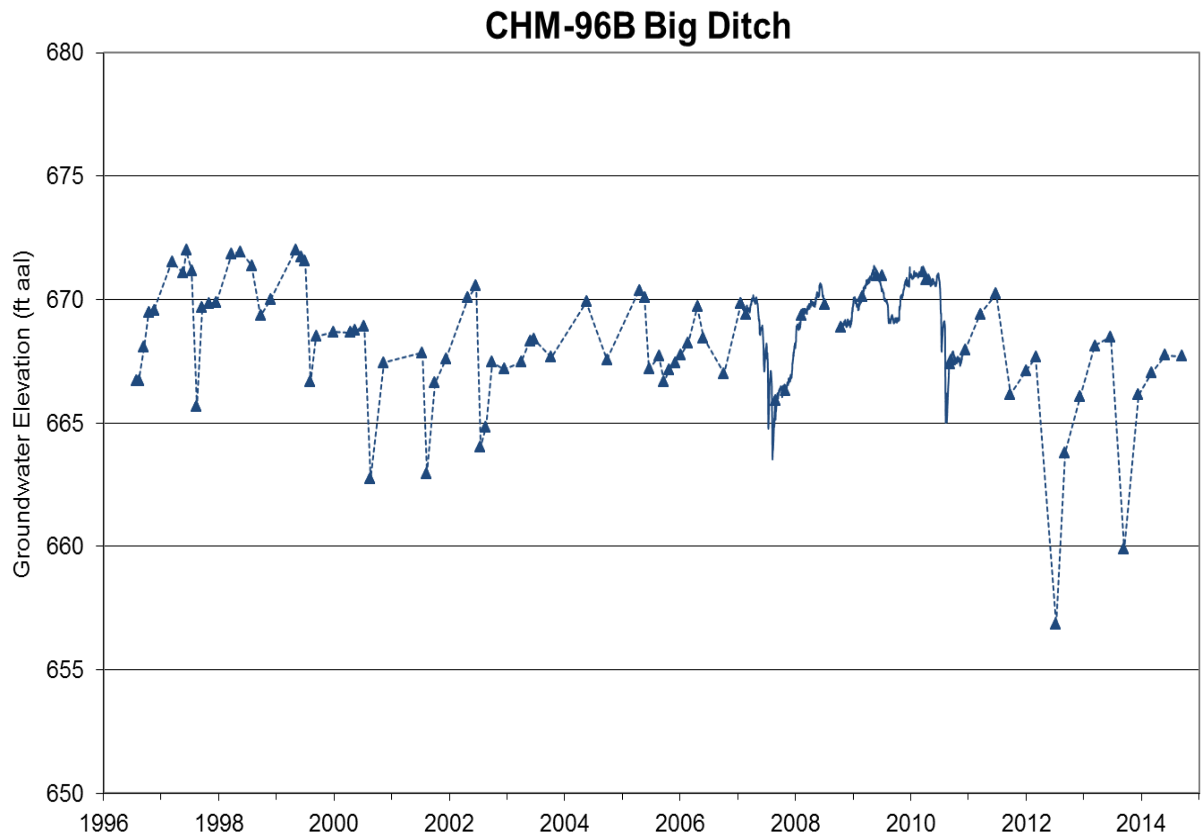

PIA-2000B White Heath
Groundwater Elevation (ft asl)
645
640
635
630
625
620
615
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Mahomet
Sangamon River

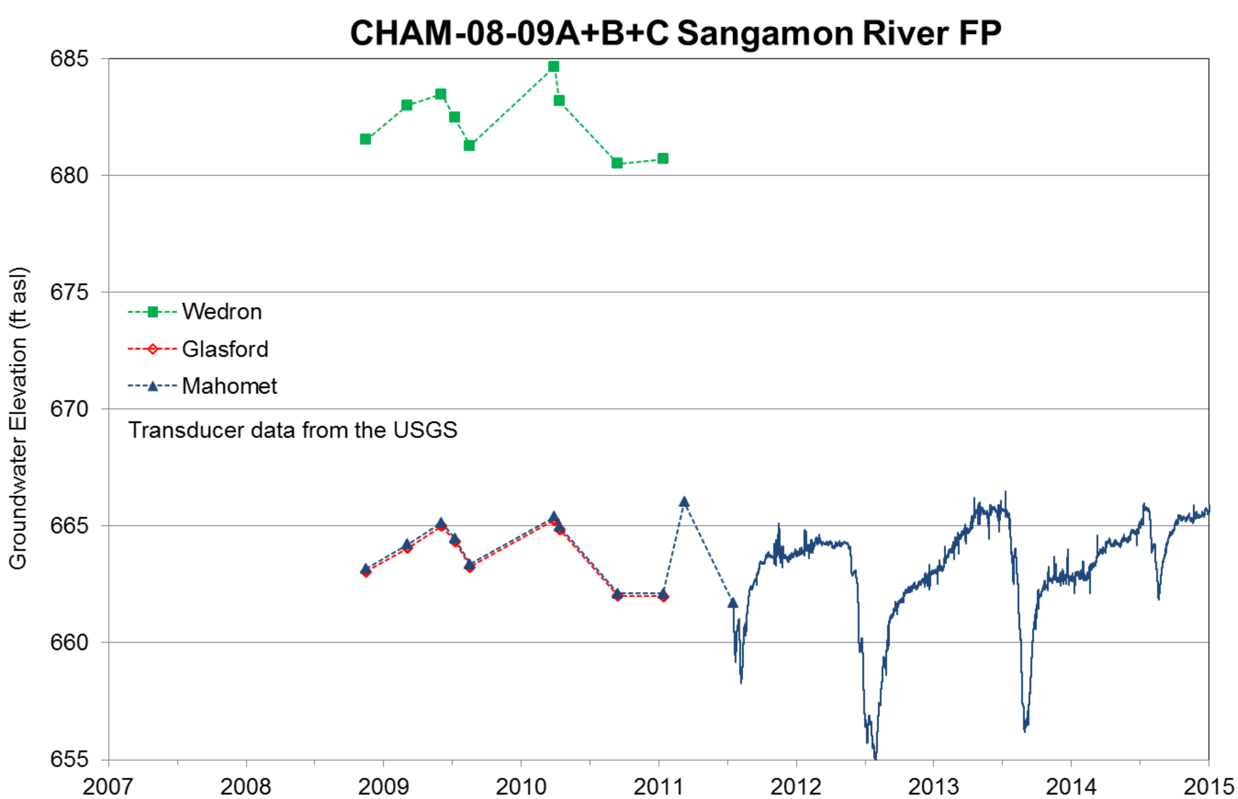

Healey Street Basin
Groundwater Elevation (ft asl)
630
625
620
615
610
605
600
2007
2008
2009
2010
2011
2012
2013
2014
2015

