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Albany Water, Gas, and Light Commission

U.S. Geological Survey Georgia Water Science Center and Albany Water, Gas, and Light Commission Cooperative Water Program—Summary of Activities, July 2005 through June 2006

U.S. Geological Survey Open-File Report 2006-1294

U.S. Department of the Interior
U.S. Geological Survey

Cover photograph: U.S. Geological Survey employee collecting water-level measurement at center pivot well in Dougherty County, Georgia.

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U.S. Department of the Interior
DIRK KEMPTHORNE, Secretary

U.S. Geological Survey
P. Patrick Leahy, Acting Director

U.S. Geological Survey, Reston, Virginia: 2006

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Datum

Vertical coordinate information is referenced to the North American Vertical Datum of 1929 (NAVD 29).

Horizontal coordinate information is referenced to the North American Datum of 1983 (NAD 83). Historical data collected and stored as North American Datum of 1927 have been converted to NAD 83 for this publication.

U.S. Geological Survey Georgia Water Science Center and Albany Water, Gas, and Light Commission Cooperative Water Program—Summary of Activities, July 2005 through June 2006

By Debbie Warner Gordon

Abstract

The U.S. Geological Survey (USGS) has been working with the Albany Water, Gas, and Light Commission to monitor ground-water quality and availability since 1977. This report presents the findings for July 2005 through June 2006 and summarizes the ground-water and surface-water conditions for 2005. Water levels in 14 wells were continuously monitored in Dougherty County, Georgia. Water levels in 12 of those wells were above normal, one was normal, and one was below normal. Ground-water samples collected from the Upper Floridan aquifer indicate that nitrate levels have increased in 13 wells and decreased in two wells from a year earlier. A sample also was collected from the Flint River. A trilinear diagram showing the percent composition of selected major cations and anions indicates that the ground-water quality of the Upper Floridan aquifer at the Albany wellfield is distinctly different from the water quality of the Flint River. To improve the understanding of the ground-water flow system and nitrate movement in the Upper Floridan aquifer, the USGS is developing a ground-water flow model in the southwest Albany area, Georgia.

Introduction

Long-term, heavy pumping from the Claiborne, Clayton, and upper Cretaceous (Providence) aquifers, which underlie the Upper Floridan aquifer, has resulted in significant water-level declines in the deeper aquifers in the Albany area in Dougherty County, Georgia. These declines have raised concern about meeting increasing demands for potable water supply with the deep aquifers. To meet increasing demands, the Albany Water, Gas, and Light (WGL) Commission has developed a large wellfield near Albany. The supply wells primarily tap the Upper Floridan aquifer, a highly productive and porous limestone aquifer, which is the uppermost reliable ground-water source in this area. Because of the karstic landscape and local recharge to the aquifer, water quality may be affected by local and regional land use. To address concerns about the quality and availability of ground water in the Albany area, the U.S. Geological Survey (USGS) and WGL initiated a cooperative water program during 1977.

Analysis of nitrate in a water sample collected from a school supply well located southwest of Albany indicated concentrations exceeded the 10 milligrams per liter (mg/L) maximum contaminant level (MCL) set by the U.S. Environmental Protection Agency (U.S. Environmental Protection Agency, 2000a). Concern about nitrate contamination prompted the Dougherty County Health Department to sample more than 700 existing wells (including all residential wells near the school) for nitrates during 1997. Water from 12 percent of these wells had nitrate concentrations above the MCL (Susan Reyher, Dougherty County Health Department, oral commun., 1999). Each of the contaminated wells is completed in the Upper Floridan aquifer, which supplies water for most of the domestic and irrigation wells in the southwest Albany area.

Cooperative Water Program

The Federal-State Cooperative Water Program (CWP) is a partnership between the USGS and State and local agencies that provides information that forms the foundation for many of the Nation's water-resources management and planning activities. In addition, the information may function as an early warning for emerging water problems. Having the USGS involved results in consistent techniques of data collection and archiving, with the information stored in a common database readily available to all. The knowledge gained in the studies is published and added to the growing body of information about the hydrology of the region or area.

The objectives of the Albany CWP are to (1) augment the current level of understanding of the hydrogeologic framework of the Upper Floridan aquifer in the Albany area of southwestern Georgia, (2) monitor water-level fluctuations in the four aquifers used in the area and relate water-level trends to changes in climatic conditions and pumping patterns, and (3) evaluate and monitor water quality in the Upper Floridan aquifer as pumping patterns and land-use activities change. These objectives are being met by the following tasks:

- Water-quality monitoring near the southwestern Albany-area wellfield.
- Ground-water-level monitoring—operation and maintenance of 14 continuous water-level monitoring wells in four aquifers and measurement of water levels in about 70 wells annually (during Fall).
- Maintaining USGS National Water Information System (NWIS) database, which includes ground-water, surface-water, and water-quality data.
- Ground-water-flow modeling in the Upper Floridan aquifer to simulate nitrate migration and travel times.

This annual summary presents an overview of significant accomplishments and technical findings during July 2005 through June 2006 and plans for fiscal year 2007. Also included is an overview of hydrologic conditions during 2005 that includes summaries of ground-and surface-water conditions, and a summary of water-quality data collected and/or analyzed in 2005–06. Hydrographs of water levels and statistics from selected wells are presented in the Appendix.

Related Studies

During July 2005 through June 2006, the USGS was involved in the lower Apalachicola–Chattahoochee–Flint (ACF) River Basin ground-water modeling study in cooperation with the Georgia Department of Natural Resources, Environmental Protection Division (GaEPD). The major objective of that study was to develop a transient finite-element model of ground-water flow to simulate the impact of agricultural pumping on stream-aquifer interaction. Two scientific investigation reports were published from that study: Torak and Painter, 2006 and Jones and Torak, in press.

Progress during Fiscal Year 2006

During fiscal year 2006 (FY06), activities conducted for this program include:

- Continued ground-water-level monitoring. The USGS has been maintaining continuous water-level recorders on 24 wells, 14 of which are funded by the Albany CWP and 10 of which are funded by other projects. Water levels in five additional wells are measured monthly (fig. 1, table 1). Summaries of local water-resources conditions are published biannually in the USGS report, “Ground-water conditions and studies in Georgia” and annually in the USGS report “Water-resources data for Georgia.” See section “Ground-Water Conditions” and the Appendix for ground-water-level hydrographs and statistics for selected wells. All data are available on the Web at *http://waterdata.usgs.gov/ga/nwis/dv?referred_module=gw* (accessed June 30, 2006).
- Constructed water-level (potentiometric-surface) map for the Upper Floridan aquifer near the new wellfield. Water-level measurements were collected from 70 wells in the southwest Albany area during October 4–6, 2005, and a water-level map was constructed (fig. 2). The map indicates that water generally flows from northwest to southeast near the wellfield. No cone of depression is visible at the wellfield. All data are available on the Web at *http://waterdata.usgs.gov/ga/nwis/dv?referred_module=gw* (accessed June 30, 2006).
- Updated annual potentiometric-surface maps for 1998 through 2005. The Dougherty County Engineering Department surveyed the USGS Albany wellfield-area well network to facilitate construction of more accurate potentiometric-surface maps. The revised maps will provide more accurate input data for the ground-water flow model. The maps will be published in the next “Ground-water conditions and studies in Georgia” biannual report.
- Continued water-quality monitoring.
    - Water samples were collected from 17 wells in the southwest Albany area, November 8–11, 2005, and were analyzed for cations, anions, and nutrients. Nitrate values are presented in figure 3.
    - To compare the water-quality characteristics of ground water and surface water, a sample was collected from the Flint River on November 10, 2005. A trilinear diagram showing the percent composition of selected major cations and anions is presented in figure 4.
- Continued maintenance of Albany area hydrologic databases. The USGS continued updates to the National Water Information System database, including ground-water-level and water-quality data and well site information. All data are available on the Web at *http://waterdata.usgs.gov/ga/nwis/dv?referred_module=gw* (accessed June 30, 2006).

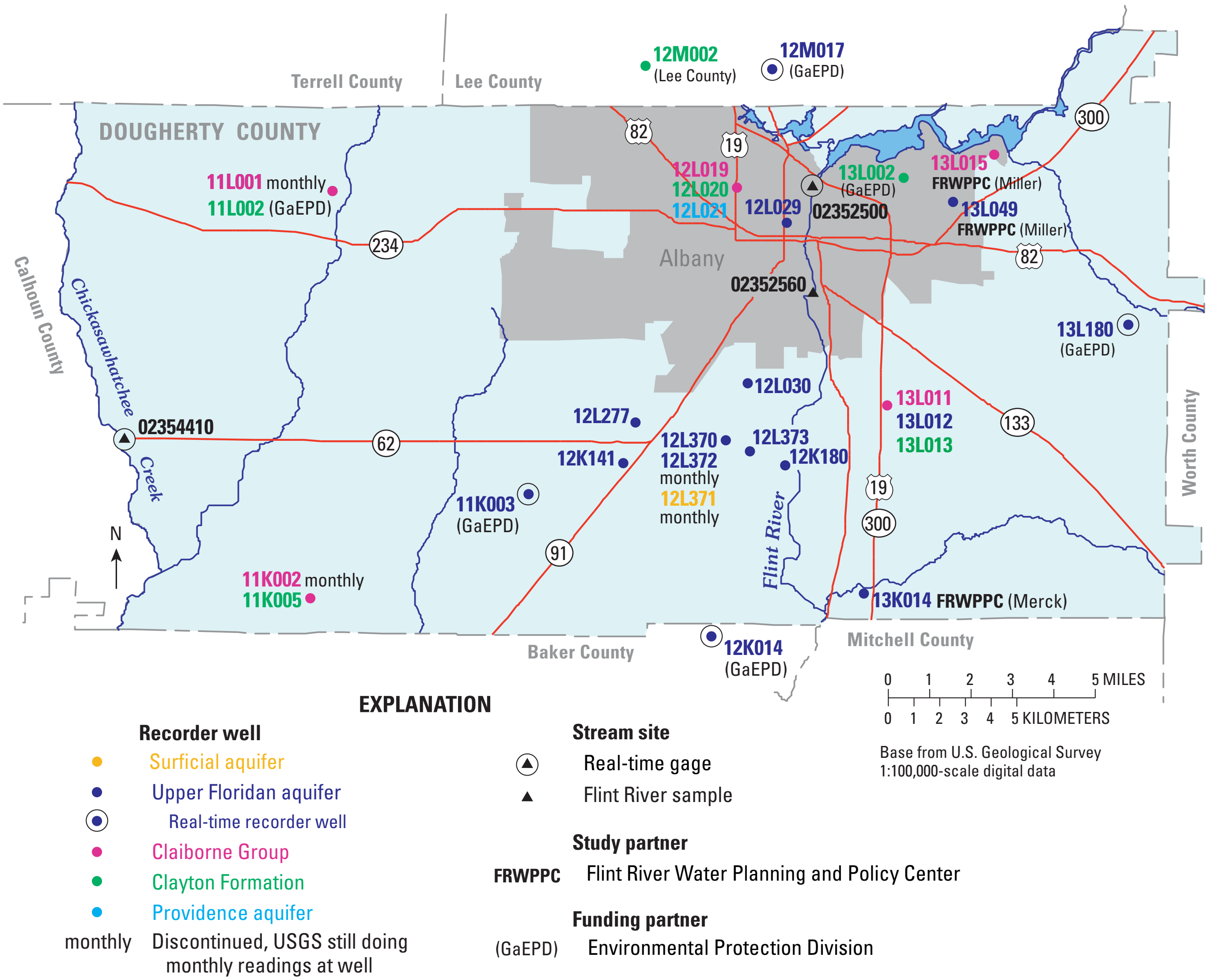
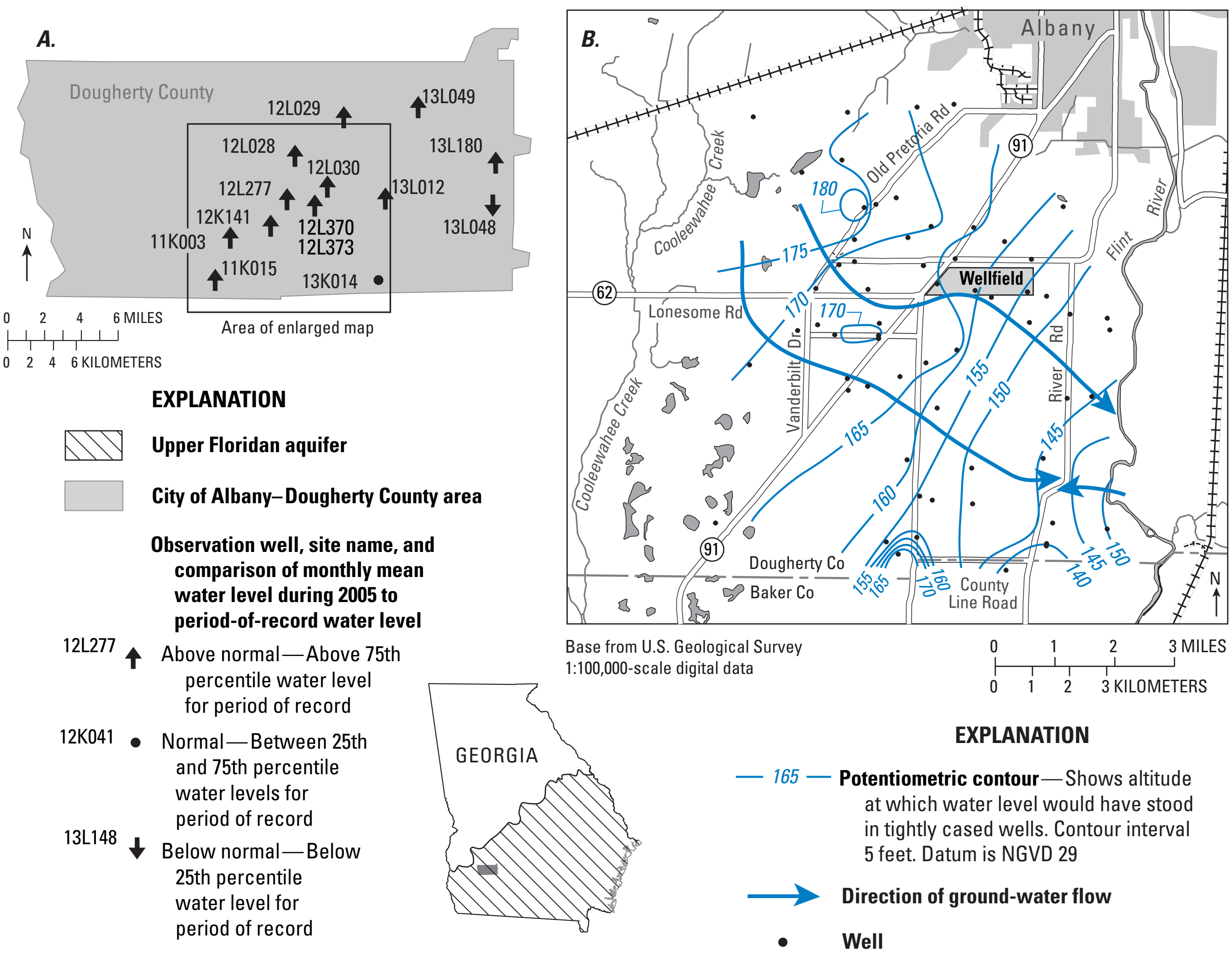


Figure 1. Recorder wells and stream sites in the Albany area, Georgia.

Table 1. Recorder well in the Albany area, Georiga.

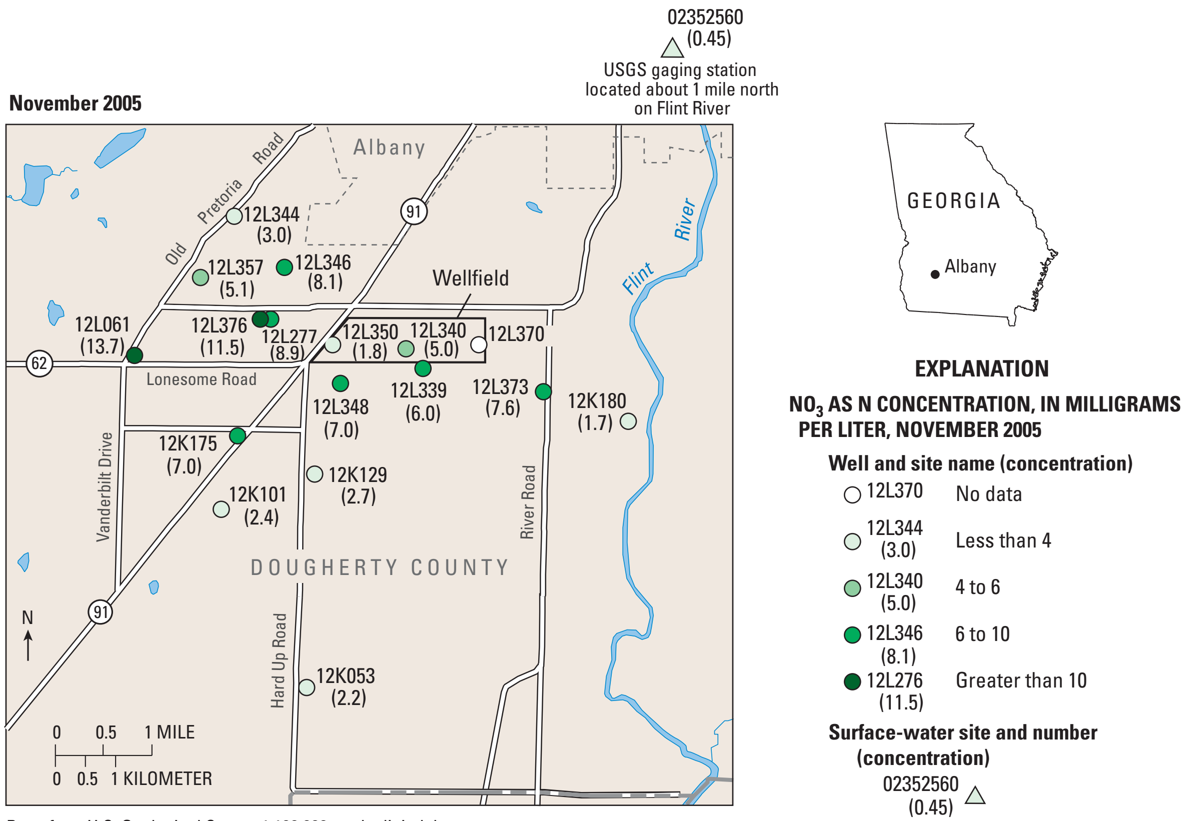
USGS, U.S. Geological Survey; GaEPD, Georgia Environmental Protection Agency; WGL, Water, Gas, and Light; FLWPPC, Flint River Water Planning and Policy Center; do, ditto]

County	Well number	Well name	Project/cooperator
Water levels continuously monitored			
Claiborne aquifer			
Dougherty	12L019	USGS TW 5	Albany WGL
do.	13L011	USGS TW 2	do.
do.	13L015	Turner 2	FRWPPC (Miller Brewing Company)
Clayton aquifer			
Dougherty	11K005	USGS TW 12	Albany WGL
do.	11L002	DNR Albany Nursery	USGS (GaEPD)
do.	12L020	USGS TW 6	Albany WGL
do.	13L002	WGL, Turner City 2	USGS (GaEPD)
do.	13L013	USGS TW 7	Albany WGL
Lee	12M002	USGS TW 9	Lee County
Providence aquifer			
Dougherty	12L021	USGS TW 10	Albany WGL
Upper Floridan aquifer			
Baker	12K014	Blue Springs OW	USGS (GaEPD)
Dougherty	11K003	Nilo TW North	USGS (GaEPD)
do.	12K141	Albany WGL A750 Lower	Albany WGL
do.	12K180	EPD MW-2	do.
do.	12L029	USGS TW 13	do.
do.	12L030	USGS TW 16	do.
do.	12L277	Albany WGL	do.
do.	12L370	Albany WGL	do.
do.	12L373	EPD MW-1	do.
do.	13K014	USGS TW 15	FLWPPC (Merck & Company)
do.	13L012	USGS TW 3	Albany WGL
do.	13L049	Turner 1	FRWPPC (Miller Brewing Company)
do.	13L180	MCLB Corehole 3 Lower Ocala	USGS (GaEPD)
Lee	12M017	USGS TW 19	USGS
Water levels measured monthly			
Clairborne aquifer			
Dougherty	11K002	USGS TW 11	Albany WGL
do.	11L001	USGS TW 4	do.
Surficial aquifer			
Dougherty	12L371	Albany WGL	Albany WGL
do.	12L376	Albany WGL	do.
Upper Floridan aquifer			
Doughtery	12L372	Albany WGL	Albany WGL



Site name	County	Other identifier
11K003	Dougherty	Nilo test well, north
11K015	Dougherty	U.S. Geological Survey, test well 14
12K141	Dougherty	Albany Water, Gas, and Light Commission, A750
12L028	Dougherty	VWM
12L029	Dougherty	U.S. Geological Survey, test well 13
12L030	Dougherty	U.S. Geological Survey, test well 16
12L277	Dougherty	Albany Water, Gas, and Light Commission, test well 1
12L370	Dougherty	Albany Water, Gas, and Light Commission, MW-100D
12L373	Dougherty	Albany Water, Gas, and Light Commission, MW-100I
13K014	Dougherty	U.S. Geological Survey, test well 15
13L012	Dougherty	U.S. Geological Survey, test well 3
13L048	Dougherty	U.S. Geological Survey, test well 17
13L049	Dougherty	Miller Ammo Supply
13L180	Dougherty	Marine Corps Logistic Base, core hole 3

Figure 2. (*A*) Observation wells completed in the Upper Floridan aquifer, Albany area (arrows show locations where water levels were below or above normal for the Upper Floridan aquifer during 2005); and (*B*) potentiometric contours of the Upper Floridan aquifer, southwestern Albany area, October 2005.