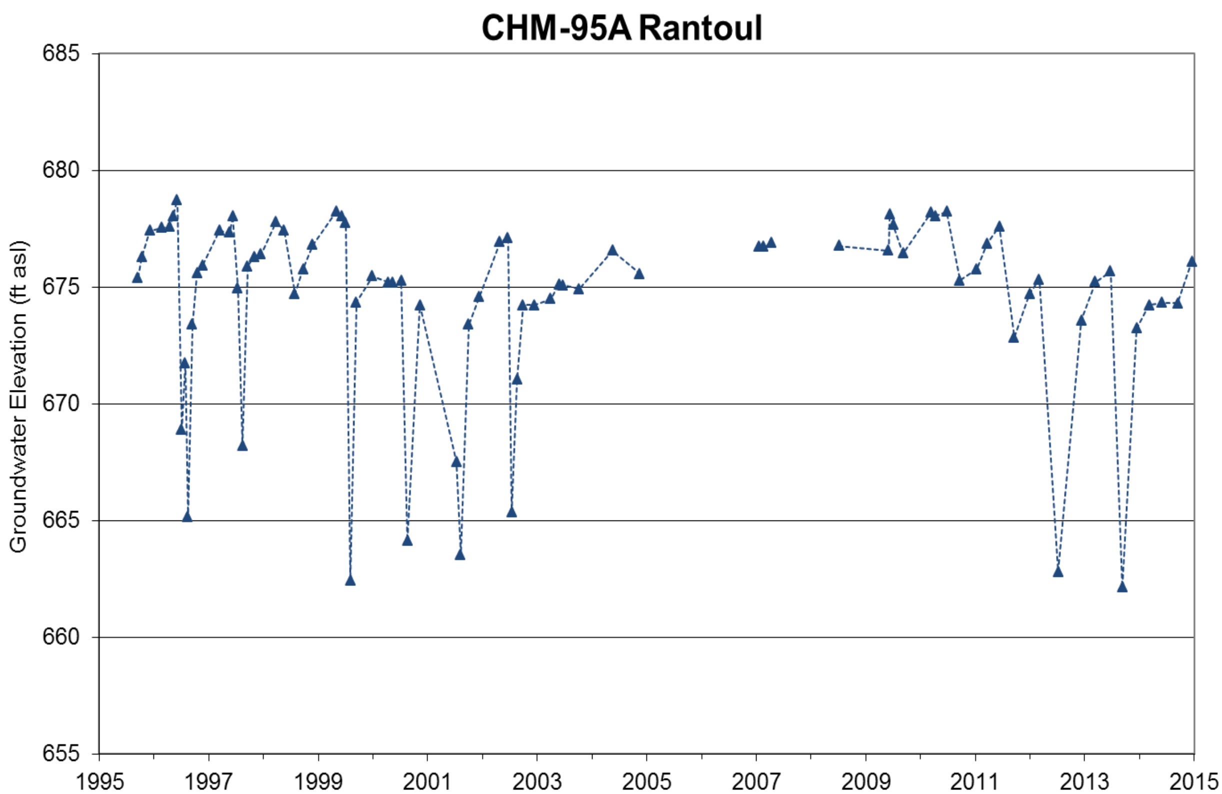

CHM-95C + CHAM-07-08 Leverett
Groundwater Elevation (ft asl)
640
635
630
625
620
615
610
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
Glasford
Mahomet

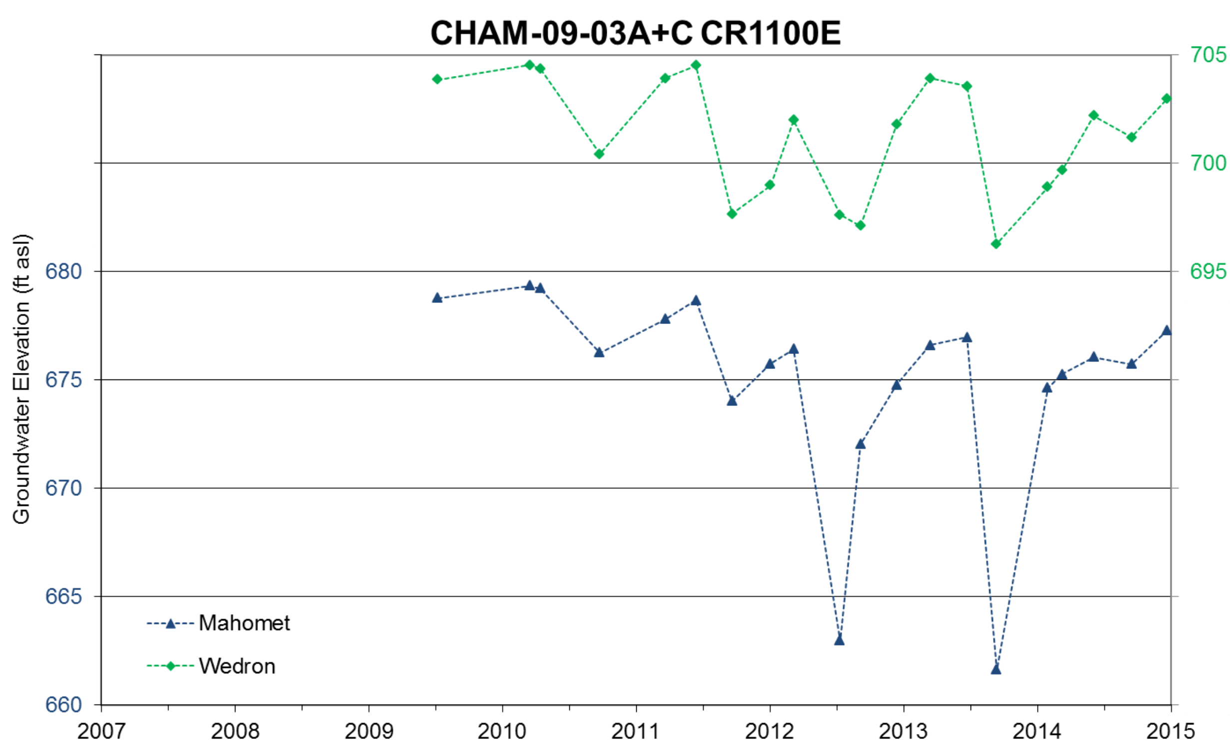

CHM-95B + CHAM-08-06 North Mattis
Mahomet
Glasford
Groundwater Elevation (ft asl)
615
620
625
630
665
670
675
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015

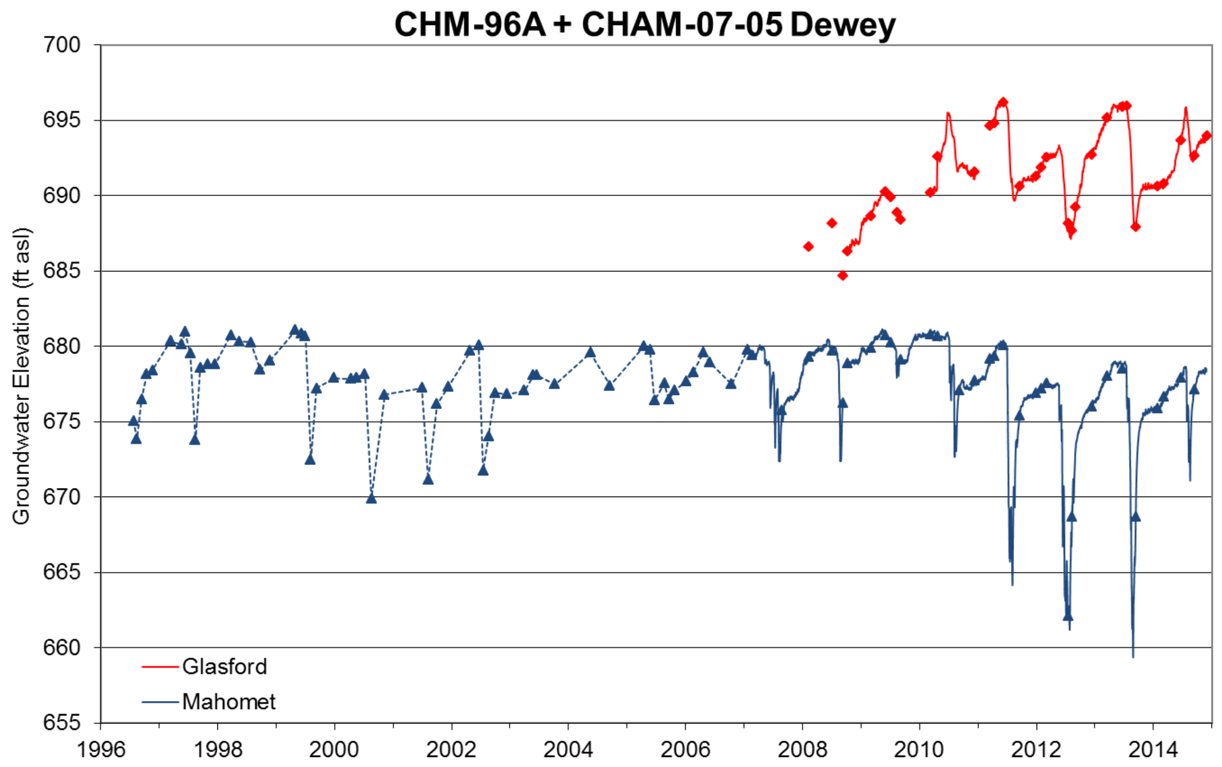

CHAM-03-02 + CHAM-03-03 ISGS#4 CR 2550N
Mahomet
Glasford
Groundwater Elevation (ft asl)
650
655
660
695
700
705
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

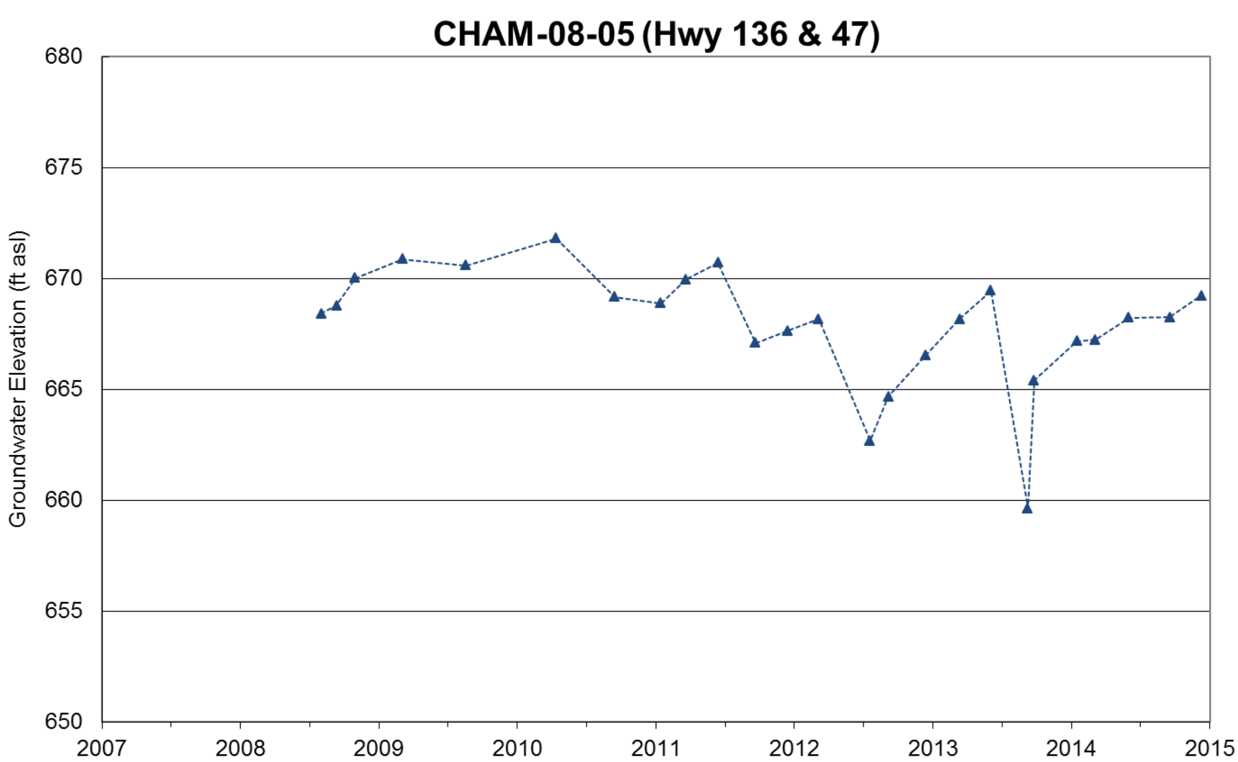

CHM-96B Big Ditch
Groundwater Elevation (ft aal)
680
675
670
665
660
655
650
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014

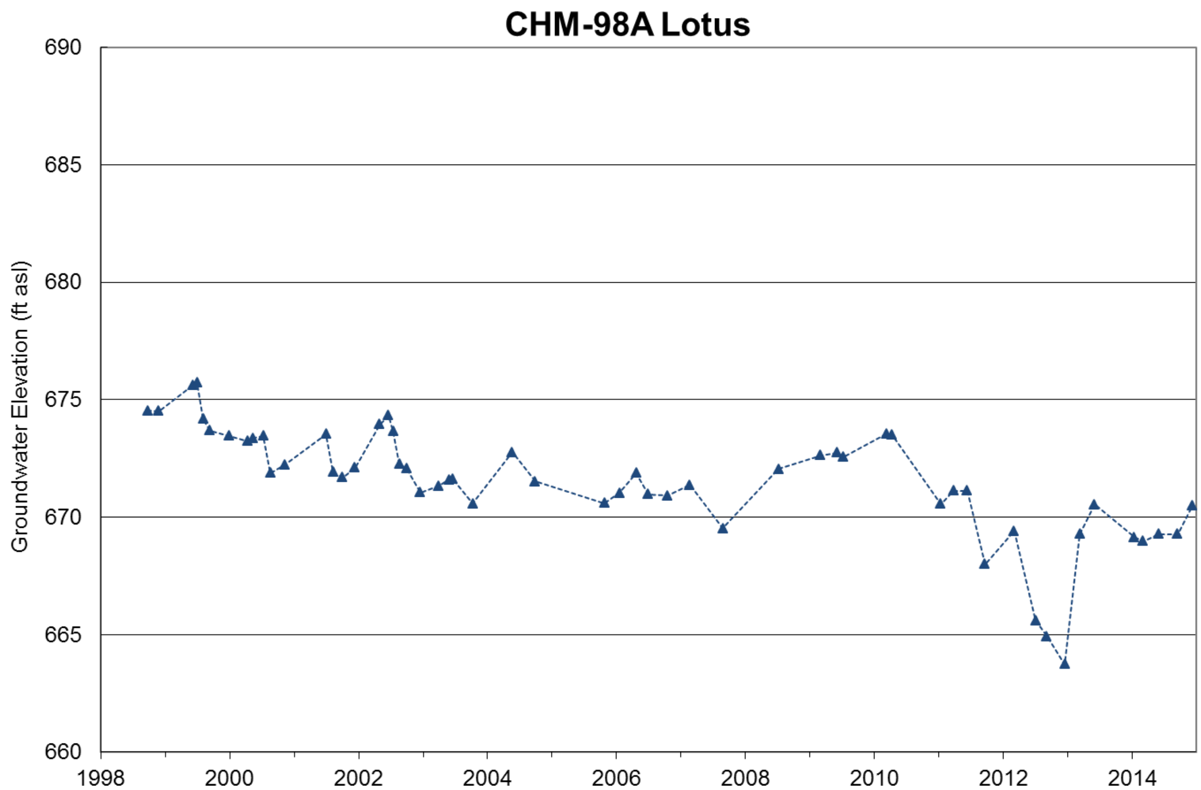

CHAM-08-09A+B+C Sangamon River FP
Groundwater Elevation (ft asl)
685
680
675
670
665
660
655
2007
2008
2009
2010
2011
2012
2013
2014
2015
Wedron
Glasford
Mahomet
Transducer data from the USGS

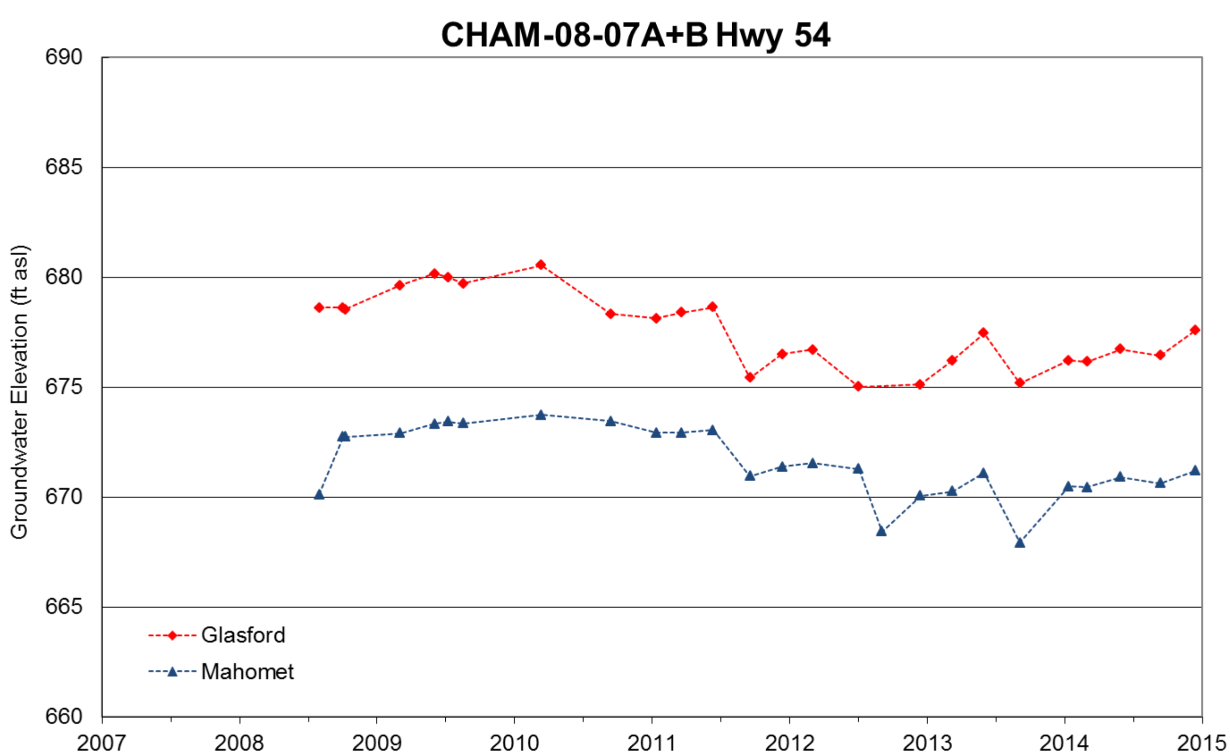

CHM-95A Rantoul
Groundwater Elevation (ft asl)
685
680
675
670
665
660
655
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015