Base from U.S. Geological Survey 1:100,000-scale digital data

Site name	Sept 1998 NO_3-N in mg/L	April 1999 NO_3-N, in mg/L	April 2001 $NO_2 + NO_3$ as N in mg/L	Nov 2001 Dissolved NO_2 + NO_3 as N	Nov 2002 NO_3-N in mg/L	May 2003 NO_3-N in mg/L	Nov 2003 NO_3-N in mg/L	Nov 2004 NO_3-N in mg/L	Nov 2005 NO_3-N in mg/L
12K053	—	—	—	—	2.0	—	2.2	1.9	2.2
12K101	1.8	1.9	—	2.2	2.1	—	2.1	2.0	2.4
12K129	—	—	—	3.1	2.9	—	2.9	2.8	2.7
12K175	3.8	5.7	5.0	5.9	5.4	—	6.1	5.5	7.0
12K180	—	—	—	—	1. 56	1.7	1.4	1.4	1.7
12L061	11	12	12	12	12.5	—	13.4	13.1	13.7
12L277	7.5	6.9	6.5	8.0	6.3	9.0	8.2	8.4	8.9
12L339	5.9	5.4	—	5.0	—	—	—	—	6.0
12L340	—	—	—	—	—	—	—	4.7	5.0
12L344	6.0	5.1	2.7	1.6	1.7	—	1.9	2.1	3.0
12L346	—	—	—	—	—	—	7.2	6.6	8.1
12L348	—	6.5	6.4	7.1	6.8	—	6.9	6.6	7.0
12L350	3.0	2.9	—	4.8	5.5	—	2.6	2.0	1.8
12L357	5.9	3.1	—	2.0	—	—	—	3.5	5.1
12L370	—	—	—	—	—	—	7.1	—	—
12L373	—	—	—	7.2	6.6	8.6	7.5	7.2	7.6
12L376	—	—	—	—	6.5	8.8	8.3	9.3	11.5
[1]02352560	—	—	—	—	—	0.4	0.45	0.41	0.45

[NO_3-N, nitrate as nitrogen; NO_2+NO_3 as N, nitrate plus nitrate as nitrogen; mg/L, milligrams per liter:—, no data]

[1]River sample

Figure 3. Location of wells and nitrate concentration in the southwestern Albany area, Georgia, November 2005.

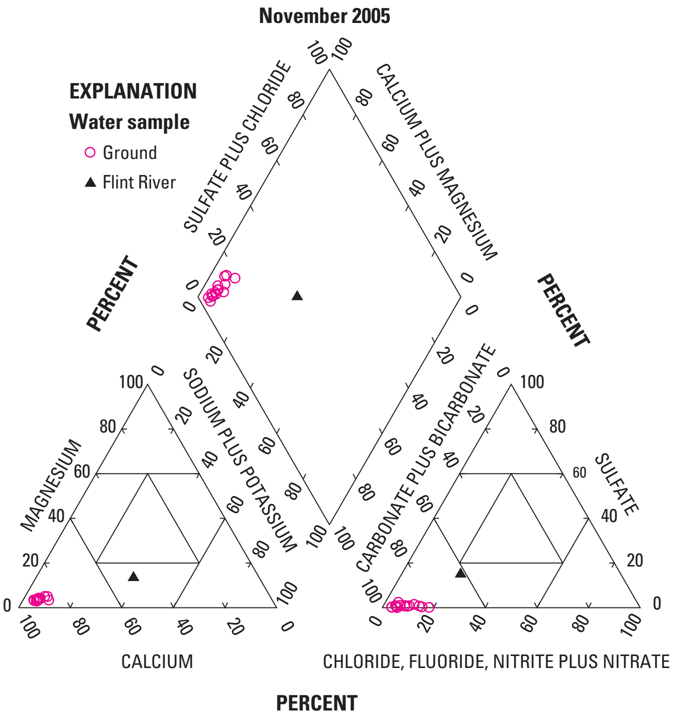


Figure 4. Trilinear diagram showing water quality of the Upper Floridan aquifer and Flint River at Albany, Georgia, November 10, 2005.

- **Began Albany wellfield area ground-water-flow model**. Data was put into the model. The model was run using the original model area and grid spacing. The model area was expanded east of the Flint River and the grid spacing was refined to better capture flow in the Albany wellfield area. The new area and grid spacing is shown in figure 5. Two additional layers were added to the model to account for the surficial aquifer and the confining layer separating the surficial and Upper Floridan aquifers (fig. 6). See section on Albany wellfield area flow model for more details.

- **Continued to map sinkholes at the wellfield**. Gary Morefield (of WGL) provided location of two sinkholes that formed during 2005 (one on April 6, 2005, and one on August 23, 2005). These sinkholes were plotted on a map of the wellfield (fig. 7).

- **Updated Albany area Web site**. The Web site was updated with links to the National Water Information System Web site for Georgia (NWISWEB) and the Georgia Water Information Network (GWIN) Web site. The Web site is located at *http://ga.water.usgs.gov/projects/albany.html.*

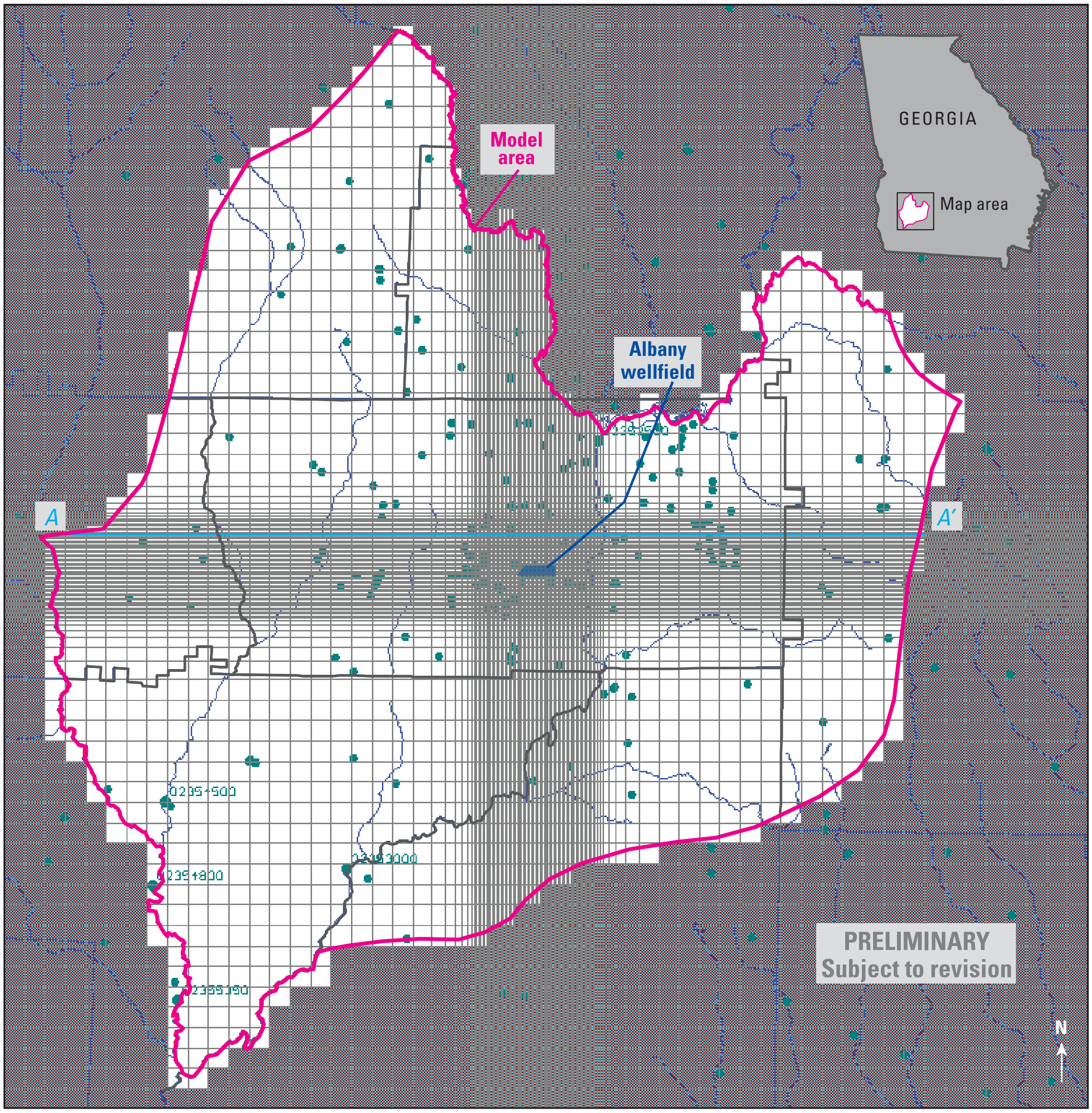
Albany Wellfield-Area Flow Model

To improve the understanding of the ground-water flow system and nitrate movement in the Upper Floridan aquifer, the USGS is developing a ground-water flow model in the wellfield area. Although ground-water-flow models have been previously developed in southwest Georgia, these models are regional in scope and need to be refined to include greater detail in the wellfield area. The USGS finite-difference ground-water flow simulator, MODFLOW-2000 (Harbaugh and others, 2000) is being used for modeling.

Initially, a single-layer flow model was developed in the wellfield area using existing data. This preliminary model had a grid spacing of 500 by 500 feet (ft) and did not extend east of the Flint River. Running several simulations with this model indicated that because it was very generalized, it did not adequately represent the ground-water flow in the area. Three layers would be necessary to estimate ground-water flow and travel times for nitrate migration and the model boundary must extend east of the Flint River to simulate flow to (or from) the river adequately.

The three-layer model includes the surficial aquifer, the confining unit that separates the surficial and Upper Floridan aquifers, and the Upper Floridan aquifer. The model includes the area east of the Flint River, and a grid spacing that gradually increases from 500 by 500 ft around the wellfield to 5,000 by 5,000 ft outside of the wellfield area (fig. 5). This model includes water-level, water-quality, and aquifer-parameter data from the wellfield area that have not been used in previous models. The model is being calibrated to October 1999 conditions using ground-water-level data, because October 1999 was a drought period. The calibrated model will be used to determine ground-water flowpaths and potential movement of nitrate-contaminated water. Predictive simulations using a variety of pumping and boundary conditions will be used to assess potential pathways for nitrate migration and the potential for the Flint River to contribute water to the wellfield.

Accurate information on ground-water levels and the depth and thickness of hydrogeologic units is important for ground-water model development. Improved accuracy of land-surface altitudes was provided through a field survey conducted by the Dougherty County Engineering Department. These data were used to compute altitudes of the tops of hydrogeologic units and ground-water levels. An east-west cross section showing model layers was prepared based on these data (fig. 6).



Base modified from U.S. Geological Survey
1:100,000-scale digital data

0 5 10 MILES
0 5 10 KILOMETERS

Figure 5. Three-layer model area showing model grid and well locations in the southwestern Albany area, Georgia (grid spacing is 500 by 500 feet in the center around the Albany wellfield, then gradually increases to 5,000 by 5,000 feet in the rest of the model area).

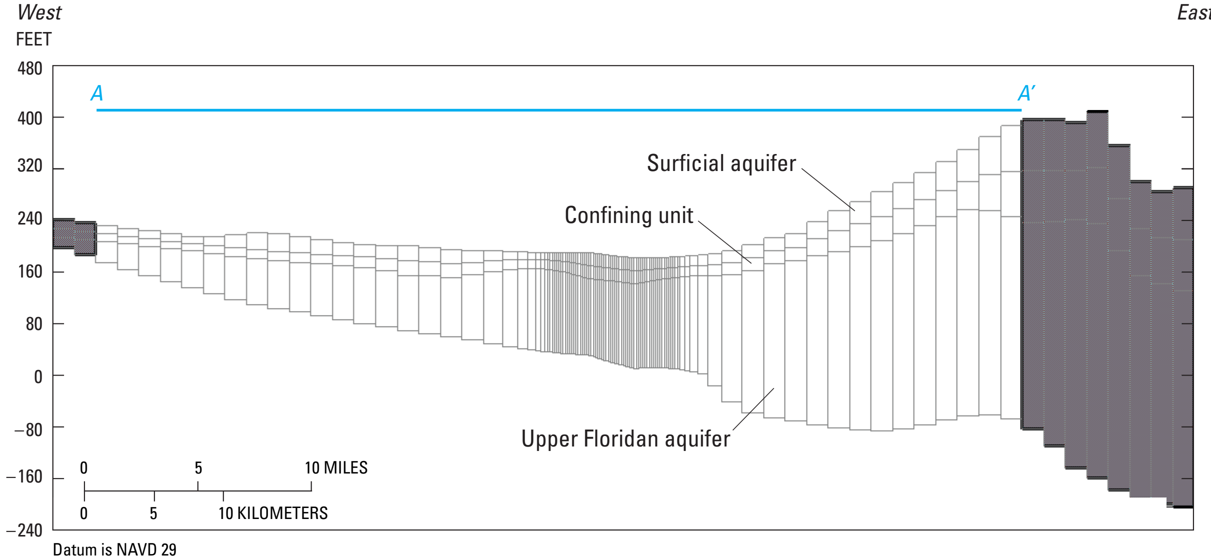


Figure 6. Cross section through the model from west to east showing the three model layers in the southwestern Albany area, Georgia.

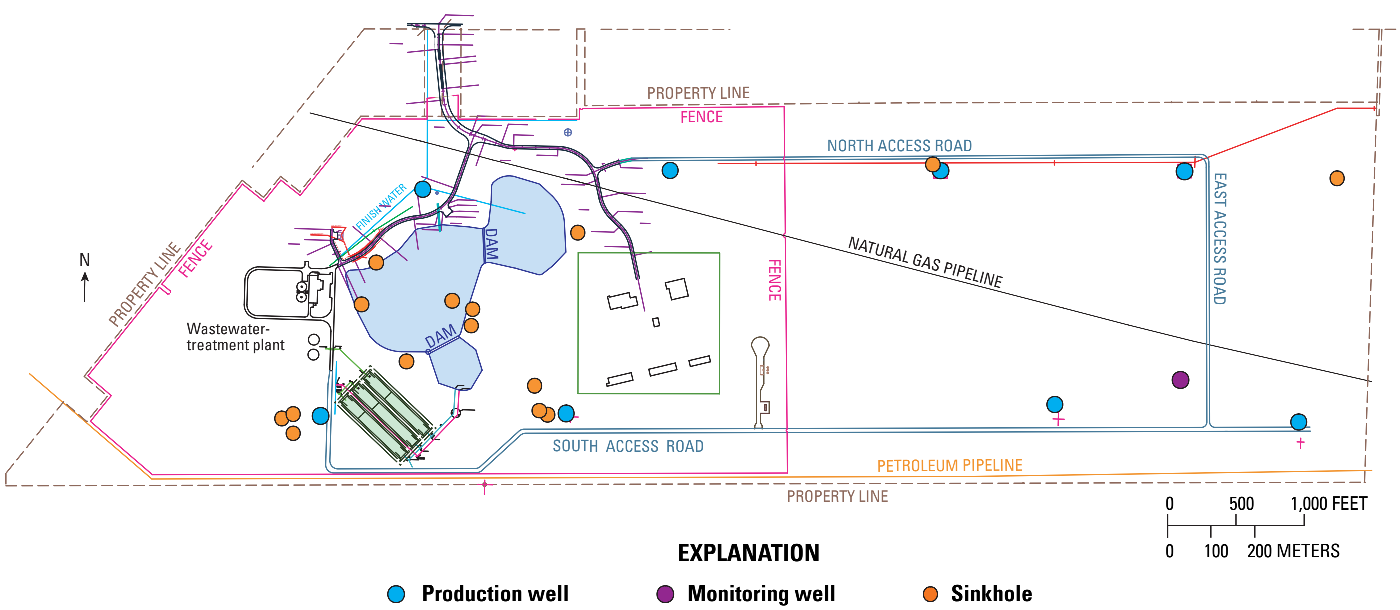


Figure 7. Diagram of Albany wellfield showing location of wells and sinkholes in the southwestern Albany area, Georgia.

Hydrologic and Water-Quality Monitoring

The Hydrology and water quality of the area were monitored throughout the year. The ground-water conditions, surface-water conditions, and water quality are described below.

Ground-Water Conditions, 2005

Ground-water levels in the Albany area are continuously monitored in 14 wells as part of the WGL cooperative study and in 10 additional wells in conjunction with other projects (fig. 1, table 1). Water levels are measured in an additional five wells on a monthly basis. All data are available on the Web at *http://waterdata.usgs.gov/ga/nwis/dv?referred_module=gw* (accessed June 30, 2006). Of the 29 monitoring wells, 15 are completed in the Upper Floridan aquifer, five in the Claiborne aquifer, six in the Clayton aquifer, one in the Providence aquifer, and two in the surficial aquifer (fig. 1, table 1). Hydrographs showing annual daily mean (2005) water levels, monthly water level statistics, and monthly mean water levels for the period of record in selected wells are shown in the Appendix.

Water-level measurements were collected from 70 wells in the southwest Albany area during October 4–6, 2005, and a potentiometric-surface map was constructed (fig. 2). The map indicates that water generally flowed from northwest to southeast and a cone of depression is not visible at the wellfield. Water levels in the Upper Floridan aquifer generally were above normal during 2005. Of the 14 wells continuously monitored in Dougherty County, water levels in eight were above normal and water levels in six were normal (fig. 2).

Hydrographs for selected wells are presented in the Appendix. Water levels in most of the wells show a rise starting during 2002 that continues through 2005. This rise is the result of the end of the drought for 1998 through 2002. Water levels in most of the wells in the Clayton and Claiborne aquifers have been declining since the late 1970s. During the past few years however, water levels have increased in some of these wells (wells 12M002 and 11L002, for example). Water levels in the Clayton aquifer are monitored in six wells in the Albany area (fig. 1, table 1). During 2005, water levels in two of these wells were above normal, three were normal, and one was below normal (Appendix). A record high water level was recorded in well 12L020 (Clayton aquifer) during January 2005. Water levels in the Claiborne aquifer are monitored in three wells (fig. 1, table 1), all of which were above normal during 2005 (Appendix). The water level in the Providence aquifer is measured in well 12L021 (fig. 1, table 1), the water level in this well was above normal for 2005.

Surface-Water Conditions, 2005

The Albany area contains two real-time streamgages (see Web site, *http://waterdata.usgs.gov/ga/nwis/rt*, accessed June 15, 2006). These gages are located on the Flint River at Albany (02352500) and Chickasawhatchee near Leary (02354410) (fig. 1). The Flint River gage at Albany was installed during 1901; the gage at Chickasawhatchee near Leary is newer, installed during May 2001. Stream stage and discharge data are shown for these sites on the Web site. Figure 8 presents daily discharge data for the Flint River at Albany for July 2005 through May 2006. The data show that discharge was above normal during the summer of 2005, then below normal for most of 2006, through May (fig. 8).