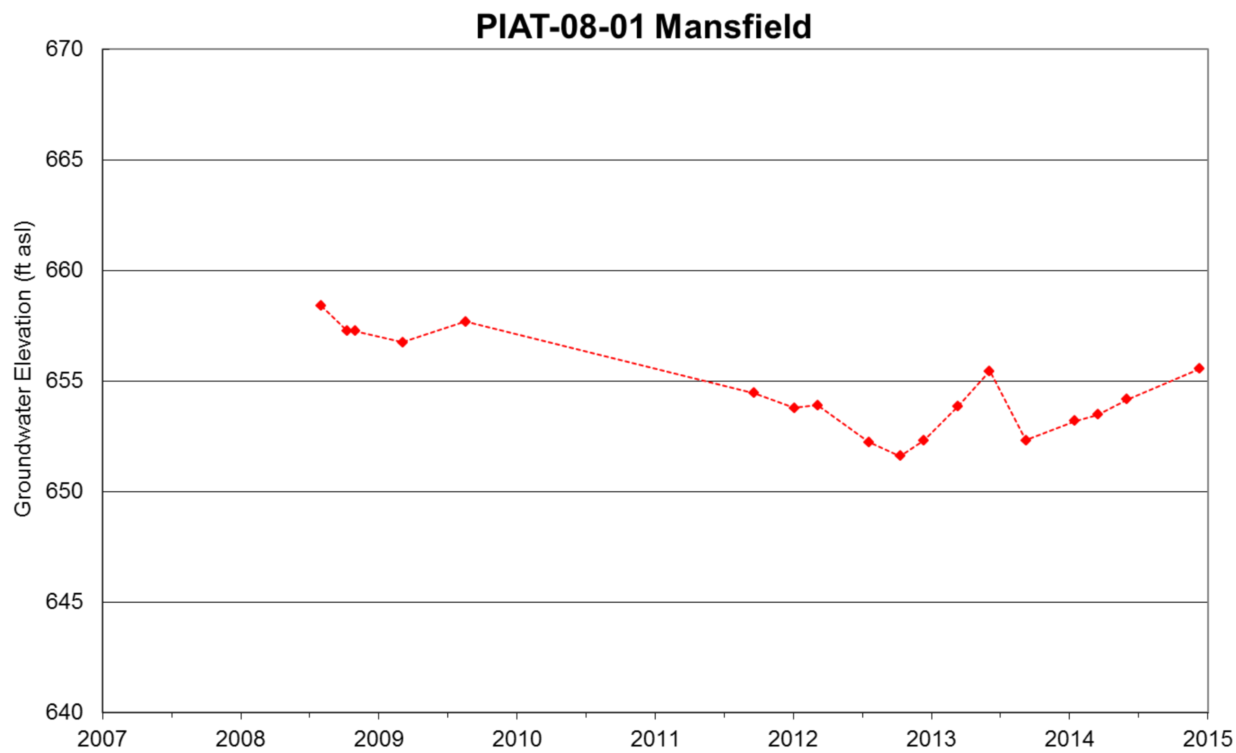

CHAM-09-03A+C CR1100E
Groundwater Elevation (ft asl)
680
675
670
665
660
705
700
695
2007
2008
2009
2010
2011
2012
2013
2014
2015
Mahomet
Wedron

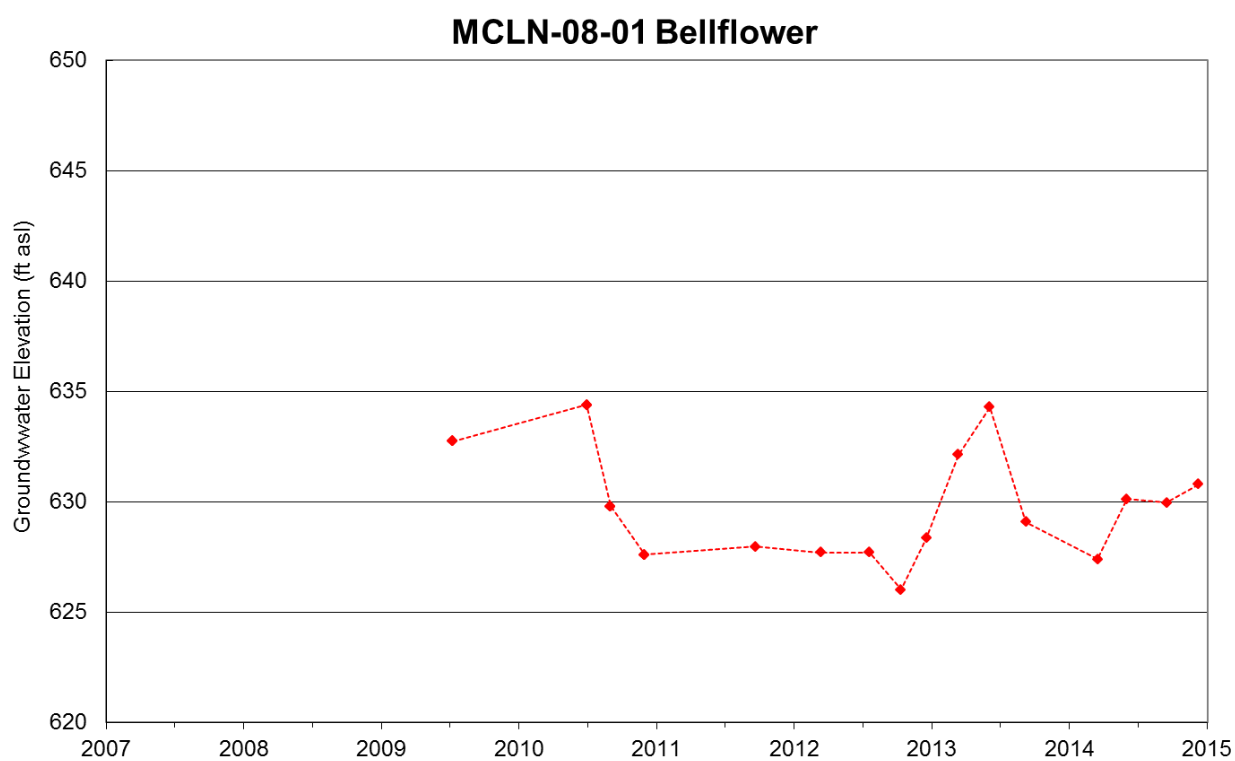

CHM-96A + CHAM-07-05 Dewey
Groundwater Elevation (ft asl)
700
695
690
685
680
675
670
665
660
655
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
Glasford
Mahomet

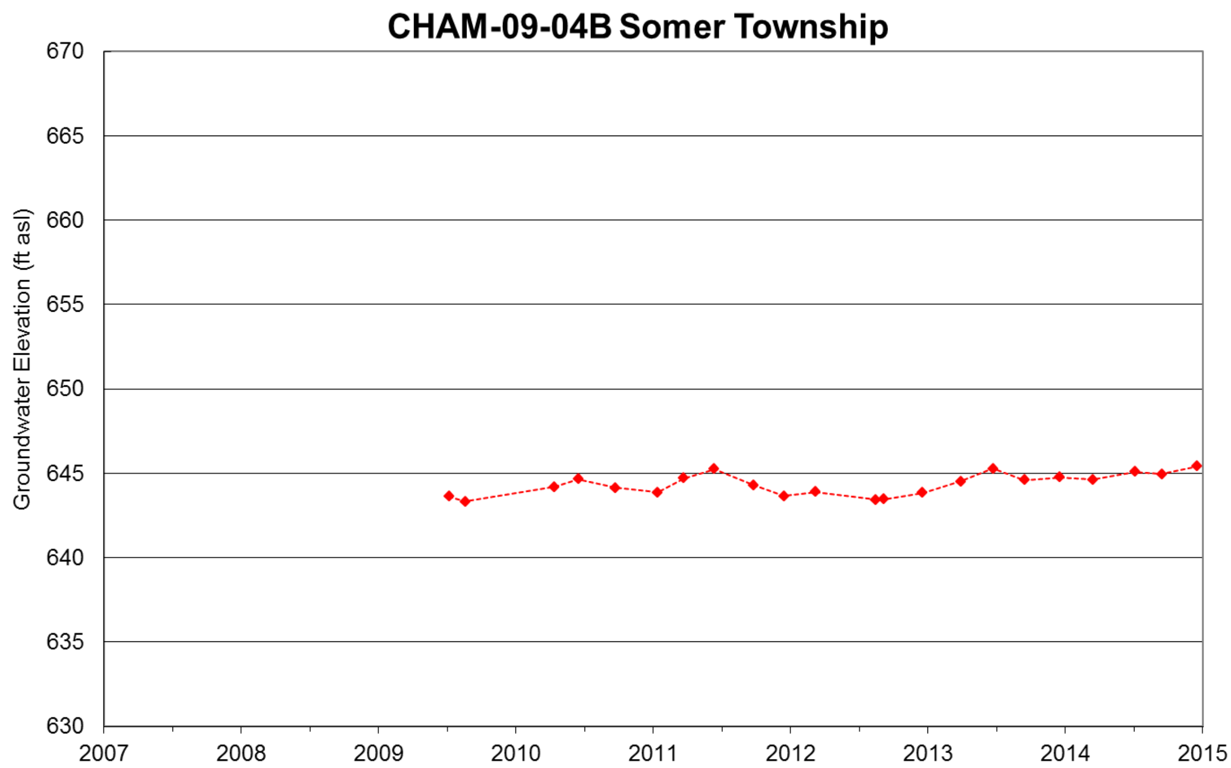

CHAM-08-05 (Hwy 136 & 47)
Groundwater Elevation (ft asl)
680
675
670
665
660
655
650
2007
2008
2009
2010
2011
2012
2013
2014
2015

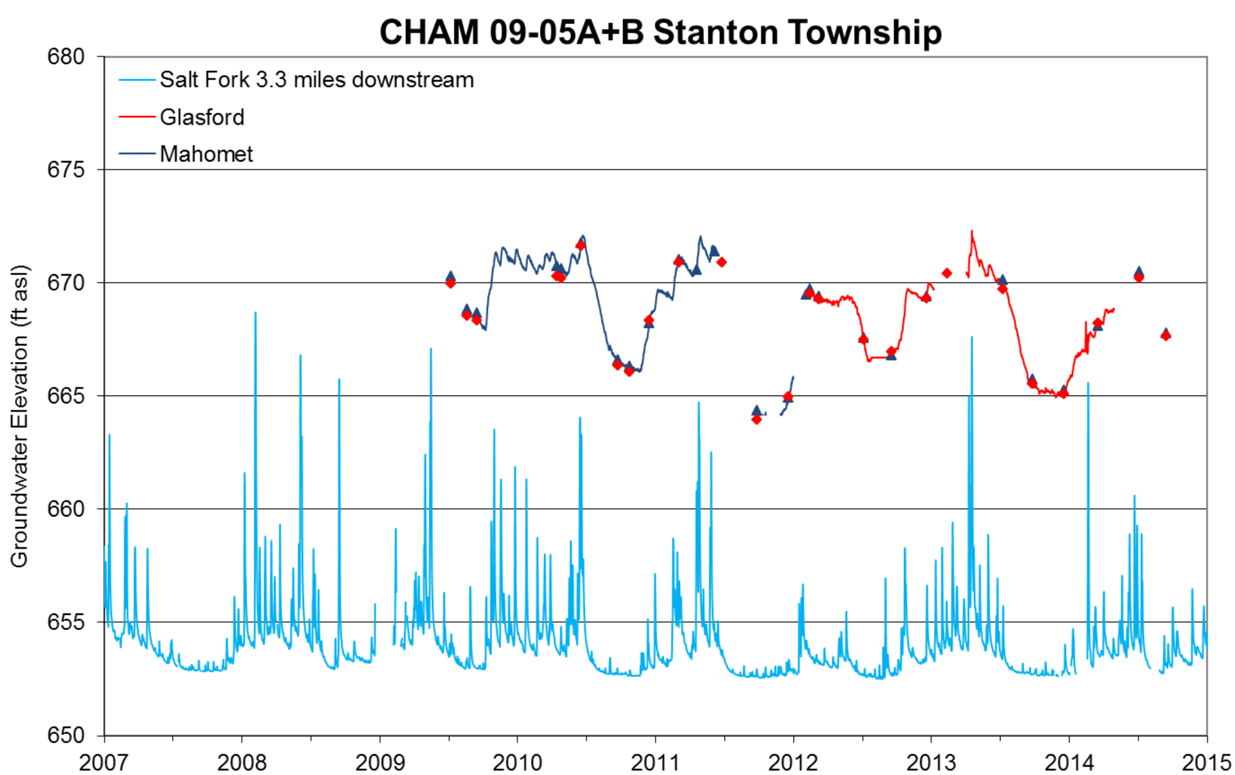

CHM-98A Lotus
Groundwater Elevation (ft asl)
690
685
680
675
670
665
660
1998
2000
2002
2004
2006
2008
2010
2012
2014

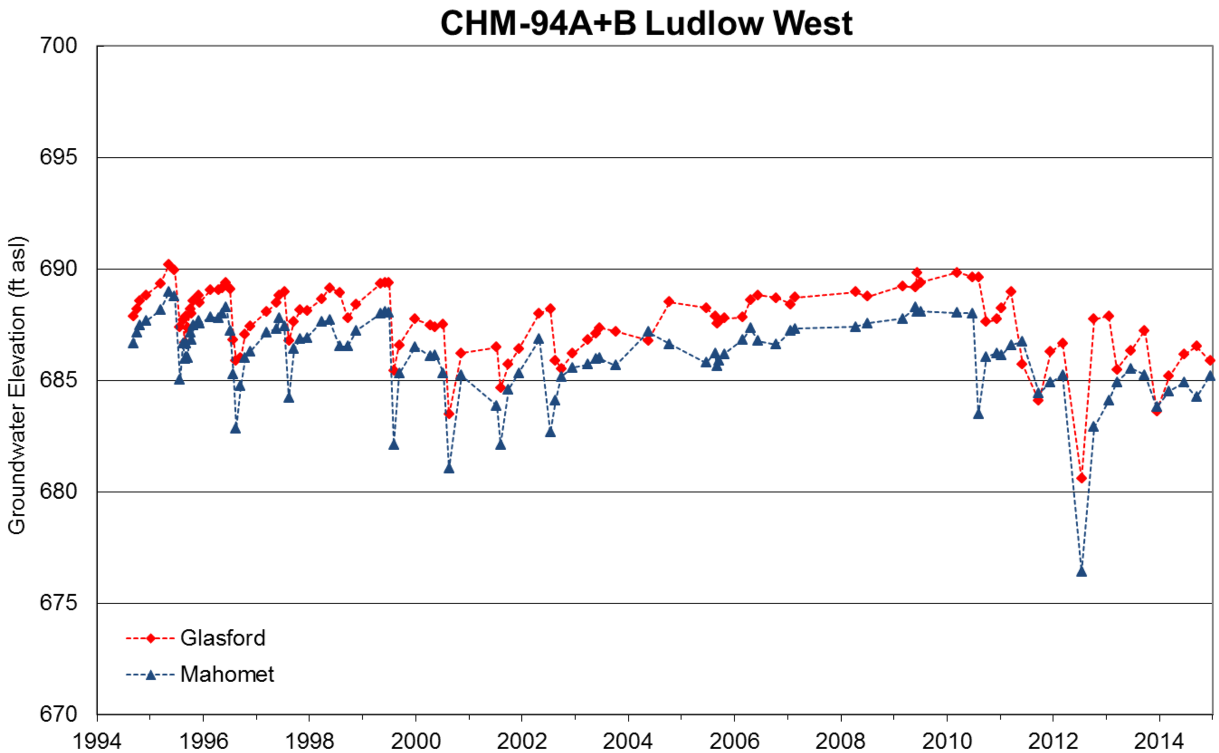

CHAM-08-07A+B Hwy 54
Groundwater Elevation (ft asl)
690
685
680
675
670
665
660
2007
2008
2009
2010
2011
2012
2013
2014
2015
Glasford
Mahomet