Ground-Water Quality, 2005

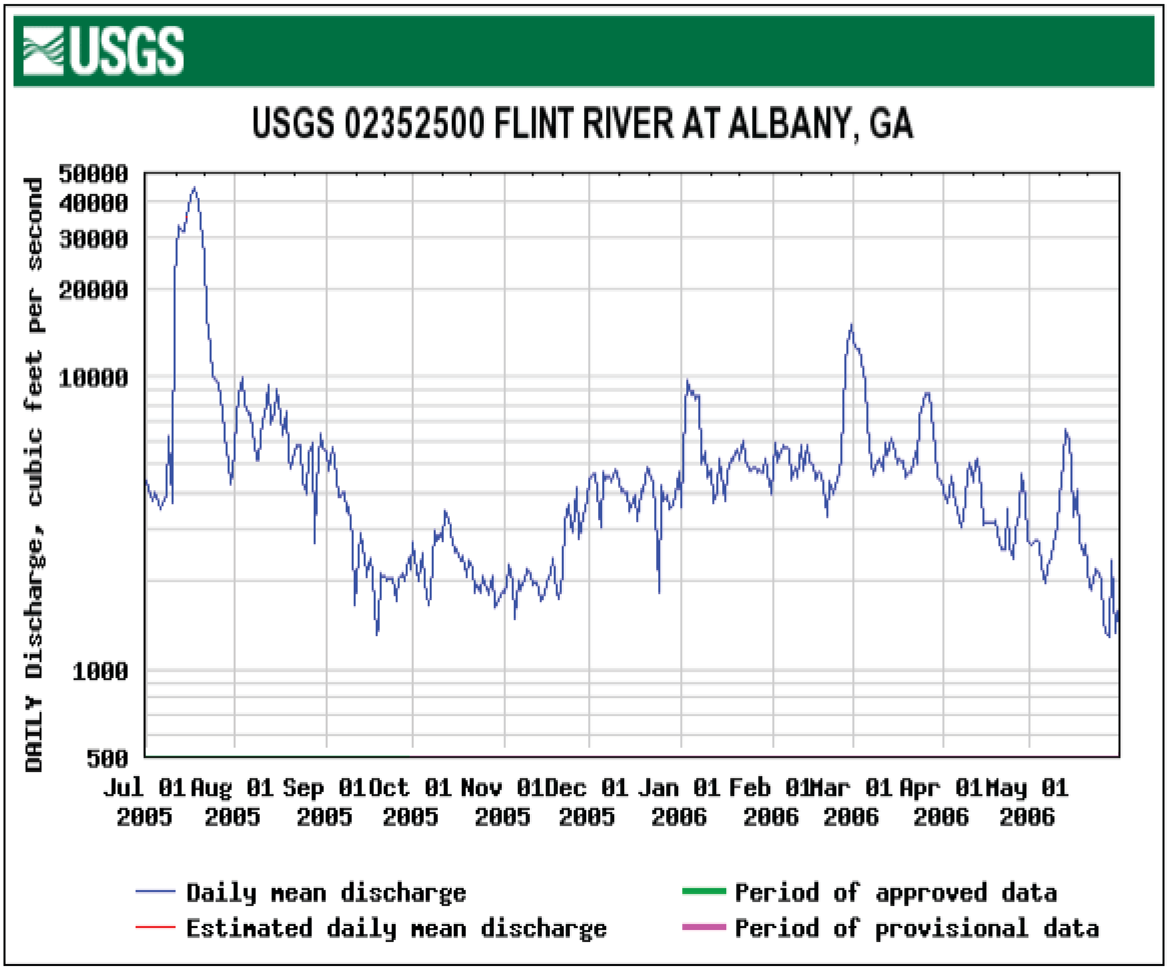
Water samples were collected from 16 wells in the southwest Albany area during November 8–11, 2005, and were analyzed for cations, anions, and nutrients (fig. 3). Of the 16 samples collected, two had nitrate as nitrogen concentration greater than the 10 mg/L MCL (well 12L061 completed in the Upper Floridan aquifer and 12L376 completed in the surficial aquifer). Since November 2004, nitrate levels have increased in 13 wells and decreased in two wells. The increased nitrate levels are probably related to increased recharge from rainfall in the summer and fall of 2005.

To compare the water-quality characteristics of ground water and surface water, a sample was collected from the Flint River on November 10, 2005. A trilinear diagram showing the percent composition of selected major cations and anions is presented in figure 4. This diagram shows that the ground-water quality of the Upper Floridan aquifer near the wellfield is distinctly different from the water quality of the Flint River.

Additional Data Needs

Expanded monitoring and characterization of the geologic and hydrologic properties of the surficial aquifer would facilitate understanding of the nitrate contamination problem and provide data necessary for model development. During fiscal years 2005 and 2006, monthly water levels were collected from the surficial aquifer from two wells. The USGS proposes collecting additional water-quality and water-level data from the surficial aquifer. Specifically, shallow wells could be drilled in and near the wellfield to provide improved characterization of the surficial aquifer and underlying confining unit. These wells would facilitate:

- Collection of borehole geophysical logs in completed boreholes,
- Conducting aquifer tests in selected wells to determine hydraulic properties of the surficial aquifer,



http://waterdata.usgs.gov/ga/nwis/dv/?dd_cd=02_00060_00003&format=img&site_no=02352500&set_logscale_y=1&begin_date=20050701&end_date=20060531

Figure 8. Daily discharge (cubic feet per second) for the Flint River at Albany, Georgia, July 2005 through May 2006.

- Collection of water samples for analysis of nitrate on a periodic basis,
- Collection of ground-water levels on a periodic basis, and
- Installation of continuous ground-water-level recorders in several of the new wells.

References Cited

Harbaugh, A.W., Banta, E.R., Hill, M.C., and McDonald, M.G., 2000, MODFLOW-2000, The U.S. Geological Survey modular ground-water model—User Guide to modularization concepts and the ground-water flow process: U.S. Geological Survey Open-File Report 00-92, 121 p.

Jones, L.E., and Torak, L.J., in press, Simulated effects of seasonal ground-water pumpage for irrigation on hydrologic conditions in the lower Apalachicola–Chattahoochee–Flint River Basin, southwestern Georgia and parts of Alabama and Florida: U.S. Geological Survey Scientific Investigations Report 2006-5234.

U.S. Environmental Protection Agency, 2000a, Maximum contaminant levels (Subpart B of part 141, National Primary Drinking-water Regulations): U.S. Code of Federal Regulations, Title 40, parts 100–149, revised as of July 1, 2000, p. 334–560.

Torak, L.J., Painter, J.A., 2006, Geohydrology of the lower Apalachicola–Chattahoochee–Flint River Basin, southwestern Georgia, northwestern Floridan, and southeastern Alabama: U.S. Geological Survey Scientific Investigations Report 2006-5070, 73 p.

Appendix. Ground-Water Level Hydrographs and Statistics for Selected Wells, 2005

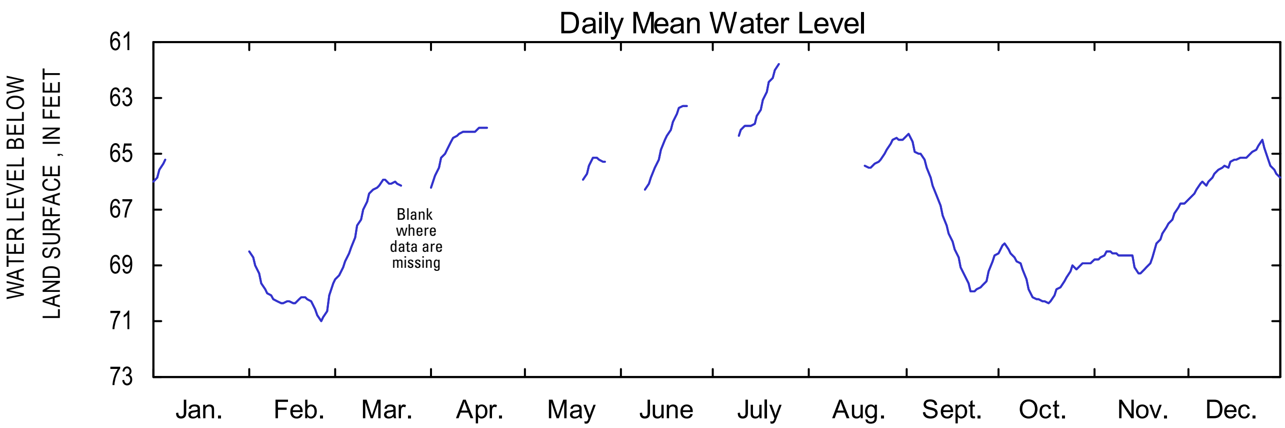
In this appendix, max means maximum and min means minimum.

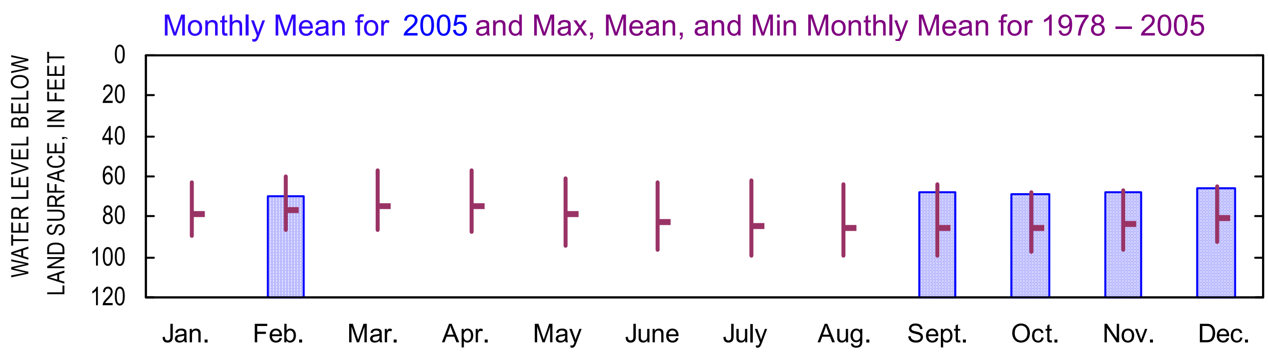
Claiborne aquifer
2005 Calendar Year

313534084103001 **Site Name: 12L019**

Latitude: 31° 35' 36" Longitude: 084° 10' 30" DOUGHERTY Period of Record: 1978 – 2005

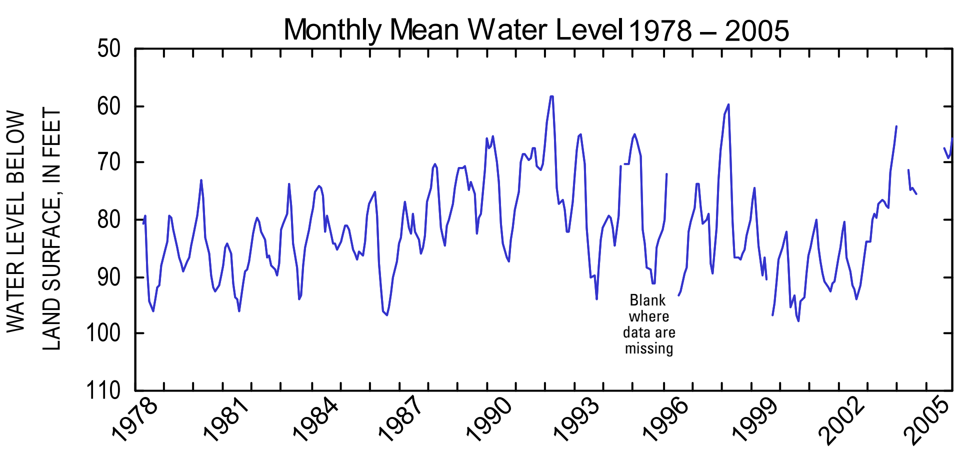
Well Depth: 257 feet Datum: 195 feet NGVD29 Well Diameter: 6.00 inches

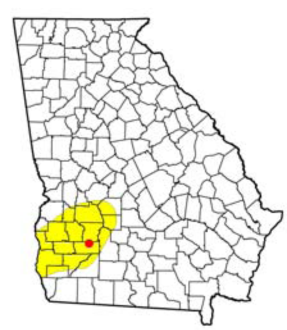




Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean		70.08							67.52	69.34	68.34	65.53
Max		70.98							69.95	70.33	69.29	66.67
Min		68.48							64.32	68.22	66.76	64.51
1978 – 2005												
Mean	78.47	76.99	74.45	74.27	78.38	82.42	84.17	85.27	85.93	85.75	83.88	80.87
Max	89.50	86.55	86.29	87.93	94.14	96.77	99.53	99.53	99.57	97.55	96.74	92.69
Min	62.60	60.05	57.54	57.31	61.16	63.25	61.81	64.40	64.32	68.00	66.76	64.51





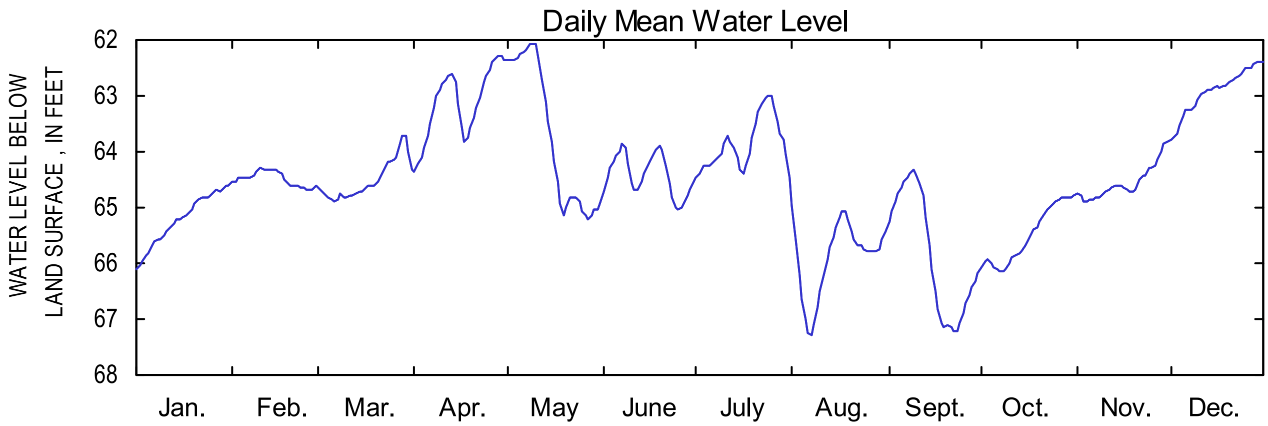
Negative value indicates water level above land surface

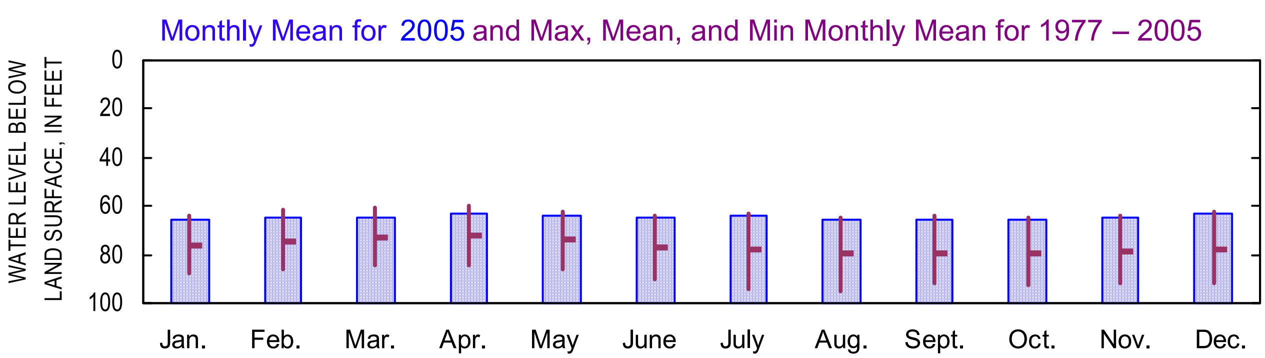
Claiborne aquifer
2005 Calendar Year

313105084064301 **Site Name: 13L011**

Latitude: 31 °31 '05" Longitude: 084° 06 '43" DOUGHERTY Period of Record: 1977 – 2005

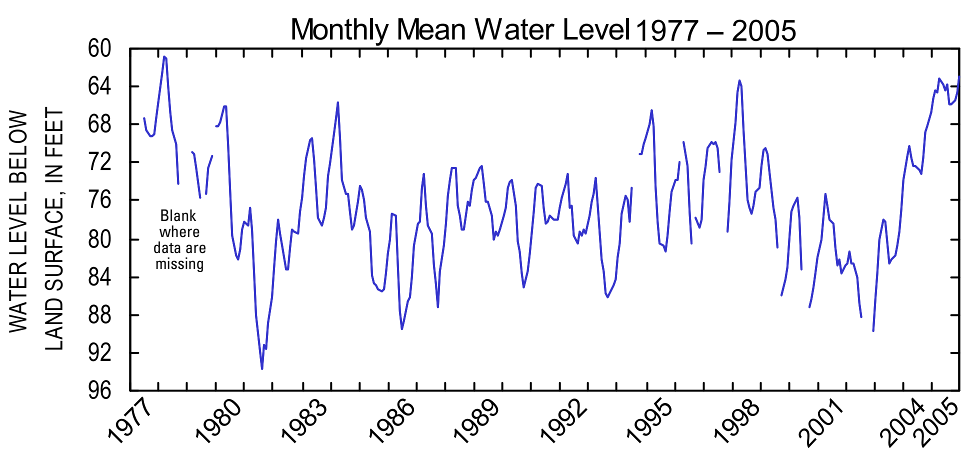
Well Depth: 418 feet Datum: 195.00 feet NGVD29 Well Diameter: 4.00 inches

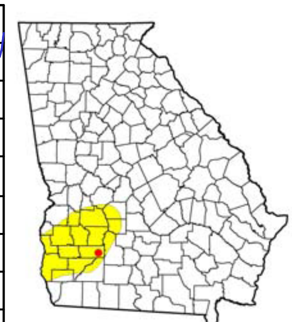




Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean	65.21	64.49	64.51	63.12	63.75	64.42	63.86	65.89	65.85	65.50	64.56	62.92
Max	66.09	64.69	64.88	64.34	65.22	65.04	64.46	67.28	67.22	66.15	64.89	63.79
Min	64.60	64.30	63.71	62.27	62.06	63.87	63.00	64.97	64.31	64.80	63.84	62.41
1977 – 2005												
Mean	76.02	74.41	72.83	72.33	74.00	76.78	78.02	79.13	79.70	79.55	78.97	77.56
Max	87.42	86.47	84.32	84.55	86.16	90.02	94.38	94.97	91.79	92.48	91.91	92.10
Min	63.92	61.75	60.25	60.01	62.06	63.87	63.00	64.97	64.31	64.80	63.84	62.41





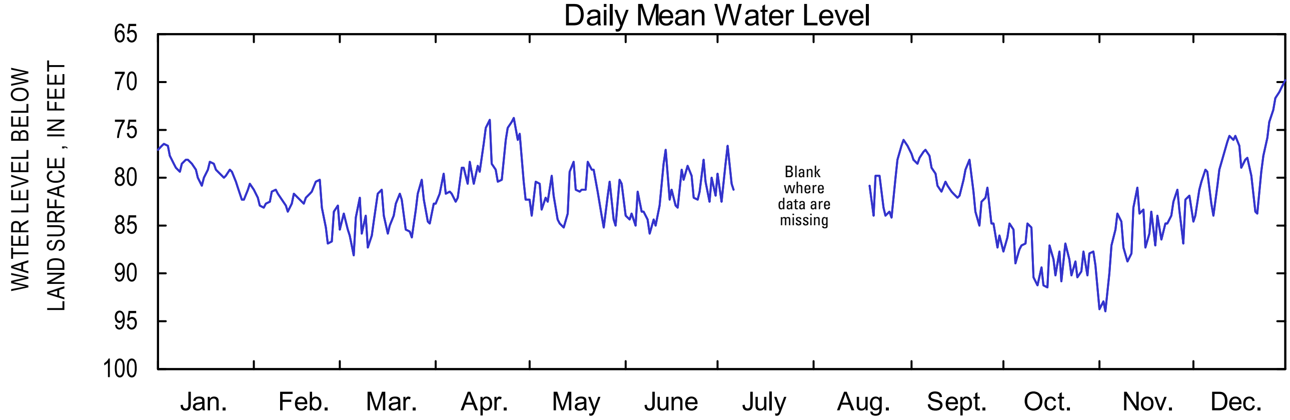
Negative value indicates water level above land surface