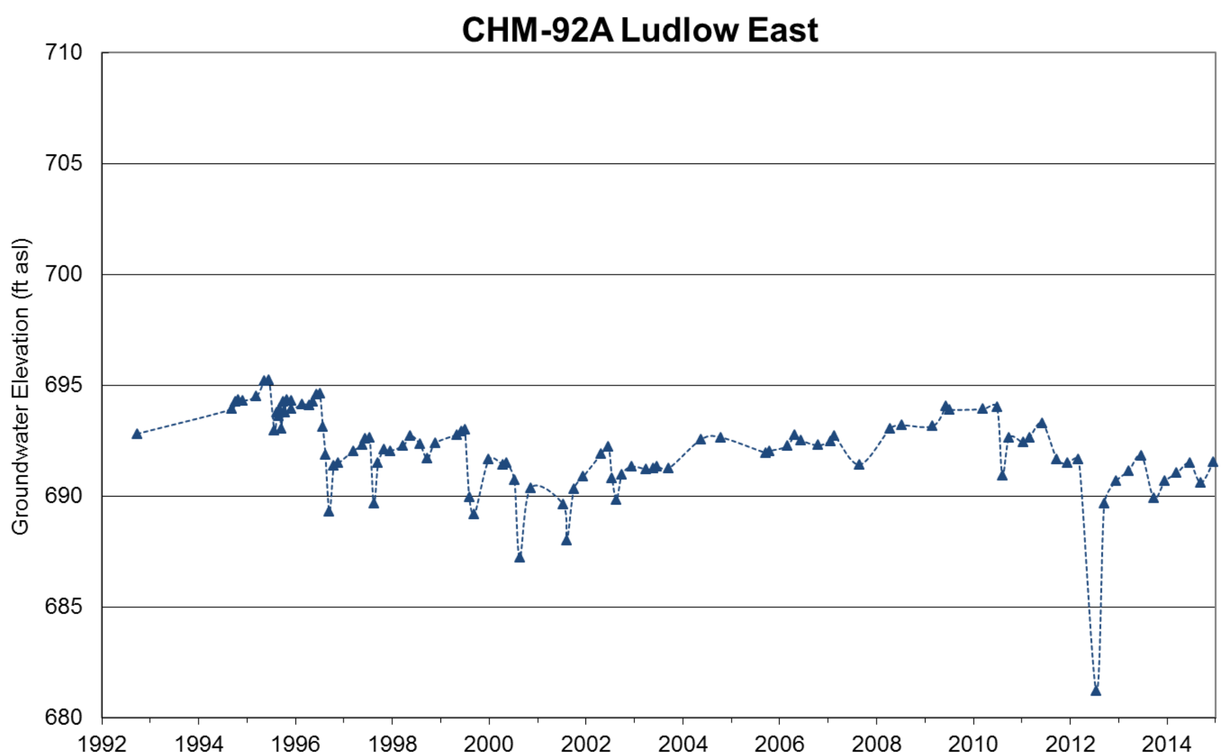

PIAT-08-01 Mansfield
Groundwater Elevation (ft asl)
670
665
660
655
650
645
640
2007
2008
2009
2010
2011
2012
2013
2014
2015

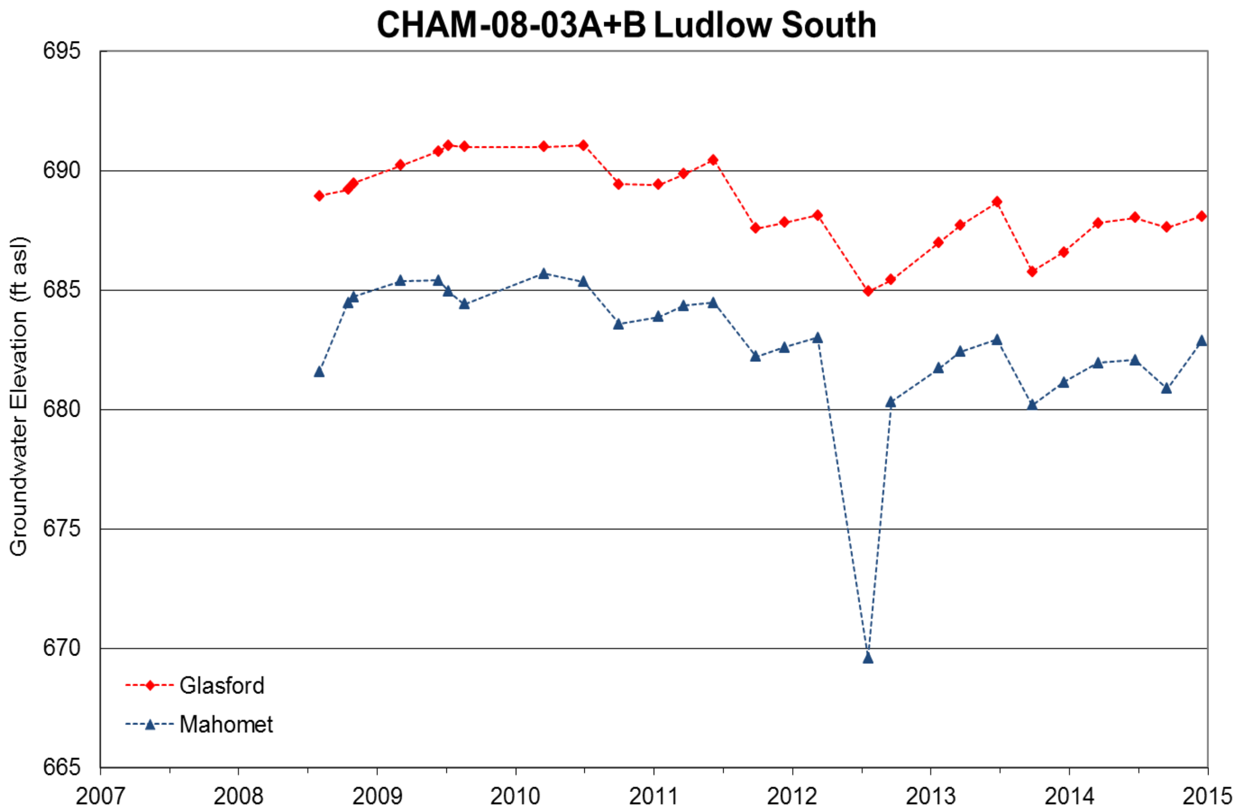

MCLN-08-01 Bellflower
Groundwwater Elevation (ft asl)
650
645
640
635
630
625
620
2007
2008
2009
2010
2011
2012
2013
2014
2015