Claiborne aquifer
2005 Calendar Year

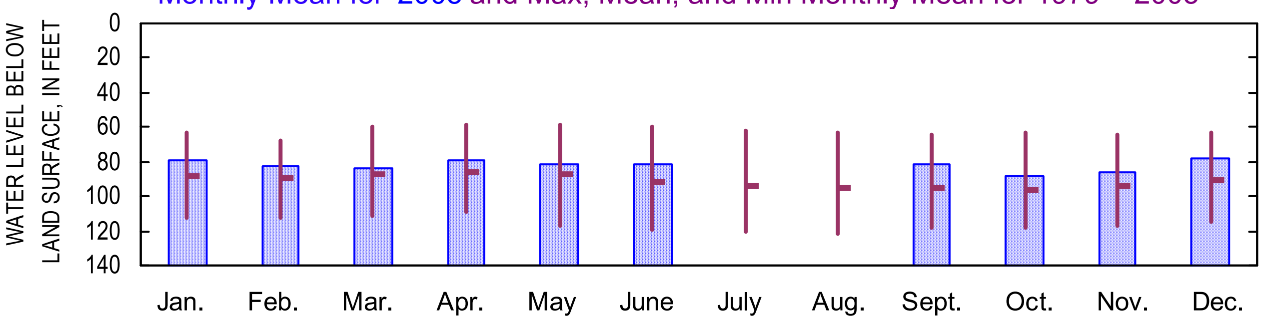
313625084041501 **Site Name: 13L015**

Latitude: 31° 36' 21" Longitude: 084° 04' 09" DOUGHERTY Period of Record: 1979 – 2005
Well Depth: 351 feet Datum: 200.00 feet NGVD29 Well Diameter: 4.00 inches

Daily Mean Water Level



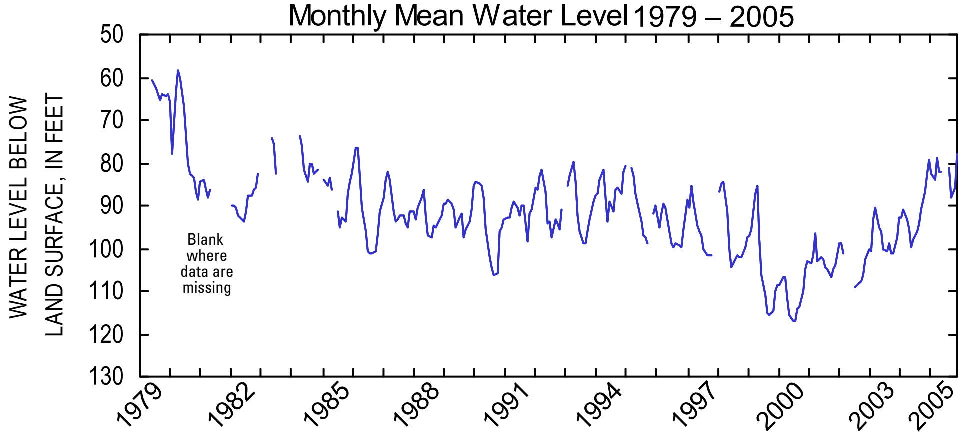
Monthly Mean for 2005 and Max, Mean, and Min Monthly Mean for 1979 – 2005

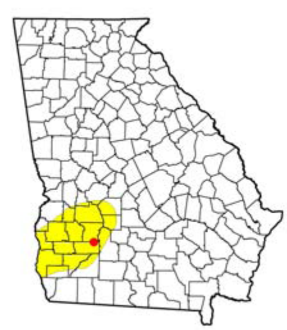


Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean	79.23	82.61	84.13	78.82	81.87	82.02			80.96	88.36	85.75	78.02
Max	82.27	86.91	88.14	82.68	85.28	85.90			87.22	91.36	94.04	84.53
Min	76.49	80.28	80.24	73.71	78.25	77.06			77.00	84.69	81.14	69.87
1979 – 2005												
Mean	88.67	89.52	87.06	85.83	87.74	91.65	94.65	95.75	95.40	96.02	94.09	91.13
Max	112.82	112.02	111.64	109.25	116.71	118.78	120.22	121.31	117.65	118.53	117.59	114.47
Min	62.65	67.84	59.58	58.05	58.02	59.57	61.46	63.02	64.59	62.57	63.82	63.17

Monthly Mean Water Level 1979 – 2005





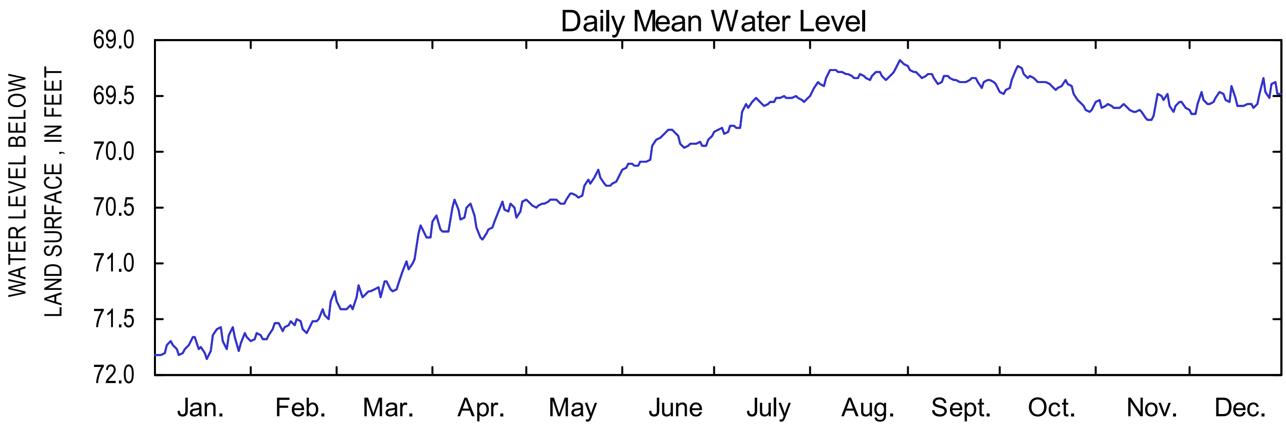
Negative value indicates water level above land surface

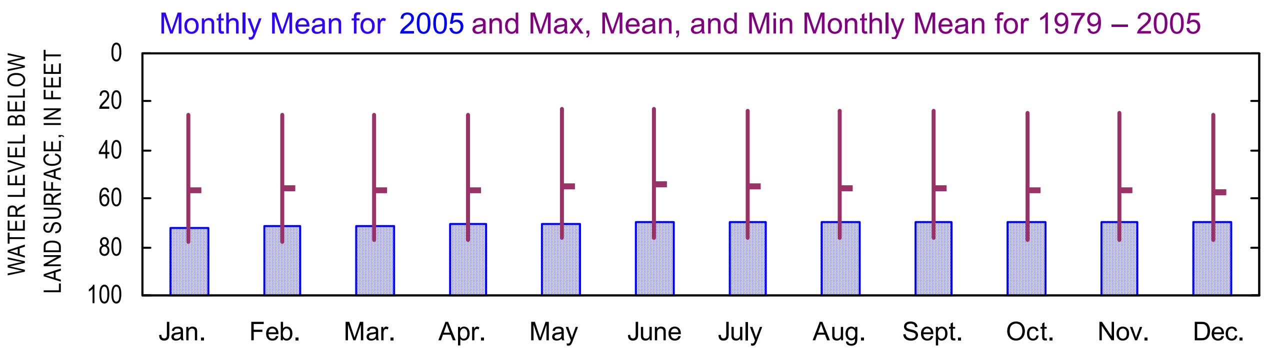
Clayton aquifer
2005 Calendar Year

312654084210103 **Site Name: 11K005**

Latitude: 31°26'54" Longitude: 084°21'01" DOUGHERTY Period of Record: 1979 – 2005

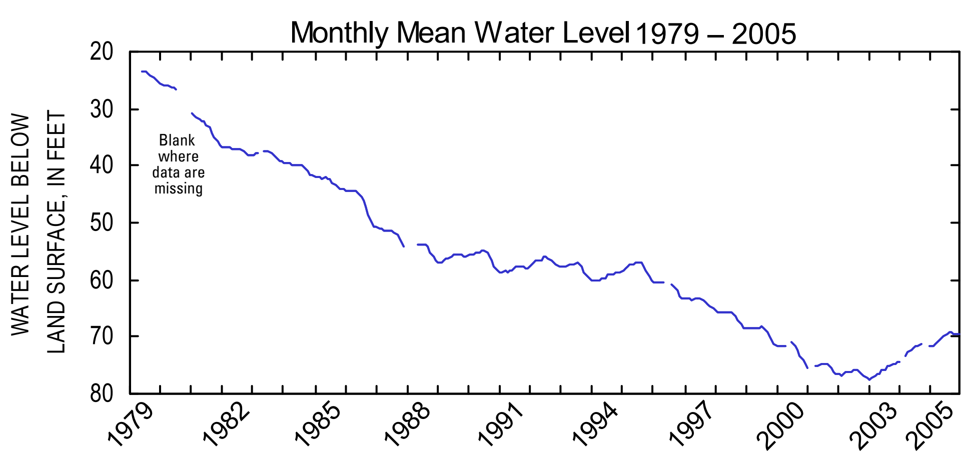
Well Depth: 646 feet Datum: 181.00 feet NGVD29 Well Diameter: 4 inches

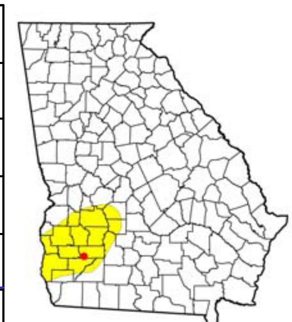




Monthly Water Level Statistics

2005												
Mean	71.73	71.55	71.15	70.59	70.37	69.97	69.62	69.32	69.34	69.42	69.60	69.53
Max	71.86	71.69	71.42	70.79	70.51	70.16	69.83	69.50	69.44	69.65	69.71	69.66
Min	71.57	71.24	70.66	70.44	70.17	69.80	69.51	69.18	69.24	69.24	69.48	69.33
1979 – 2005												
Mean	56.55	55.63	56.30	56.96	55.28	54.36	54.86	55.40	55.77	56.15	56.64	57.32
Max	77.58	77.51	77.12	77.01	76.48	76.15	75.97	75.98	76.20	76.67	77.20	77.44
Min	25.38	25.62	25.60	25.75	23.03	23.07	23.39	23.53	23.90	24.23	24.70	25.00



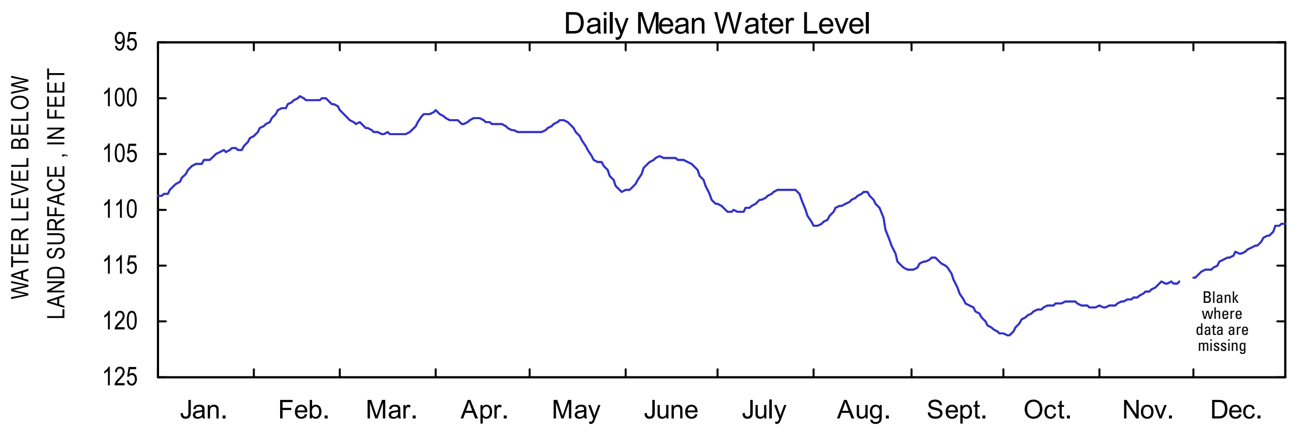


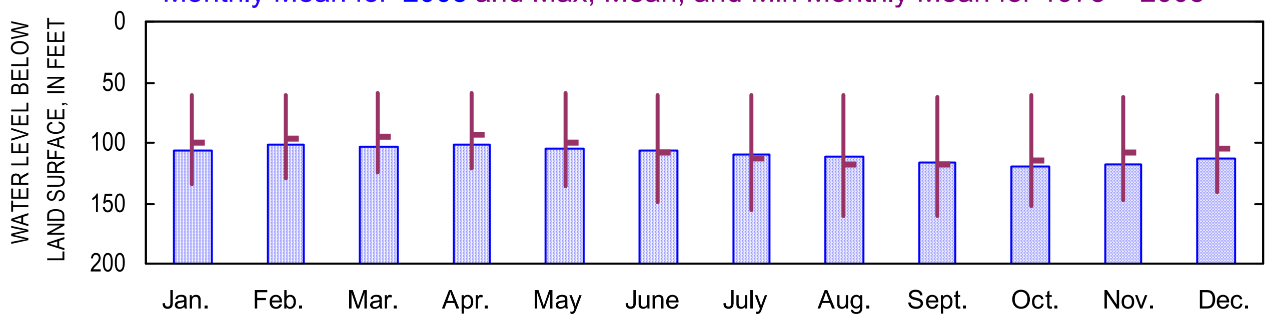
Negative value indicates water level above land surface

Clayton aquifer
2005 Calendar Year

313532084203501 **Site Name: 11L002**

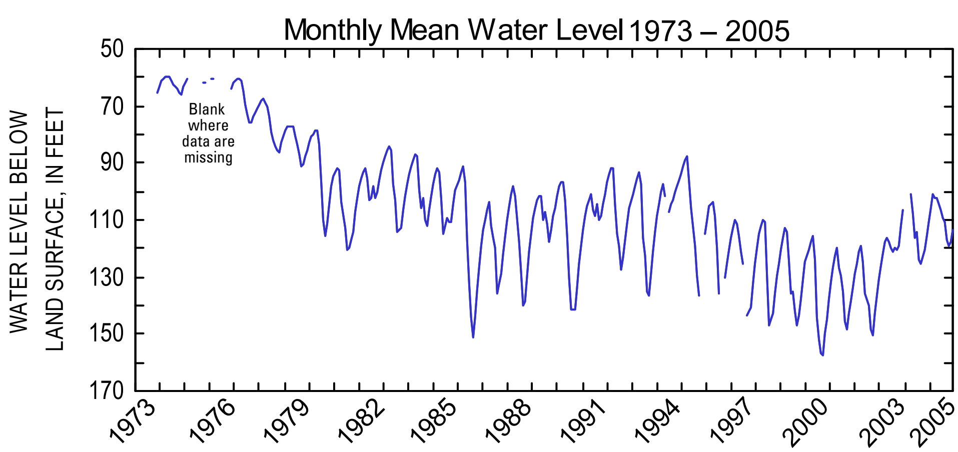
Latitude: 31° 35' 32" Longitude: 084° 20' 32" DOUGHERTY Period of Record: 1973 – 2005
Well Depth: 656 feet Datum: 222.00 feet NGVD29 Well Diameter: 3.00 inches

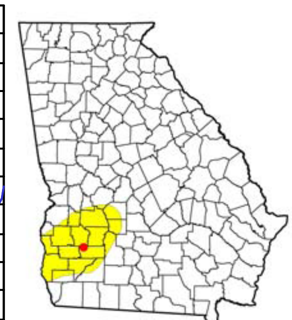




Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean	106.00	100.92	102.46	102.22	104.22	106.56	109.31	110.84	117.14	119.13	117.58	113.80
Max	108.80	103.34	103.29	103.09	108.31	109.41	111.13	115.36	120.99	121.23	118.72	116.14
Min	103.62	99.83	101.16	101.14	102.01	105.26	108.19	108.46	114.34	118.17	116.37	111.17
1973 – 2005												
Mean	99.64	96.18	94.43	93.88	99.50	107.61	112.84	117.69	118.79	113.94	108.76	104.29
Max	134.49	128.77	124.64	120.85	135.53	148.58	156.18	160.82	160.71	152.52	147.77	141.07
Min	60.35	60.00	59.30	58.90	59.13	60.17	60.85	61.00	61.68	61.34	61.53	60.93



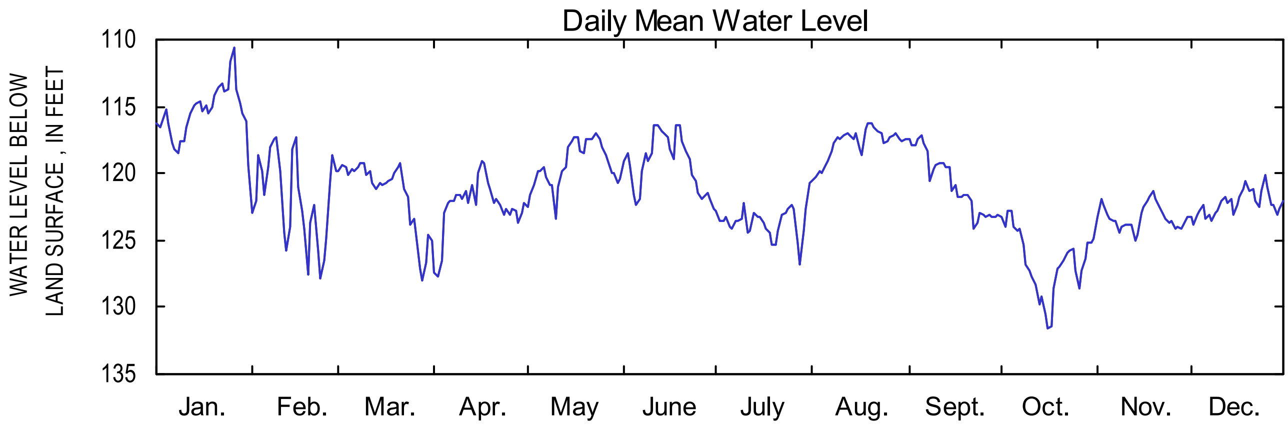


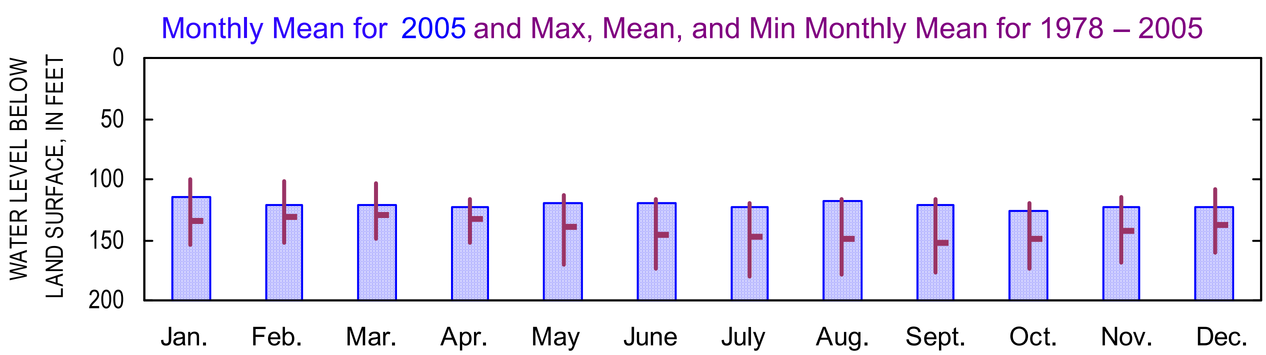
Negative value indicates water level above land surface

Clayton aquifer
2005 Calendar Year

313534084103002 **Site Name: 12L020**

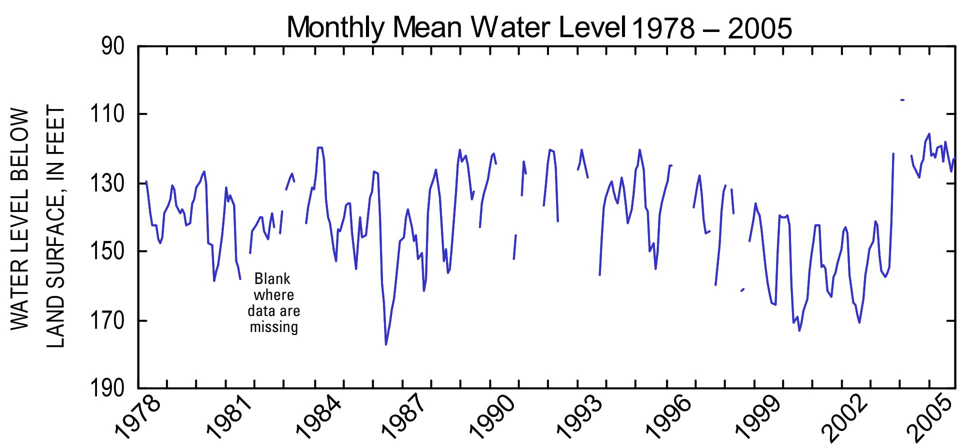
Latitude: 31° 35' 35" Longitude: 084° 10' 30" DOUGHERTY Period of Record: 1978 – 2005
Well Depth: 690 feet Datum: 195.00 feet NGVD29 Well Diameter: 3.00 inches

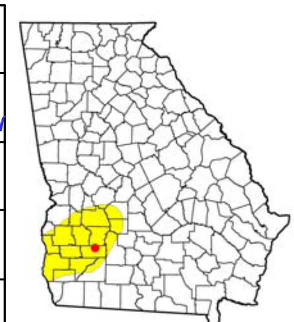




Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean	115.41	121.88	121.50	122.41	119.37	119.30	123.63	117.77	120.72	126.59	123.28	122.27
Max	119.31	127.81	127.98	127.75	123.44	122.65	126.76	120.52	124.12	131.58	125.01	123.84
Min	110.63	117.33	119.18	119.04	117.05	116.39	120.76	116.22	117.21	122.82	121.33	120.19
1978 – 2005												
Mean	133.85	131.39	128.97	131.98	139.66	145.81	147.81	149.29	151.67	149.54	143.35	137.35
Max	153.57	152.86	149.42	152.75	170.41	173.74	180.74	178.15	177.64	173.42	169.63	161.15
Min	100.59	101.95	103.22	116.45	112.56	116.39	119.69	116.22	117.21	120.30	114.48	108.14



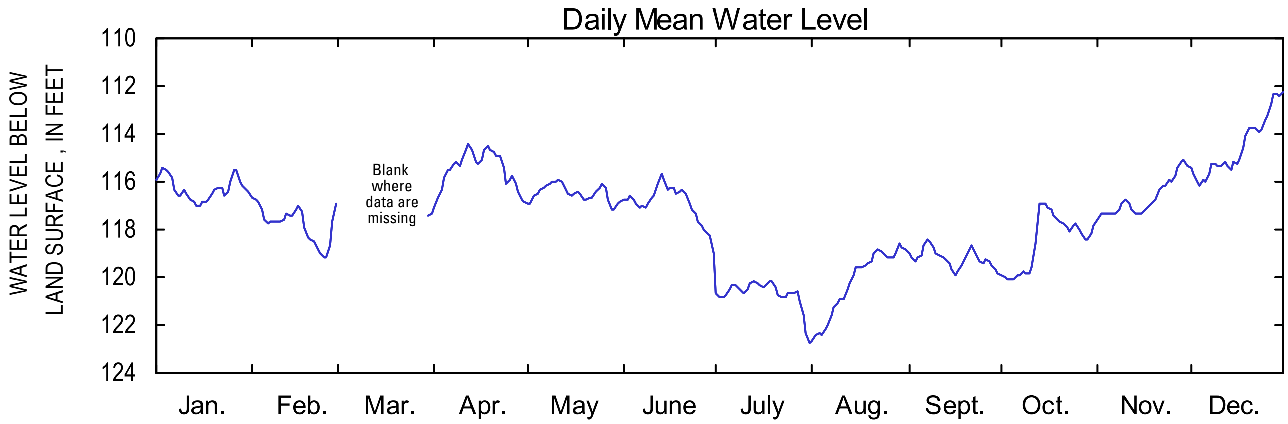


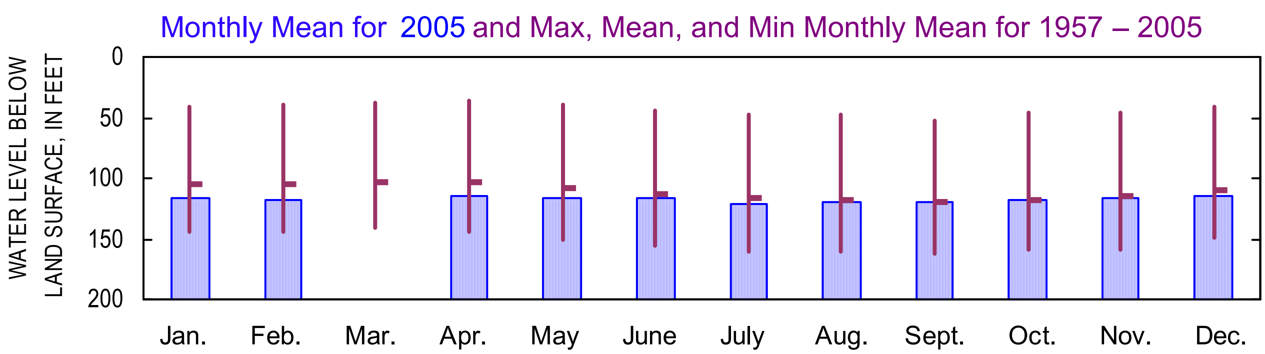
Negative value indicates water level above land surface

Clayton aquifer
2005 Calendar Year

313554084062501 **Site Name: 13L002**

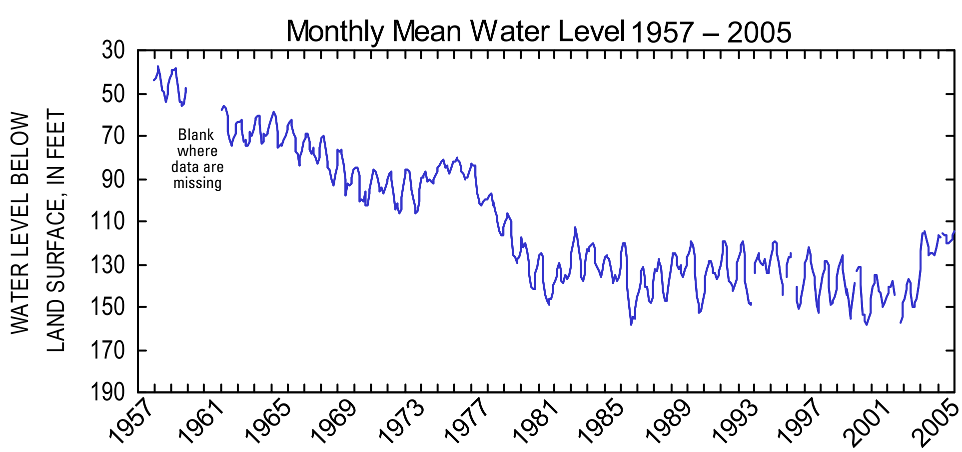
Latitude: 31 °35 '51" Longitude: 084° 06 '24" DOUGHERTY Period of Record: 1957 – 2005
Well Depth: 760 feet Datum: 212.84 feet NGVD29 Well Diameter: 12.00 inches

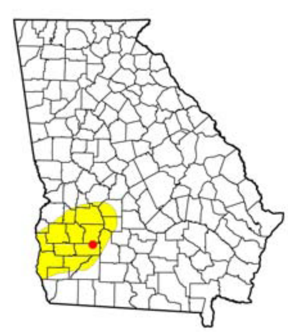




Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean	116.28	117.77		115.48	116.50	116.93	120.69	120.19	119.20	118.50	116.69	114.52
Max	117.04	119.21		117.09	117.21	119.02	122.72	122.63	119.89	120.08	117.55	116.16
Min	115.45	116.64		114.44	115.95	115.69	120.18	118.62	118.41	116.89	115.11	112.27
1957 – 2005												
Mean	105.60	104.50	102.56	104.08	108.93	113.45	116.26	117.68	119.84	118.60	114.69	110.14
Max	144.50	144.01	141.39	144.86	150.83	156.34	160.88	161.36	163.08	158.86	158.23	149.93
Min	40.51	38.92	37.50	36.15	38.78	44.17	47.03	47.62	52.45	46.70	45.87	41.20



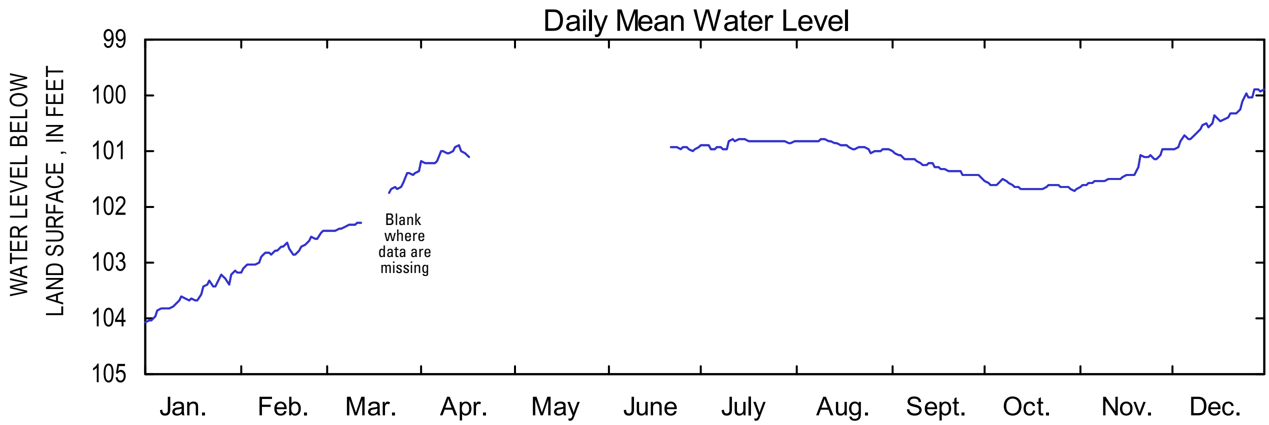


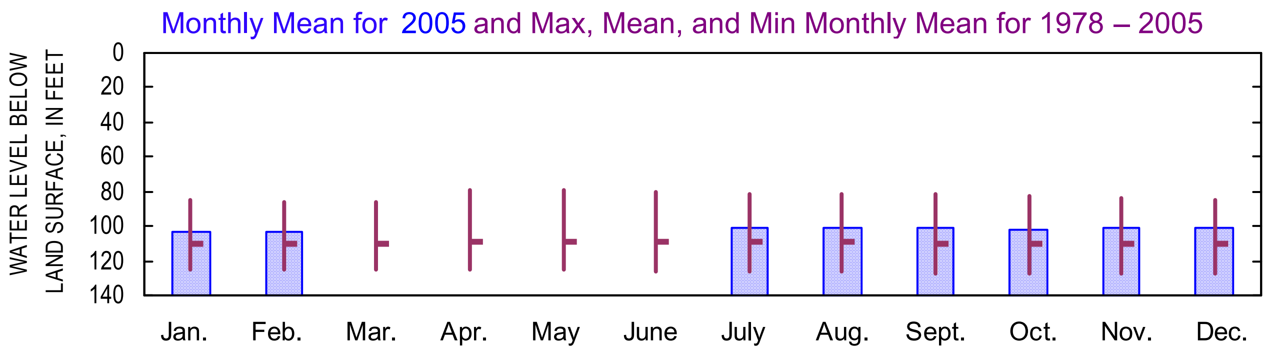
Negative value indicates water level above land surface

Clayton aquifer
2005 Calendar Year

313105084064202 **Site Name: 13L013**

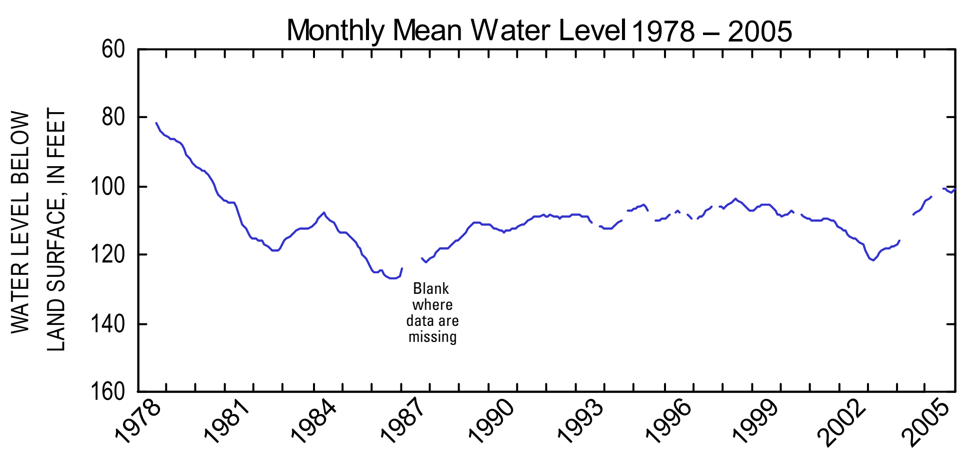
Latitude: 31°31'05" Longitude: 084°06'43" DOUGHERTY Period of Record: 1978 – 2005
Well Depth: 882 feet Datum: 195.00 feet NGVD29 Well Diameter: 4.00 inches

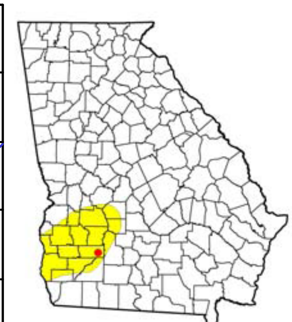




Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean	103.60	102.79					100.85	100.89	101.27	101.62	101.35	100.42
Max	104.07	103.18					100.97	101.02	101.47	101.70	101.63	100.97
Min	103.16	102.43					100.80	100.79	101.00	101.51	100.95	99.88
1978 – 2005												
Mean	110.67	110.23	109.64	109.48	109.30	109.48	109.28	109.10	109.73	110.05	110.25	110.35
Max	125.12	124.97	125.20	125.03	125.07	125.78	126.33	126.72	127.24	127.17	127.23	126.91
Min	85.43	85.74	85.93	79.09	79.01	80.73	80.92	81.27	82.03	83.13	84.10	84.75





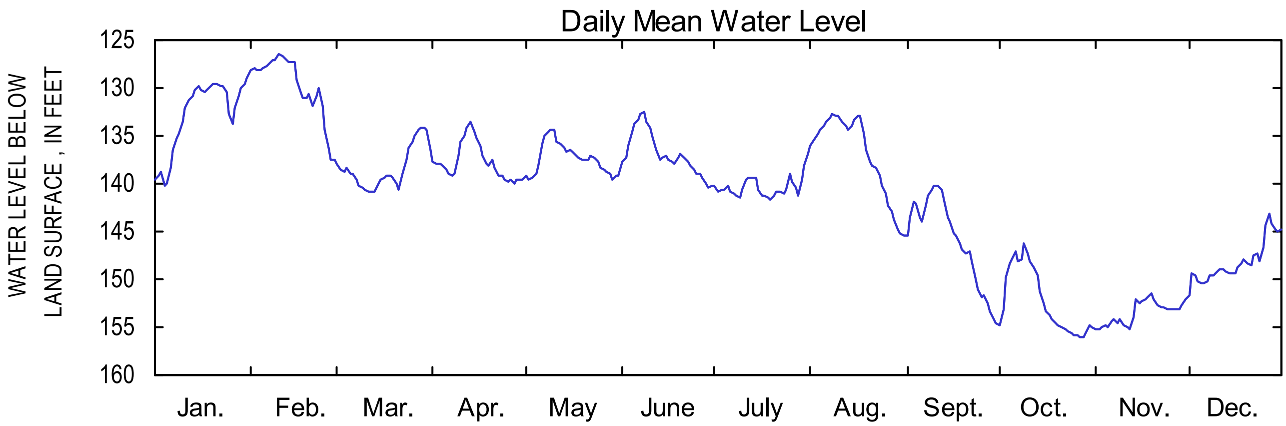
Negative value indicates water level above land surface

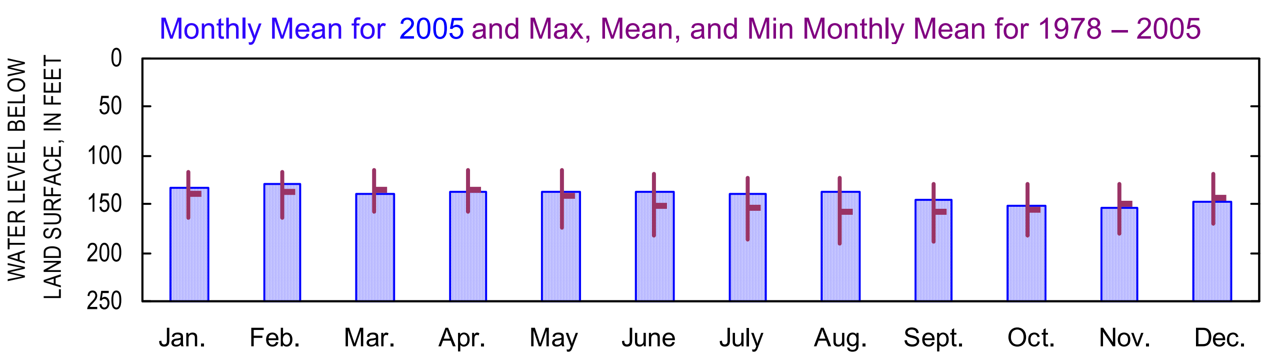
Clayton aquifer
2005 Calendar Year

313812084125001 **Site Name: 12M002**

Latitude: 31 °38 '10" Longitude: 084° 12 '49" LEE Period of Record: 1978 – 2005

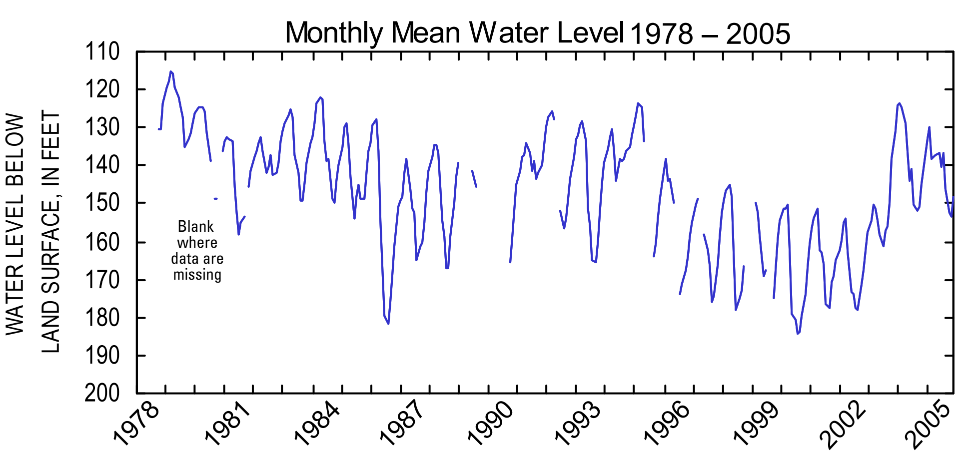
Well Depth: 650 feet Datum: 238.00 feet NGVD29 Well Diameter: 4.00 inches

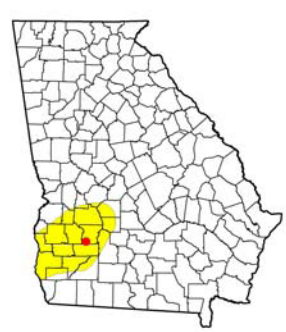




Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean	132.82	129.77	138.34	137.80	137.37	136.86	140.35	136.94	146.00	152.32	153.50	148.18
Max	140.11	137.52	140.93	139.93	139.52	140.39	141.62	145.38	154.55	155.99	155.31	151.64
Min	128.88	126.54	134.06	133.64	134.30	132.55	136.89	132.73	140.12	146.35	151.54	143.18
1978 – 2005												
Mean	139.91	137.28	135.97	135.96	142.12	150.69	153.72	156.85	158.49	155.85	150.26	144.44
Max	164.56	163.99	157.49	158.78	174.12	182.09	186.62	190.54	189.46	182.00	179.32	169.54
Min	117.78	116.22	114.79	115.53	115.75	119.06	123.31	123.61	128.41	129.50	128.77	118.98