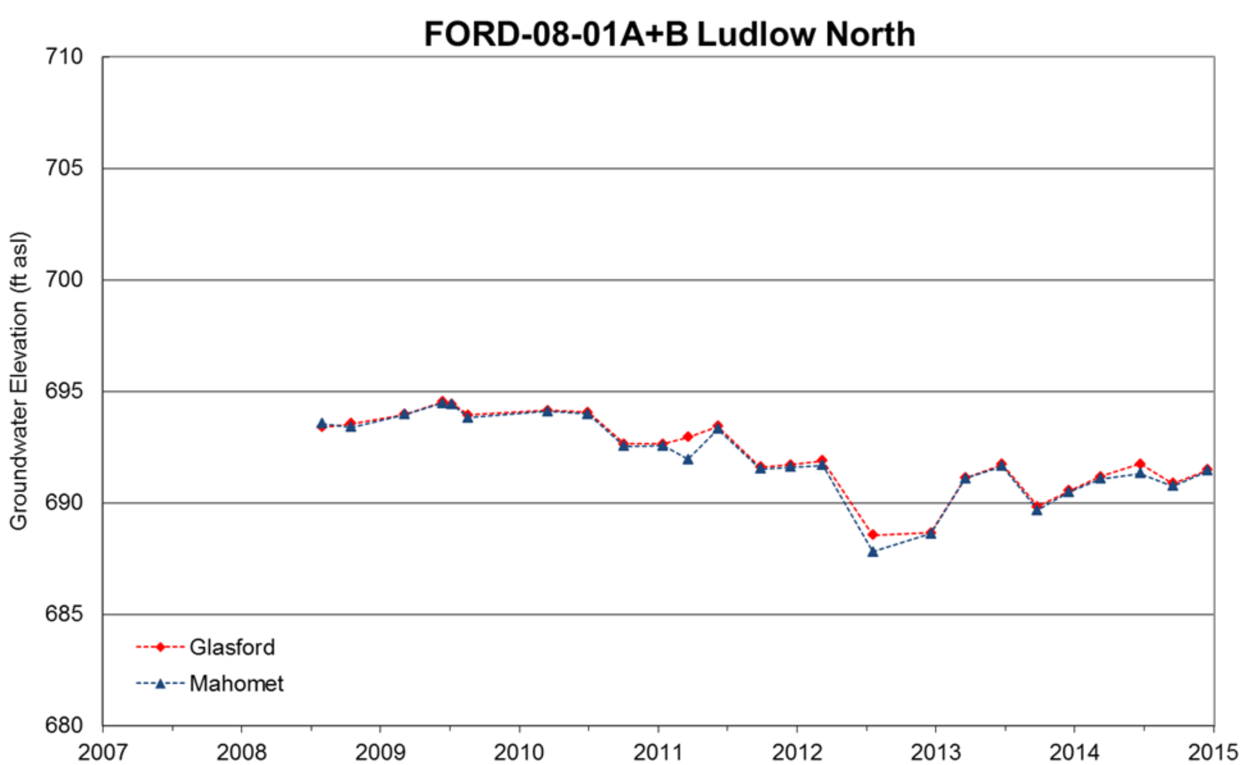

CHAM-09-04B Somer Township
Groundwater Elevation (ft asl)
670
665
660
655
650
645
640
635
630
2007
2008
2009
2010
2011
2012
2013
2014
2015

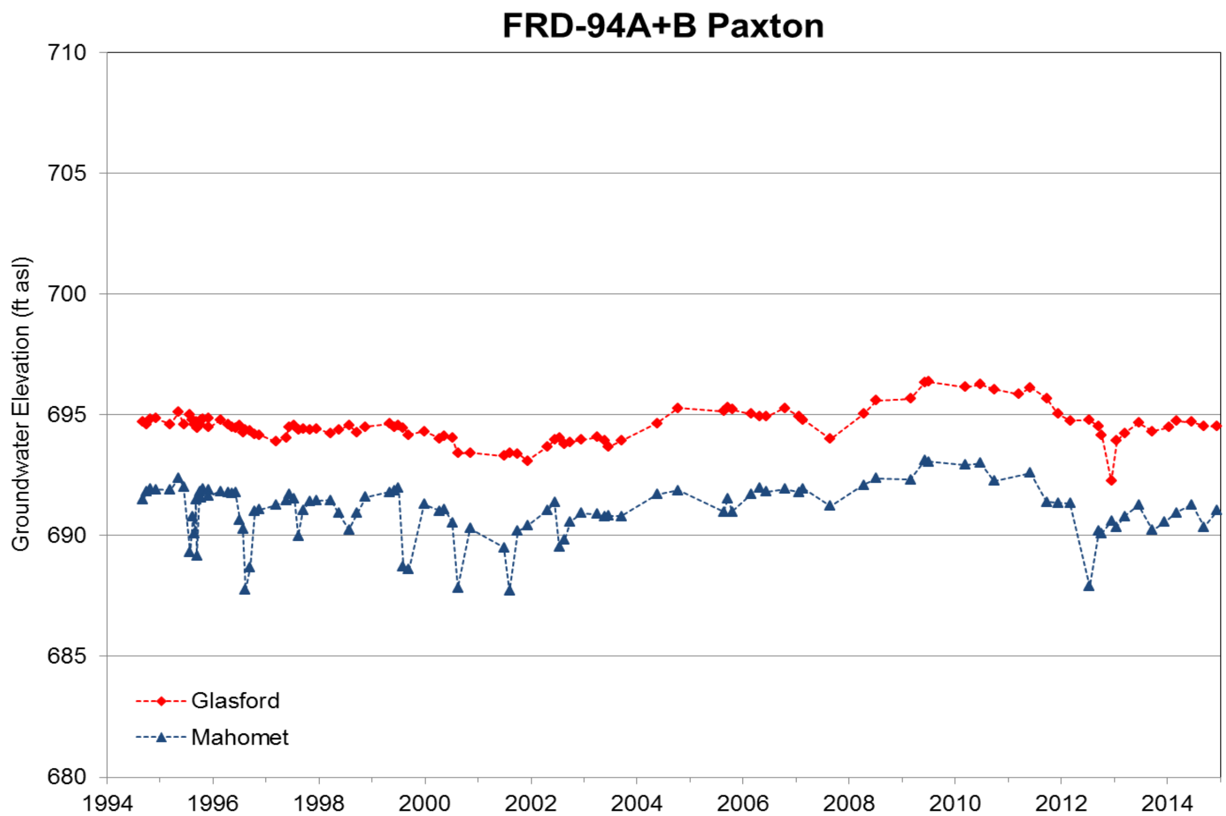

CHAM 09-05A+B Stanton Township
Salt Fork 3.3 miles downstream
Glasford
Mahomet
Groundwater Elevation (ft asl)
680
675
670
665
660
655
650
2007
2008
2009
2010
2011
2012
2013
2014
2015

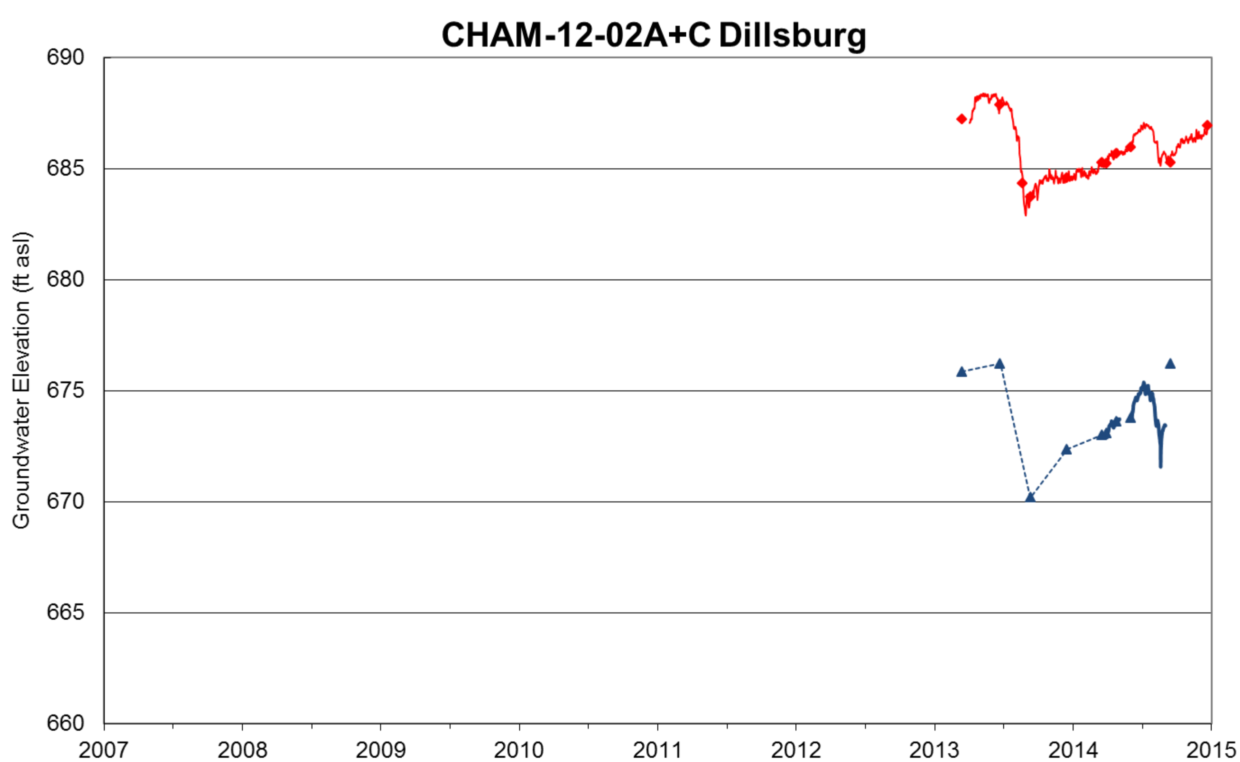

CHM-94A+B Ludlow West
Groundwater Elevation (ft asl)
700
695
690
685
680
675
670
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
Glasford
Mahomet