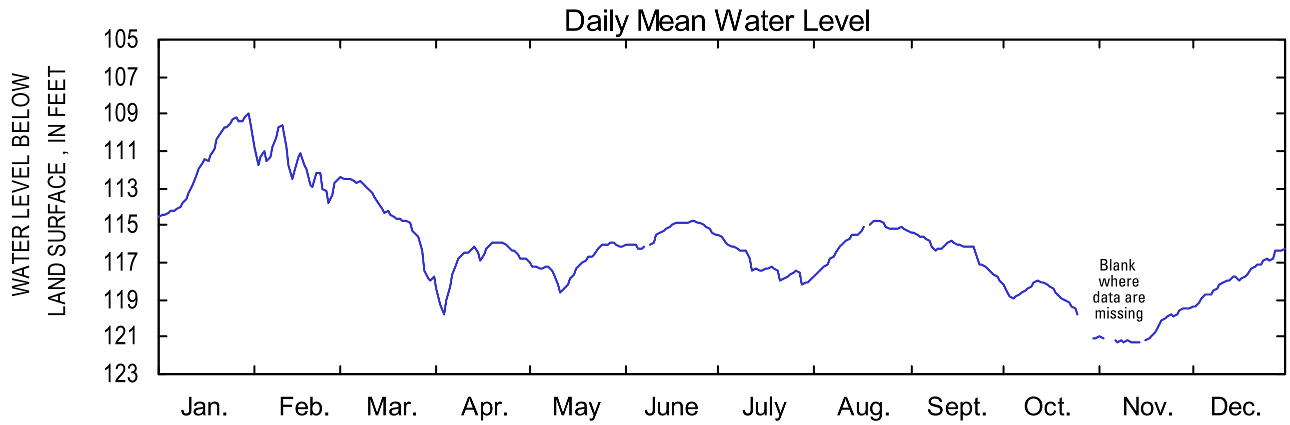


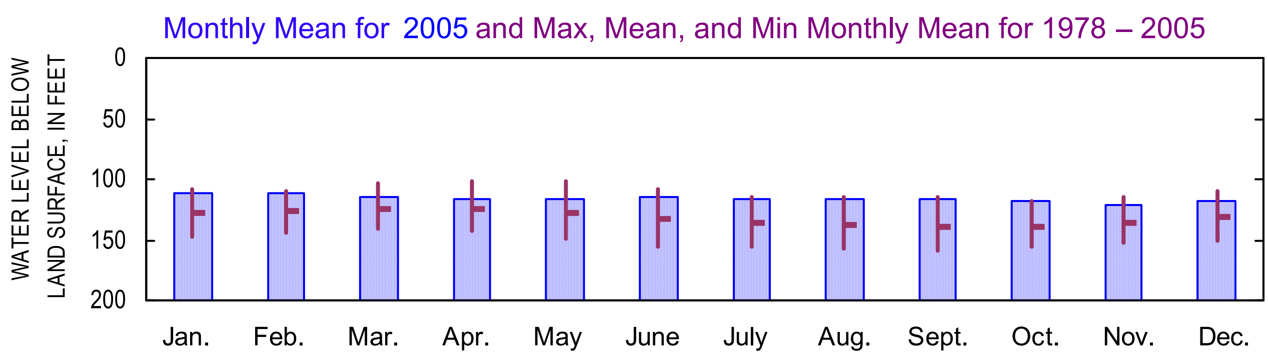
Negative value indicates water level above land surface

Providence aquifer
2005 Calendar Year

313534084103003 **Site Name: 12L021**

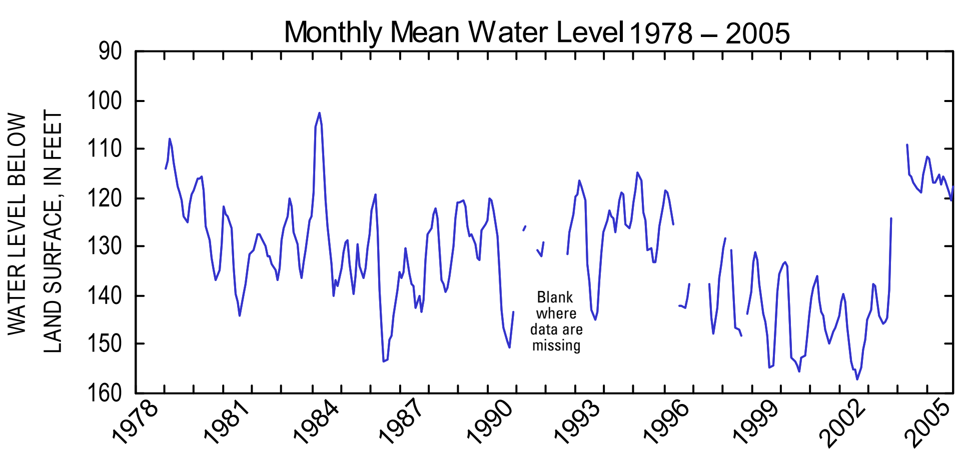
Latitude: 31° 35 ' 37" Longitude: 084° 10 ' 29" DOUGHERTY Period of Record: 1978 – 2005
Well Depth: 846.00 feet Datum: 195.00 feet NGVD29 Well Diameter: 6.00 inches

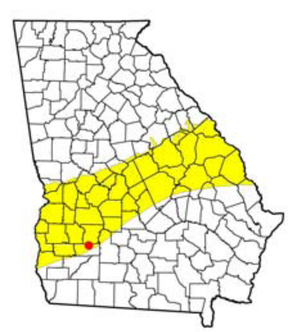




Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean	111.70	111.78	114.39	116.87	117.01	115.38	117.08	115.77	116.35	118.82	120.60	117.76
Max	114.49	113.74	117.93	119.75	118.61	116.22	118.20	117.73	117.95	121.09	121.29	119.39
Min	108.96	109.65	112.43	115.92	115.98	114.78	115.53	114.71	115.36	117.98	119.44	116.30
1978 – 2005												
Mean	128.36	125.93	123.85	123.90	127.71	133.47	135.65	137.16	138.82	138.57	135.60	131.40
Max	146.90	145.00	141.13	142.78	149.71	155.60	156.36	156.76	158.22	156.54	153.07	150.97
Min	108.96	109.65	103.05	101.59	102.44	107.65	114.35	114.71	115.36	117.98	114.90	109.66





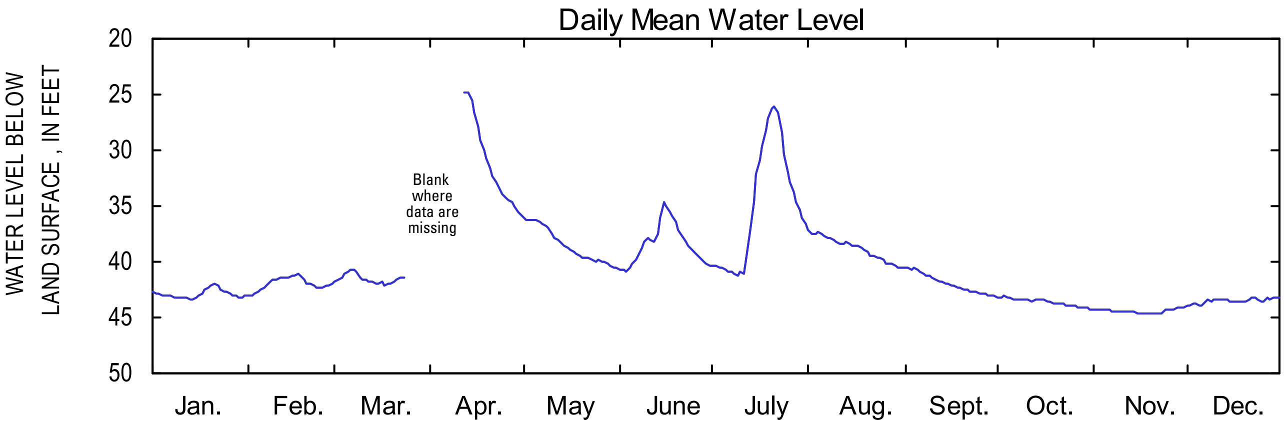
Negative value indicates water level above land surface

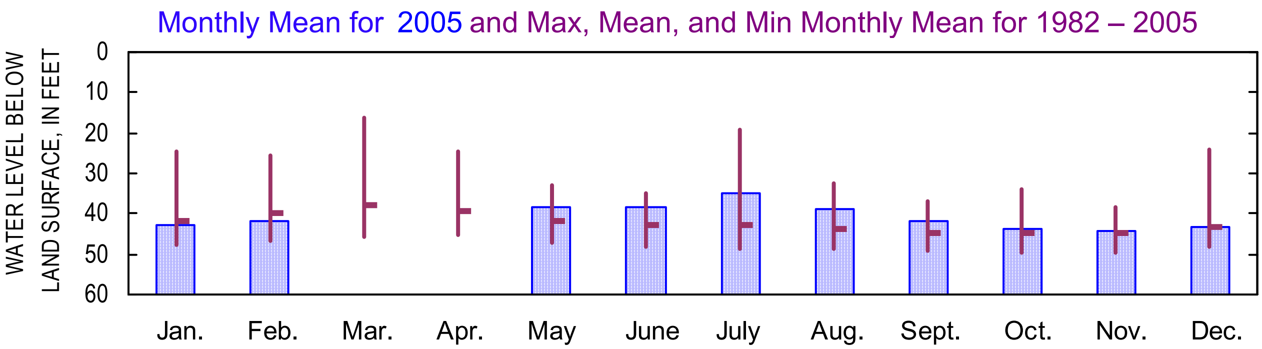
Upper Floridan aquifer
2005 Calendar Year

312617084110701 **Site Name: 12K014**

Latitude: 31 °26 '17" Longitude: 084° 11 '06" BAKER Period of Record: 1982 – 2005

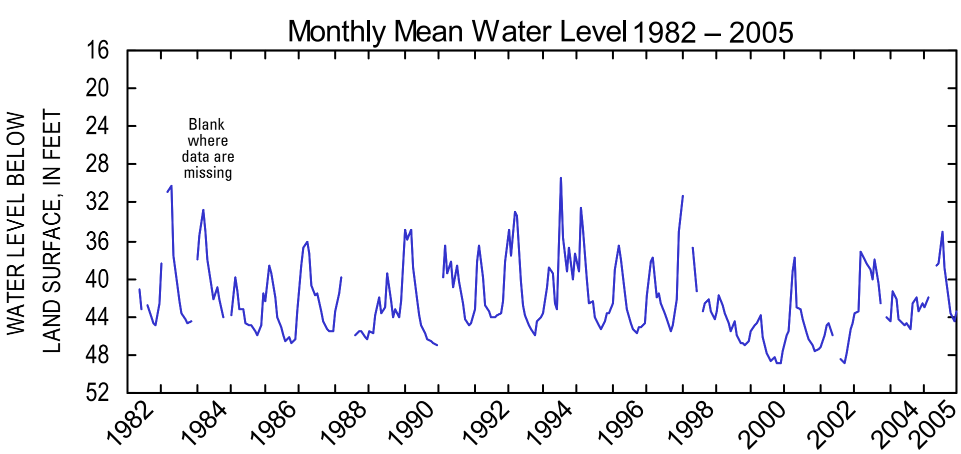
Well Depth: 137 feet Datum: 180.3 feet NGVD29 Well Diameter: 2 inches

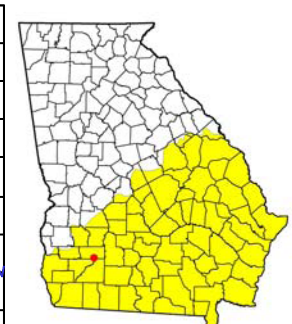




Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean	42.91	41.96			38.53	38.46	35.07	38.79	41.92	43.61	44.42	43.50
Max	43.39	43.06			40.60	40.88	41.17	40.57	43.08	44.21	44.66	44.01
Min	42.00	41.12			36.06	34.69	26.09	37.17	40.49	43.12	44.11	43.21
1982 – 2005												
Mean	41.64	39.75	37.88	39.25	41.65	42.99	42.60	43.75	44.52	44.68	44.77	43.46
Max	47.63	46.76	45.94	45.40	47.30	48.09	48.53	48.91	49.06	49.56	49.58	47.96
Min	24.42	25.36	16.07	24.74	33.19	34.69	19.05	32.58	37.11	33.86	38.28	24.04



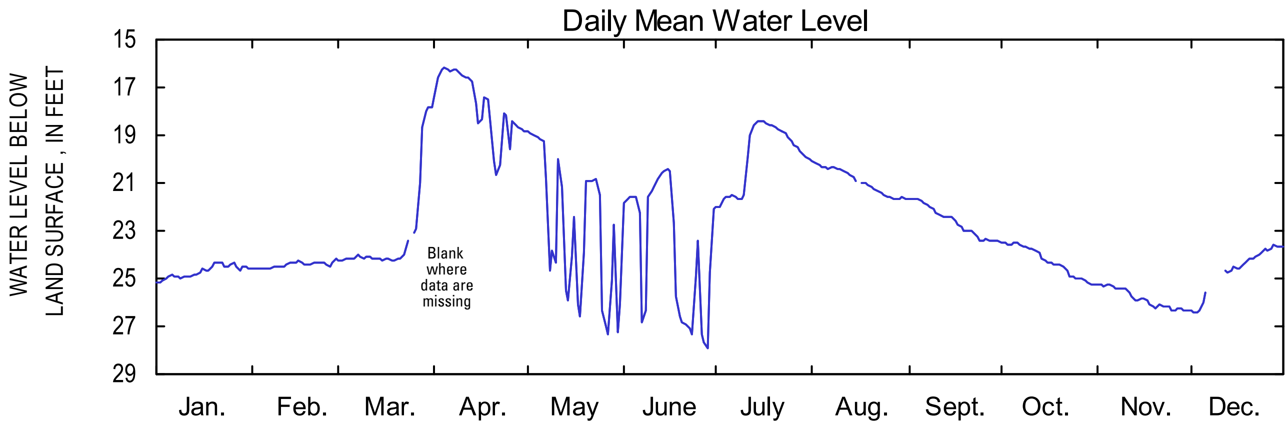


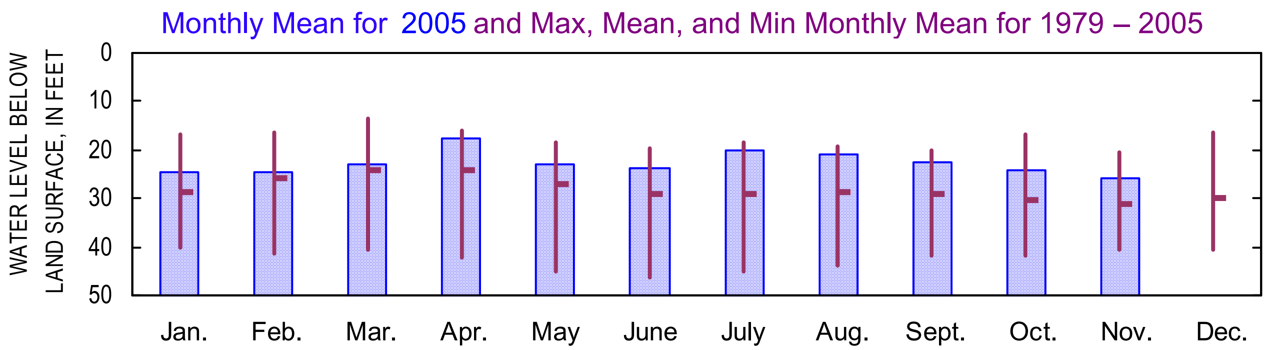
Negative value indicates water level above land surface

Upper Floridan aquifer
2005 Calendar Year

312919084153801 **Site Name: 11K003**

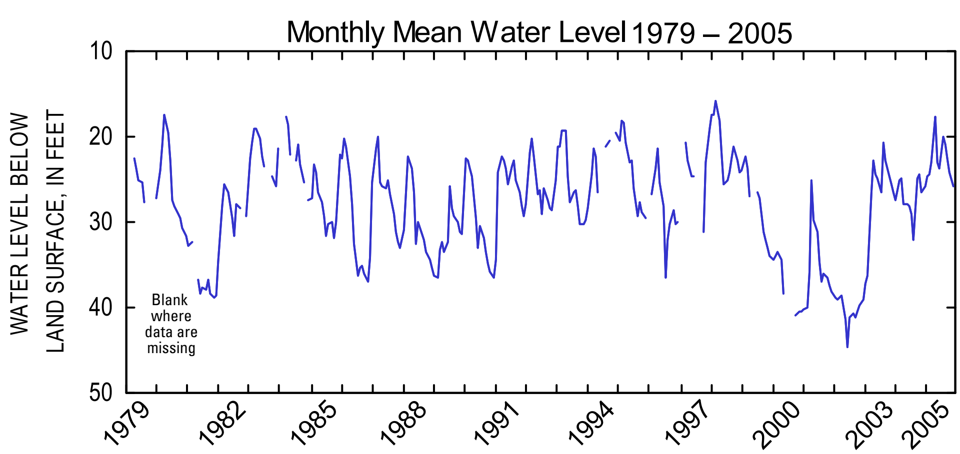
Latitude: 31 °29 '14" Longitude: 084° 15 '30" DOUGHERTY Period of Record: 1979 – 2005
Well Depth: 150 feet Datum: 194.86 feet NGVD29 Well Diameter: 4.00 inches

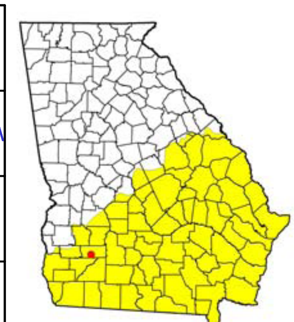




Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean	24.71	24.44	23.14	17.75	22.92	23.72	19.90	20.92	22.60	24.27	25.84	
Max	25.17	24.62	24.27	20.63	27.33	27.89	22.00	21.69	23.46	25.26	26.36	
Min	24.32	24.17	17.83	16.18	18.86	20.45	18.40	20.10	21.64	23.51	25.22	
1979 – 2005												
Mean	28.56	25.91	24.16	24.22	26.98	28.92	29.01	28.89	29.23	30.13	30.95	29.87
Max	40.34	41.46	40.63	42.33	44.88	46.51	45.18	43.99	41.75	41.82	40.45	40.58
Min	16.94	16.19	13.61	16.17	18.26	19.86	18.40	19.08	20.17	16.74	20.54	16.52





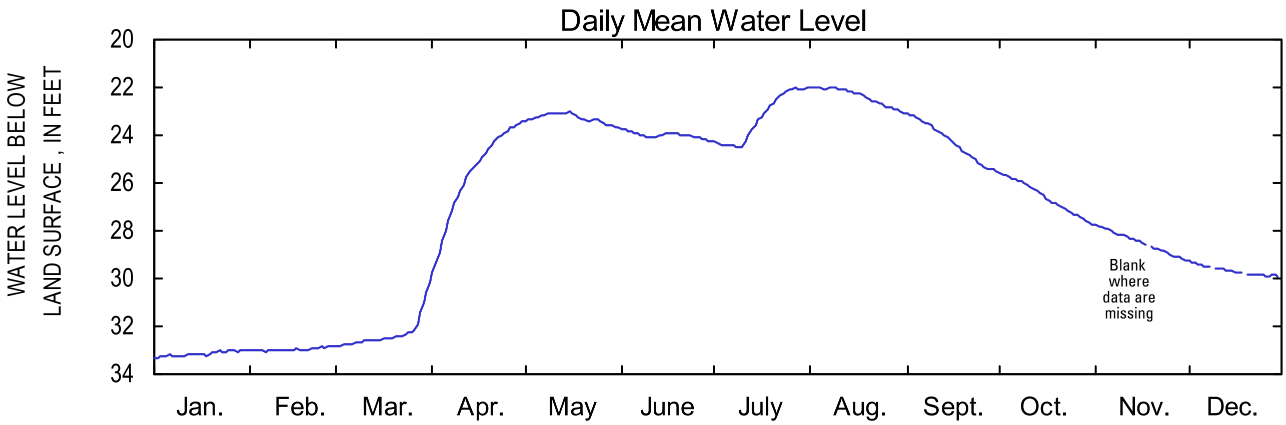
Negative value indicates water level above land surface

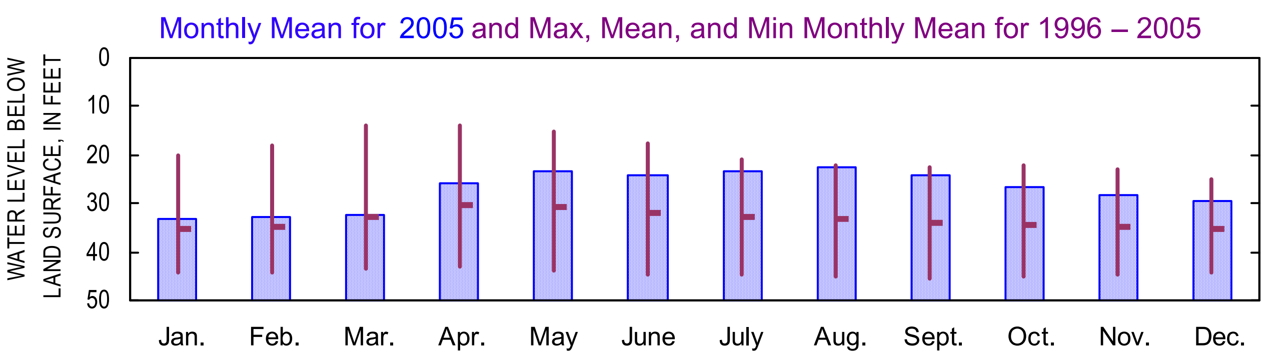
Upper Floridan aquifer
2005 Calendar Year

312950084131801 **Site Name: 12K141**

Latitude: 31°29'51" Longitude: 084° 13'17" DOUGHERTY Period of Record: 1996 – 2005

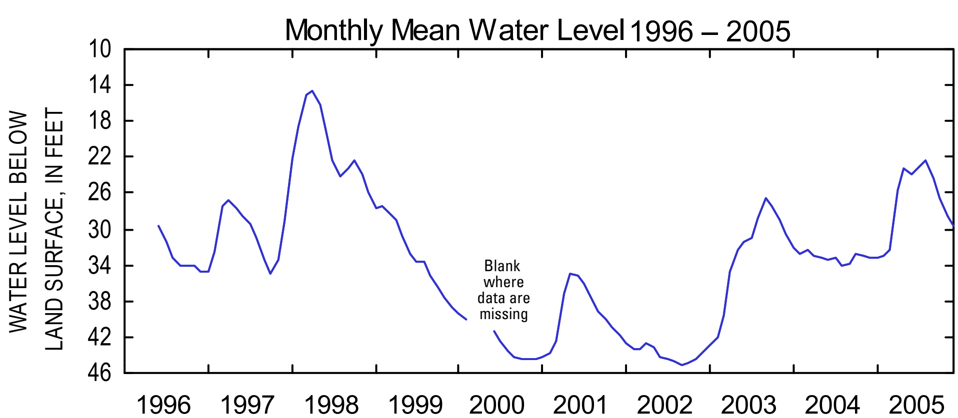
Well Depth: 200 feet Datum: 195.02 feet NGVD29 Well Diameter: 4 inches

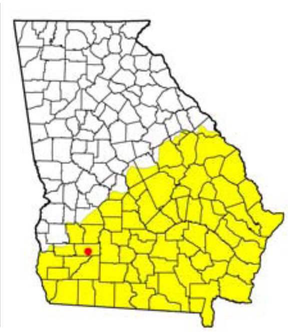




Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean	33.16	32.96	32.30	25.62	23.29	23.99	23.28	22.37	24.28	26.61	28.48	29.67
Max	33.30	33.04	32.82	29.77	23.69	24.27	24.51	23.05	25.50	27.73	29.23	29.91
Min	33.00	32.80	30.16	23.44	23.04	23.71	22.03	21.99	23.09	25.58	27.75	29.27
1996 – 2005												
Mean	35.44	34.86	32.67	30.43	30.79	32.01	32.74	33.31	33.92	34.45	34.95	35.25
Max	44.40	44.17	43.57	43.19	43.72	44.59	44.63	45.04	45.41	45.13	44.87	44.40
Min	20.11	18.01	13.85	13.99	15.27	17.65	20.99	21.99	22.72	22.14	22.92	24.89





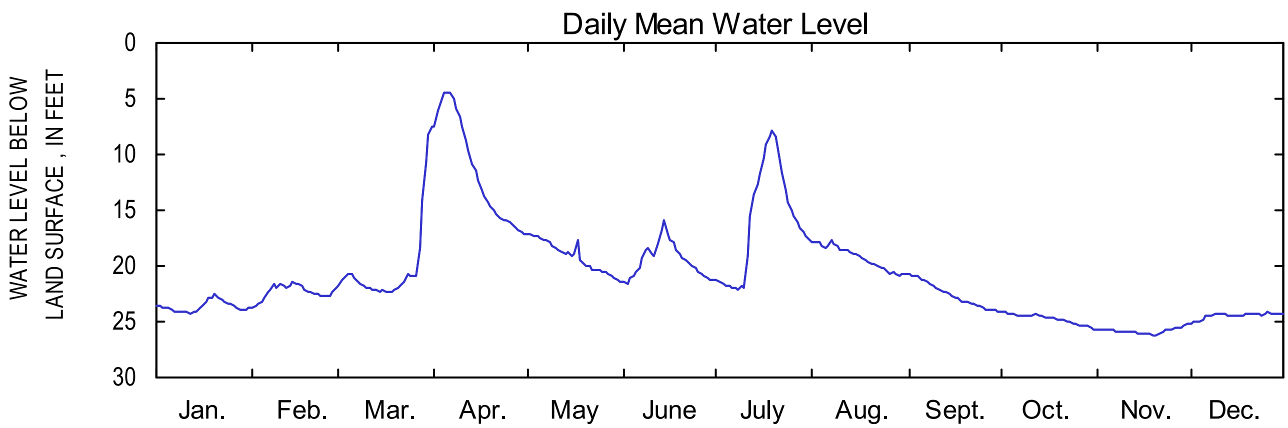
Negative value indicates water level above land surface

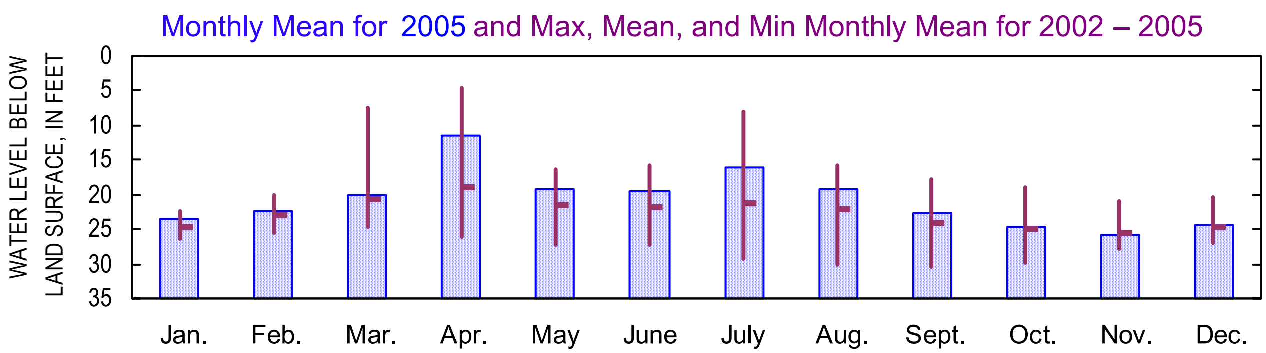
Upper Floridan aquifer
2005 Calendar Year

312947084092201 **Site Name: 12K180**

Latitude: 31 °29 '46" Longitude: 084° 09 '22" DOUGHERTY Period of Record: 2002 – 2005

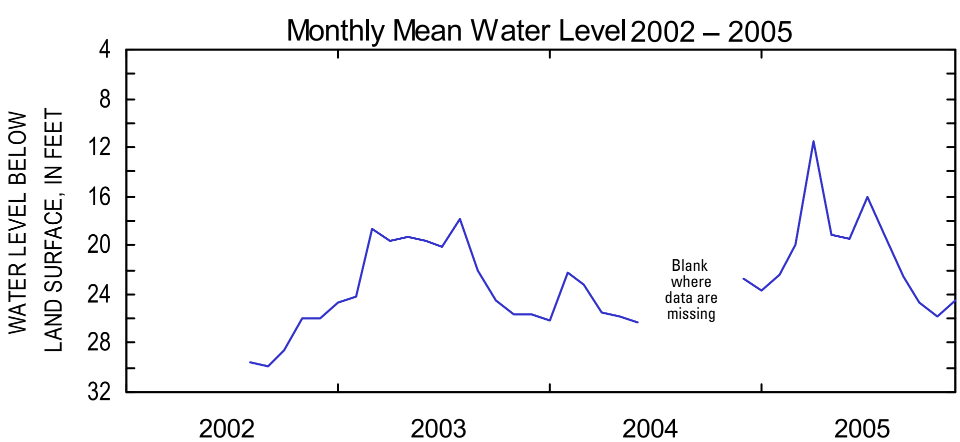
Well Depth: 170 feet Datum: 171.75 feet NGVD29 Well Diameter: 4 inches





Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean	23.65	22.32	20.02	11.46	19.16	19.50	16.05	19.26	22.59	24.74	25.80	24.46
Max	24.20	23.78	22.30	17.06	21.44	21.57	22.10	20.92	24.06	25.62	26.23	25.13
Min	22.54	21.51	7.57	4.47	17.11	15.89	7.91	17.69	20.69	24.05	25.21	24.12
2002 – 2005												
Mean	24.81	22.90	20.66	18.84	21.38	21.81	21.35	22.22	24.11	25.07	25.48	24.71
Max	26.53	25.62	24.70	26.21	27.15	27.25	29.26	30.04	30.31	29.78	27.85	27.05
Min	22.44	20.15	7.57	4.47	16.31	15.89	7.91	15.81	17.93	19.02	21.05	20.42



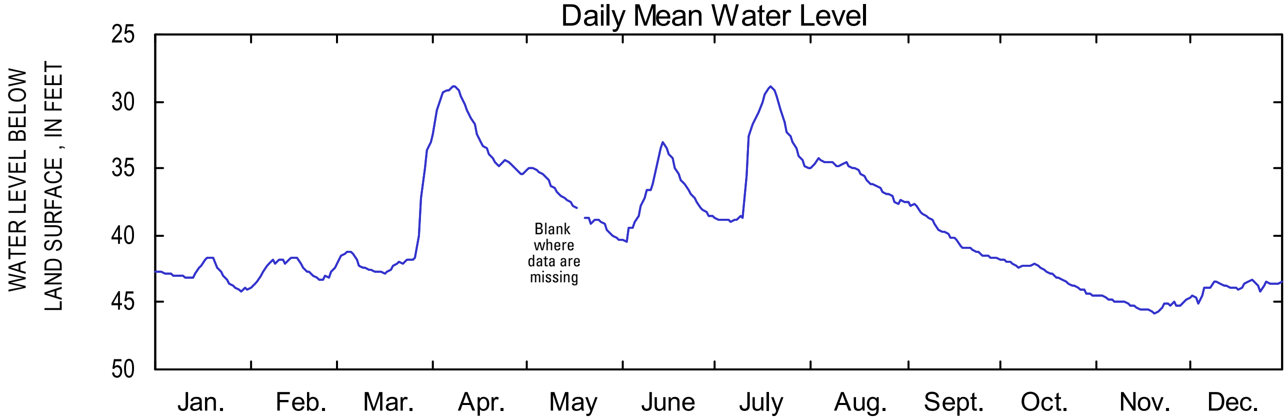
Negative value indicates water level above land surface

Upper Floridan aquifer
2005 Calendar Year

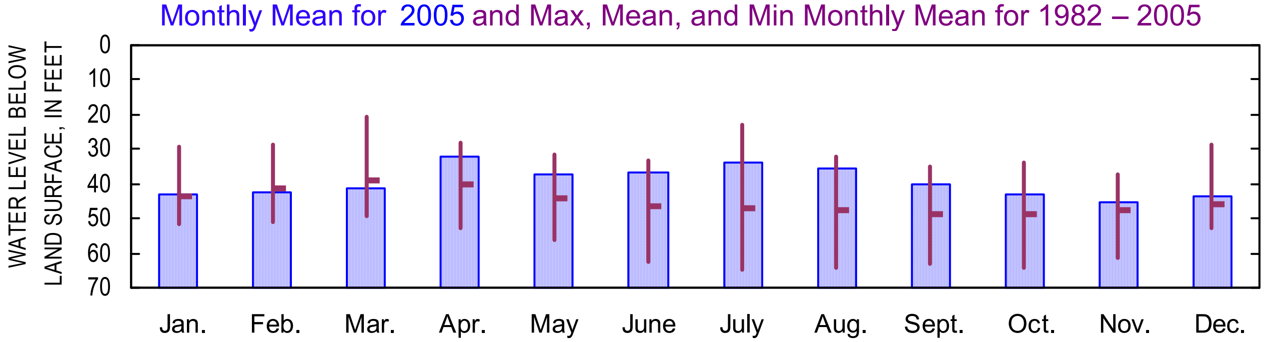
313450084091801 **Site Name: 12L029**

Latitude: 31 °34 '50" Longitude: 084° 09 '18" DOUGHERTY Period of Record: 1982 – 2005
Well Depth: 178 feet Datum: 199 feet NGVD29 Well Diameter: 6 inches

Daily Mean Water Level



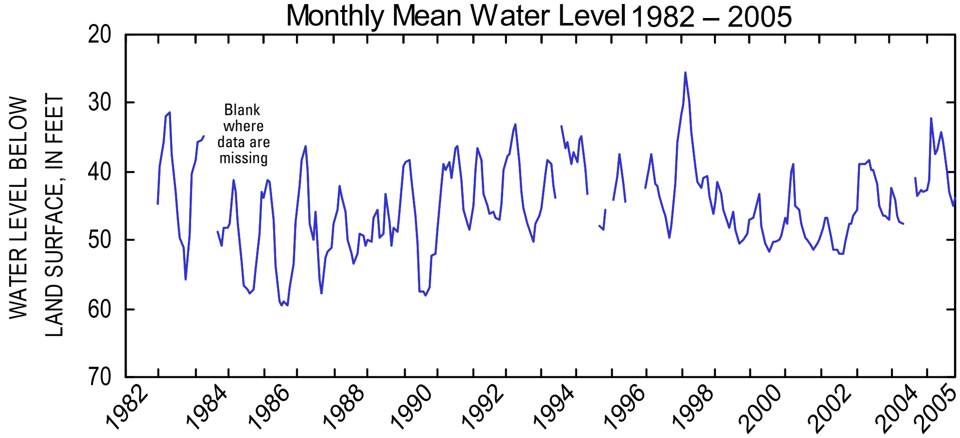
Monthly Mean for 2005 and Max, Mean, and Min Monthly Mean for 1982 – 2005

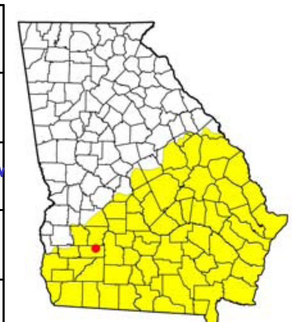


Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean	42.95	42.55	41.10	32.32	37.55	36.90	34.12	35.62	39.96	42.92	45.13	43.86
Max	44.14	43.84	42.87	35.41	40.34	40.44	39.04	37.62	41.71	44.43	45.77	45.04
Min	41.63	41.67	33.08	28.88	34.96	33.01	28.86	34.19	37.52	41.77	44.44	43.31
1982 – 2005												
Mean	43.69	41.28	39.20	40.06	44.17	46.48	46.91	47.81	48.78	48.72	47.57	45.74
Max	51.48	51.35	49.52	52.77	56.47	62.72	64.66	63.99	63.07	63.98	61.44	52.59
Min	29.18	28.63	20.47	28.03	31.36	33.01	23.04	32.12	34.90	33.60	37.36	28.52

Monthly Mean Water Level 1982 – 2005





Negative value indicates water level above land surface

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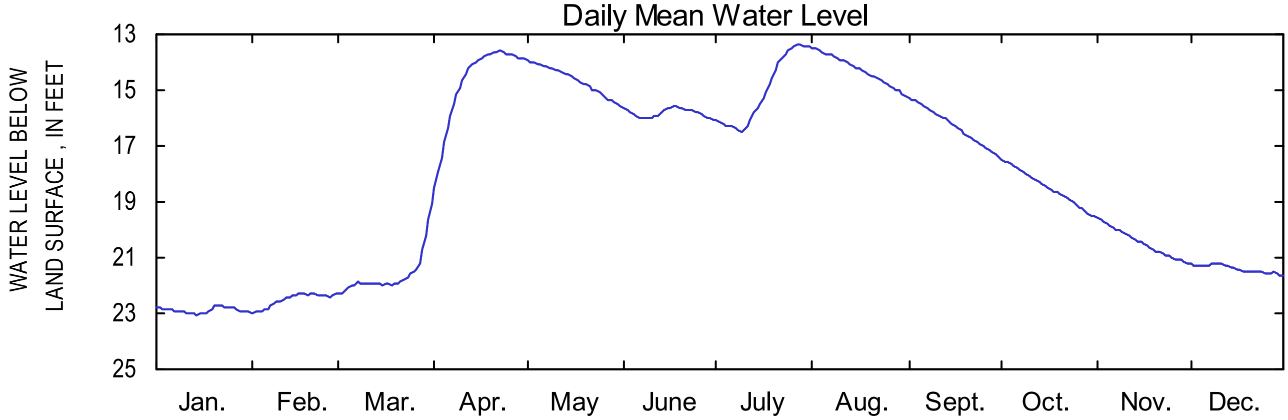
Upper Floridan aquifer
2005 Calendar Year

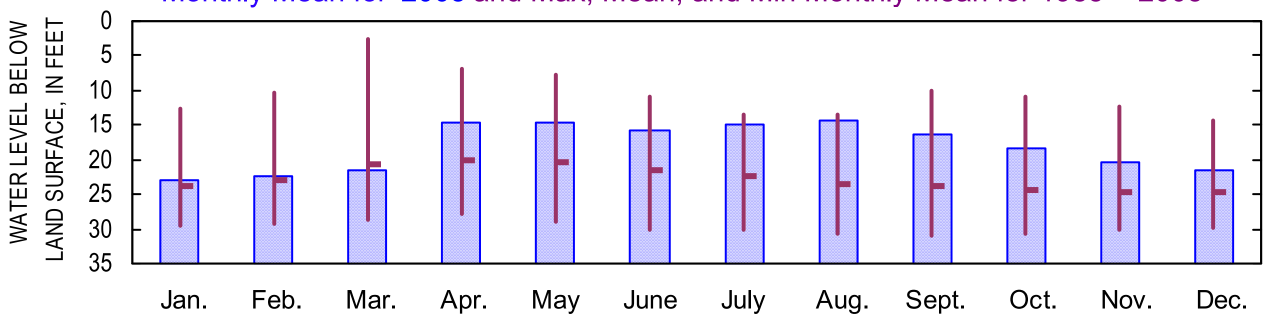
313130084101001 **Site Name: 12L030**

Latitude: 31°31'33" Longitude: 084° 10'10" DOUGHERTY Period of Record: 1985 – 2005
Well Depth: 180 feet Datum: 177.10 feet NGVD29 Well Diameter: 4 inches

Daily Mean Water Level



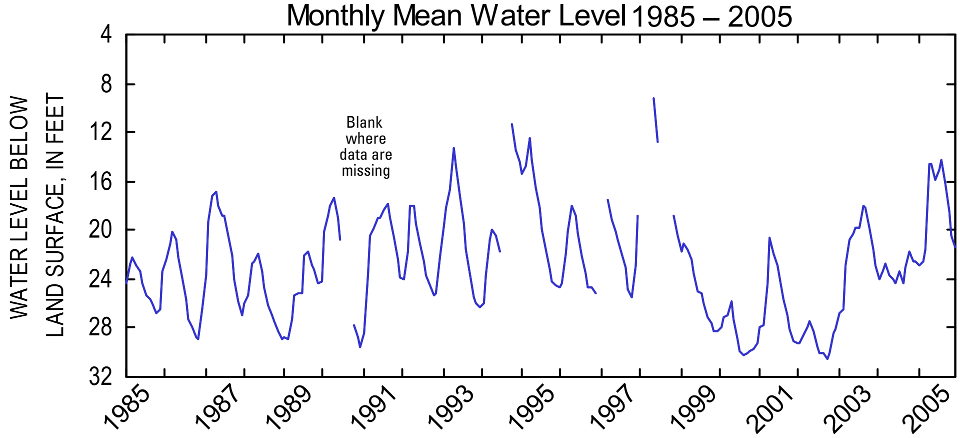
Monthly Mean for 2005 and Max, Mean, and Min Monthly Mean for 1985 – 2005