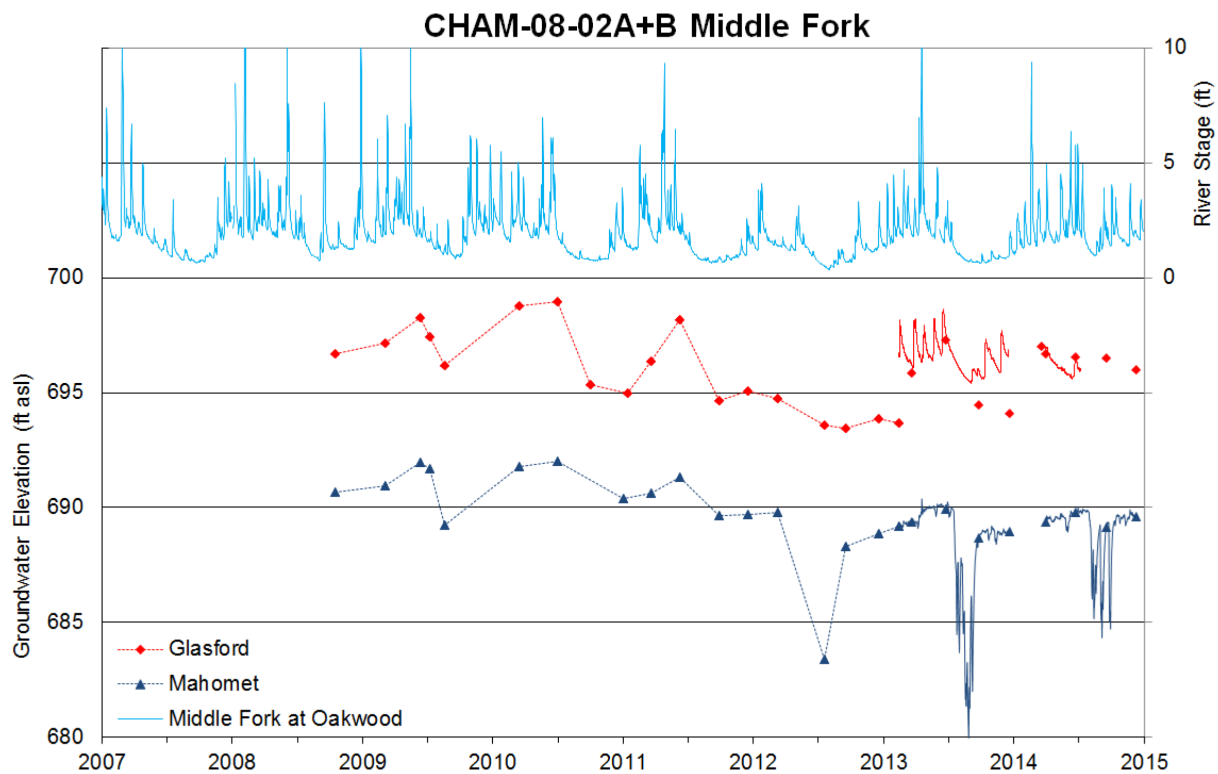

CHM-92A Ludlow East
Groundwater Elevation (ft asl)
710
705
700
695
690
685
680
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014

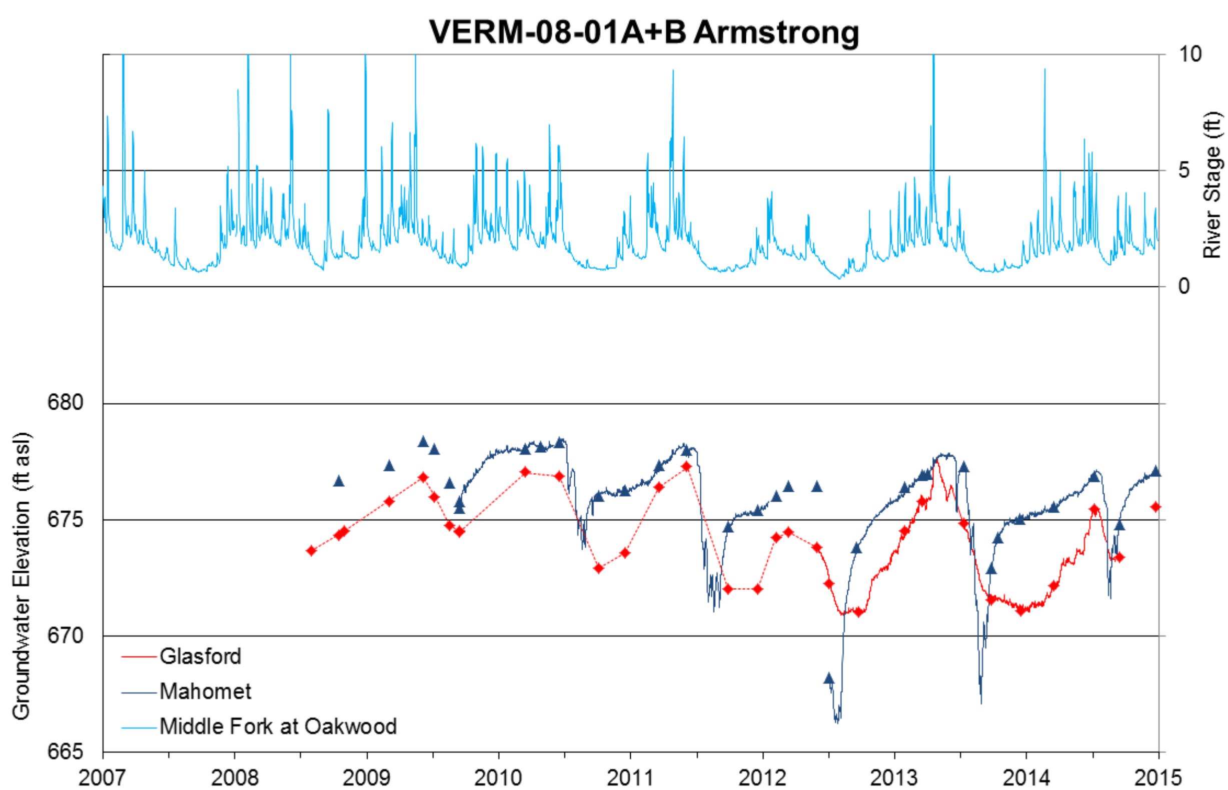

CHAM-08-03A+B Ludlow South
Groundwater Elevation (ft asl)
695
690
685
680
675
670
665
2007
2008
2009
2010
2011
2012
2013
2014
2015
Glasford
Mahomet


FORD-08-01A+B Ludlow North
Groundwater Elevation (ft asl)
710
705
700
695
690
685
680
2007
2008
2009
2010
2011
2012
2013
2014
2015
Glasford
Mahomet


FRD-94A+B Paxton
Groundwater Elevation (ft asl)
710
705
700
695
690
685
680
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
Glasford
Mahomet


CHAM-12-02A+C Dillsburg
Groundwater Elevation (ft asl)
690
685
680
675
670
665
660
2007
2008
2009
2010
2011
2012
2013
2014
2015


CHAM-08-02A+B Middle Fork
10
5
0
River Stage (ft)
700
695
690
685
680
Groundwater Elevation (ft asl)
Glasford
Mahomet
Middle Fork at Oakwood
2007
2008
2009
2010
2011
2012
2013
2014
2015


VERM-08-01A+B Armstrong
10
5
0
River Stage (ft)
680
675
670
665
Groundwater Elevation (ft asl)
Glasford
Mahomet
Middle Fork at Oakwood
2007
2008
2009
2010
2011
2012
2013
2014
2015