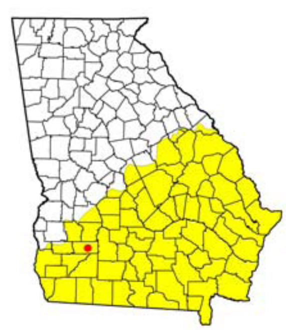


Monthly Water Level Statistics

2005												
Mean	22.88	22.51	21.63	14.66	14.65	15.82	15.01	14.27	16.28	18.48	20.46	21.41
Max	23.04	22.97	22.29	18.49	15.58	16.05	16.47	15.20	17.38	19.52	21.19	21.66
Min	22.69	22.29	19.10	13.60	13.94	15.59	13.39	13.49	15.27	17.47	19.56	21.21
1985 – 2005												
Mean	23.94	22.90	20.79	19.97	20.38	21.61	22.46	23.41	23.88	24.34	24.80	24.60
Max	29.47	29.27	28.69	27.77	28.94	30.09	30.23	30.62	30.91	30.62	30.21	29.78
Min	12.75	10.31	2.59	6.89	7.67	11.01	13.39	13.49	9.96	10.78	12.27	14.25

Monthly Mean Water Level 1985 – 2005





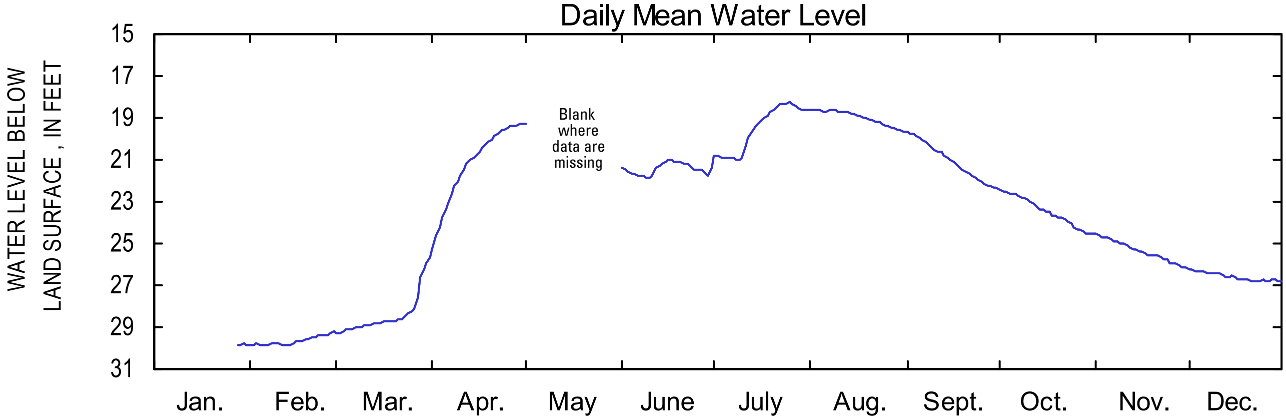
Negative value indicates water level above land surface

Upper Floridan aquifer
2005 Calendar Year

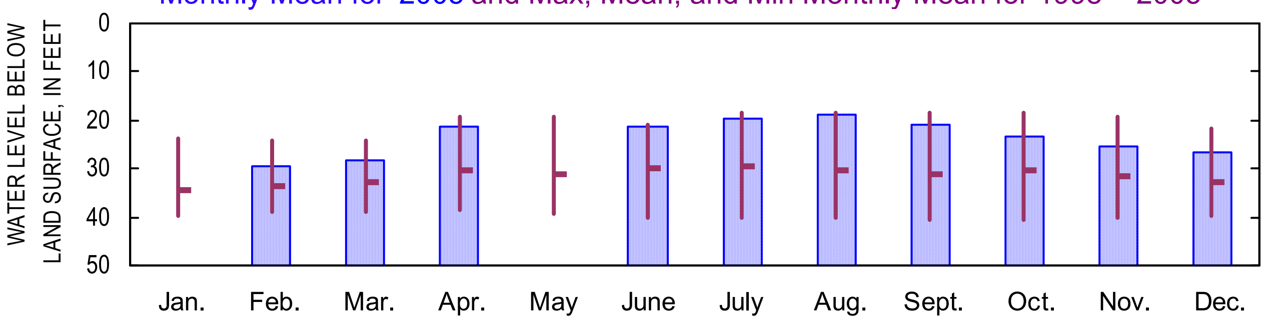
313040084125901 **Site Name: 12L277**

Latitude: 31°30'41" Longitude: 084° 12'33" DOUGHERTY Period of Record: 1998 – 2005
Well Depth: 203 feet Datum: 190.7 feet NGVD29 Well Diameter: 4 inches

Daily Mean Water Level



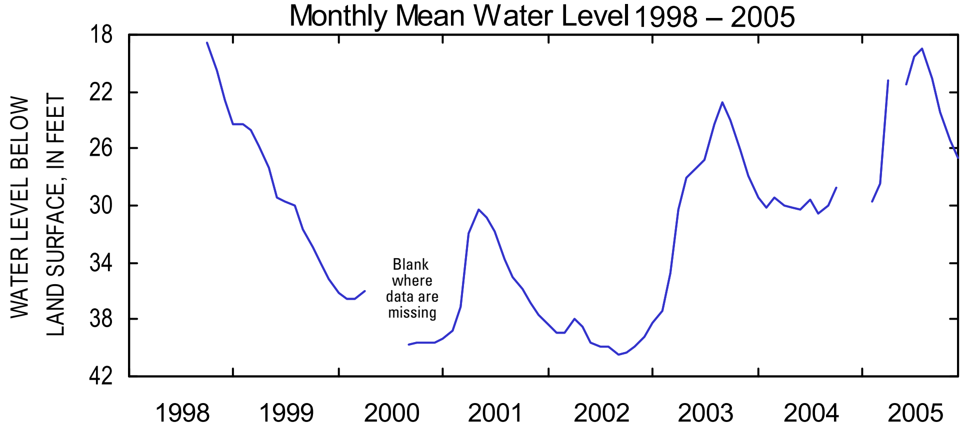
Monthly Mean for 2005 and Max, Mean, and Min Monthly Mean for 1998 – 2005

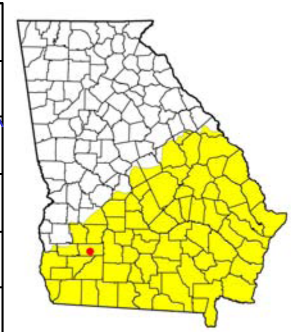


Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean		29.66	28.43	21.17		21.43	19.51	18.98	21.05	23.46	25.36	26.59
Max		29.87	29.28	25.27		21.85	21.01	19.67	22.36	24.54	26.16	26.83
Min		29.22	25.68	19.24		21.04	18.27	18.60	19.68	22.45	24.54	26.21
1998 – 2005												
Mean	34.23	33.65	32.83	30.46	31.12	29.84	29.54	30.33	31.19	30.45	31.48	32.69
Max	39.64	39.09	39.05	38.52	39.26	39.98	40.14	40.30	40.64	40.43	40.26	39.74
Min	23.69	24.22	24.32	19.24	19.24	21.04	18.27	18.60	18.63	18.24	19.36	21.60

Monthly Mean Water Level 1998 – 2005





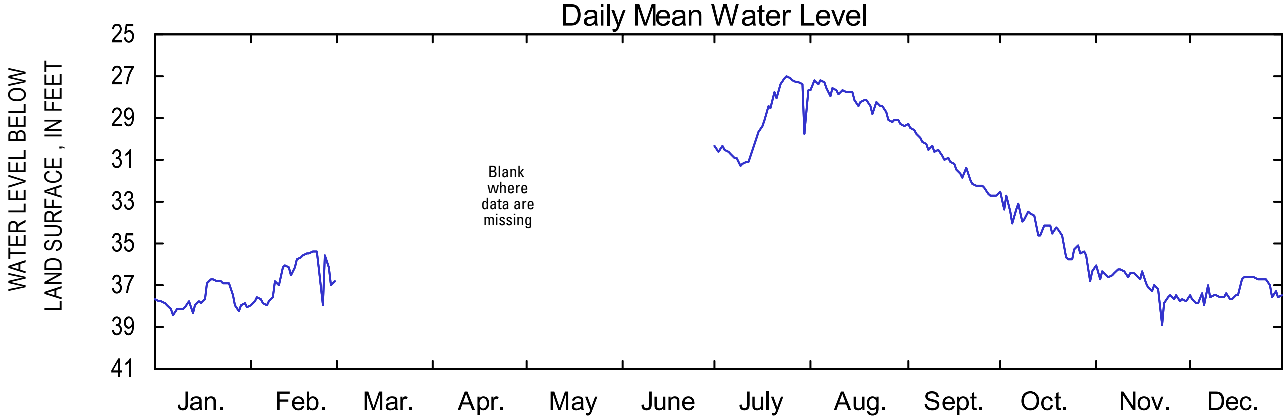
Negative value indicates water level above land surface

Upper Floridan aquifer
2005 Calendar Year

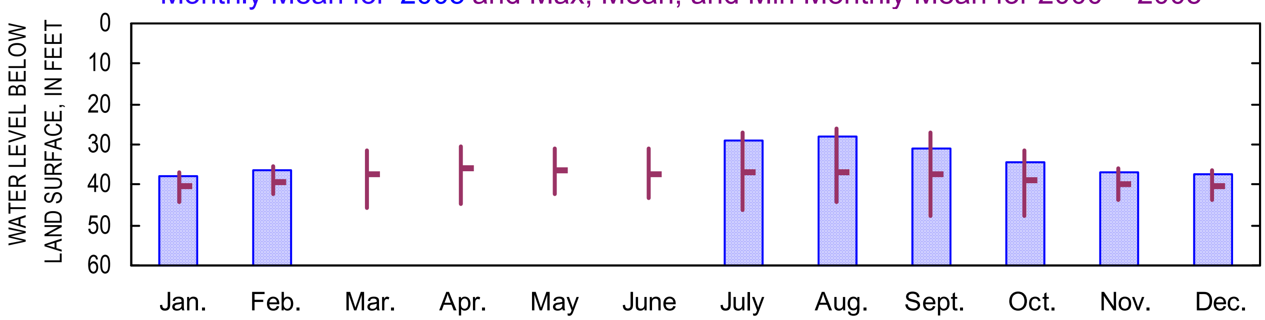
313019084104601 **Site Name: 12L370**

Latitude: 31 ° 30 ' 19" Longitude: 084° 10 ' 46" DOUGHERTY Period of Record: 2000 – 2005
Well Depth: 172 feet Datum: 188.11 feet NGVD29 Well Diameter: 2 inches

Daily Mean Water Level



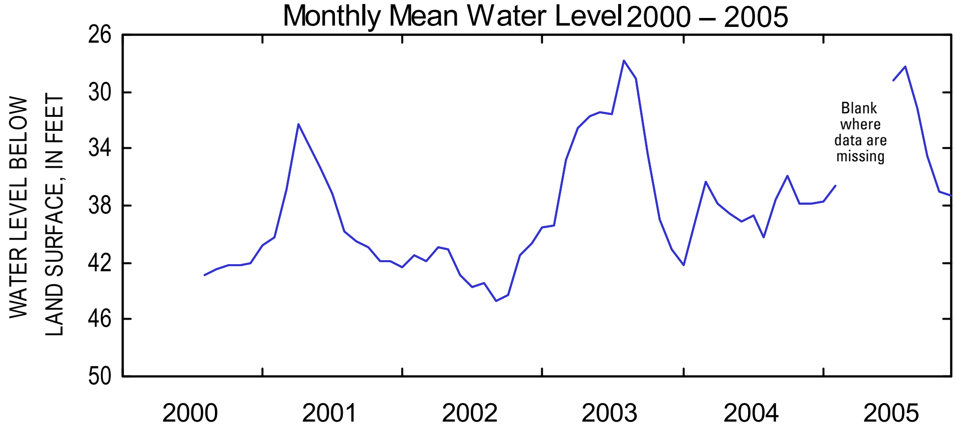
Monthly Mean for 2005 and Max, Mean, and Min Monthly Mean for 2000 – 2005

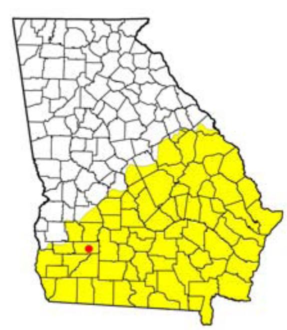


Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean	37.66	36.63					29.23	28.18	31.19	34.44	36.96	37.27
Max	38.47	37.98					31.29	29.34	32.75	36.77	38.91	37.93
Min	36.68	35.34					27.04	27.21	29.32	32.54	36.04	36.57
2000 – 2005												
Mean	40.48	39.32	37.46	35.90	36.27	37.21	36.82	37.05	37.58	38.61	39.90	40.12
Max	44.31	42.25	45.82	44.87	42.11	43.44	46.01	44.29	47.85	47.72	43.77	43.66
Min	36.68	35.34	31.72	30.61	30.96	30.96	27.04	26.29	26.88	31.27	36.04	36.57

Monthly Mean Water Level 2000 – 2005





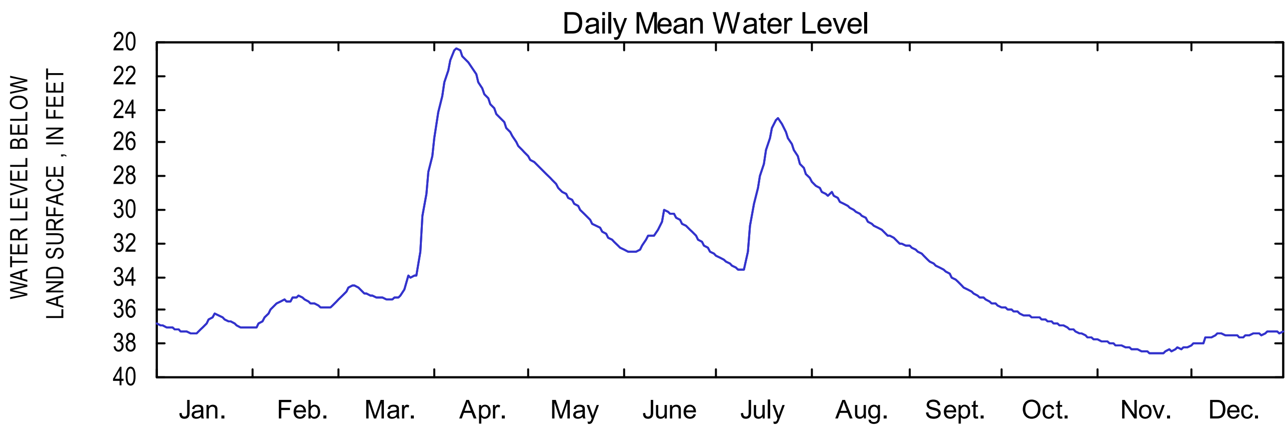
Negative value indicates water level above land surface

Upper Floridan aquifer
2005 Calendar Year

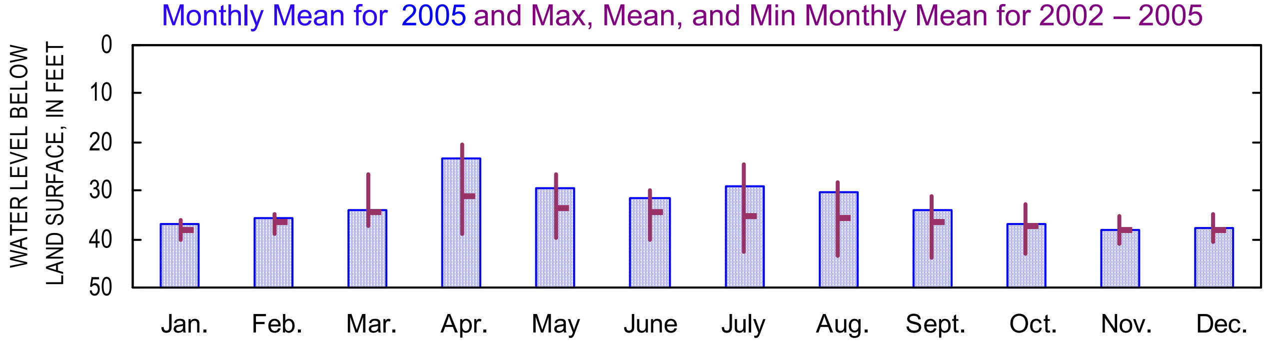
313000084100301 **Site Name: 12L373**

Latitude: 31° 30 ' 00" Longitude: 084° 10 ' 02" DOUGHERTY Period of Record: 2002 – 2005

Well Depth: 170 feet Datum: 185.86 feet NGVD29 Well Diameter: 4 inches

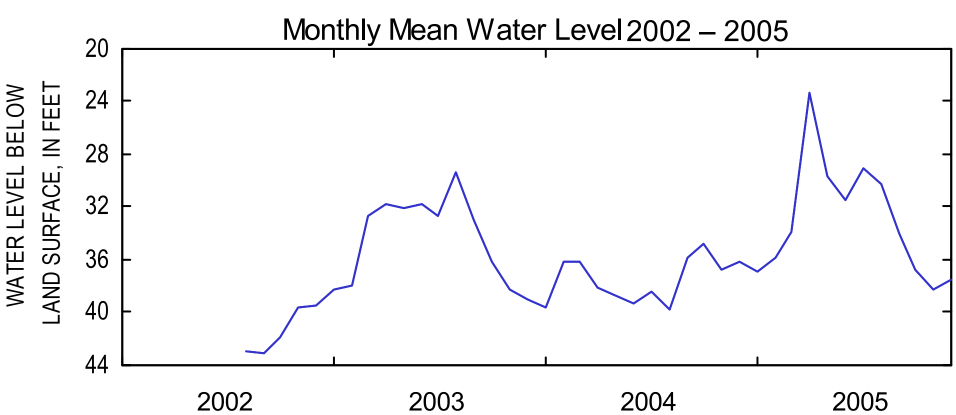


Monthly Mean for 2005 and Max, Mean, and Min Monthly Mean for 2002 – 2005



Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean	36.91	35.81	33.97	23.33	29.60	31.53	29.08	30.29	34.04	36.71	38.26	37.53
Max	37.33	37.06	35.40	26.59	32.25	32.61	33.56	32.16	35.71	37.71	38.59	38.09
Min	36.23	35.14	26.76	20.35	26.80	30.06	24.50	28.32	32.17	35.80	37.76	37.28
2002 – 2005												
Mean	38.28	36.64	34.29	31.11	33.46	34.22	35.09	35.61	36.52	37.39	38.25	38.06
Max	40.08	39.10	37.32	38.99	39.86	40.14	42.74	43.54	43.71	43.02	41.12	40.38
Min	36.23	34.65	26.76	20.35	26.80	30.06	24.50	28.25	30.98	32.79	35.37	34.83



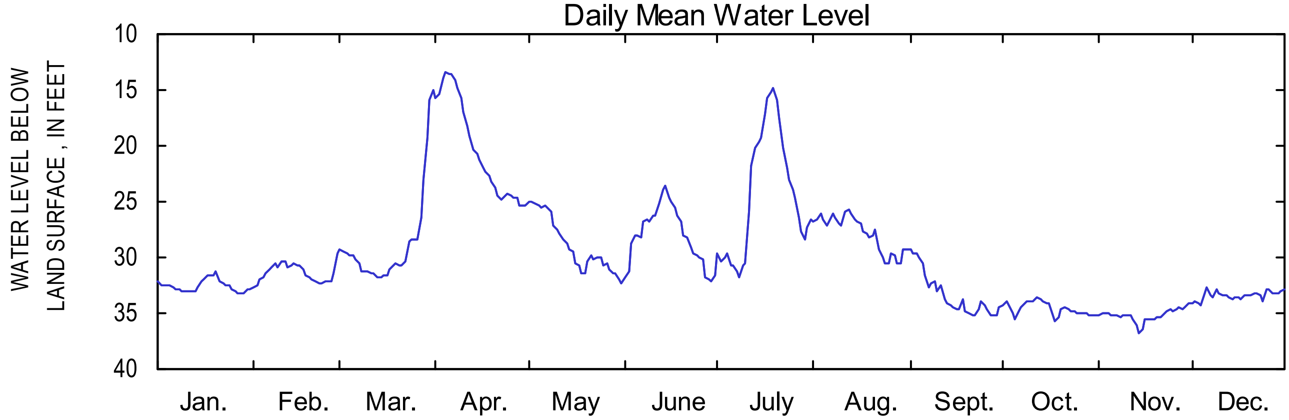
Negative value indicates water level above land surface

Upper Floridan aquifer
2005 Calendar Year

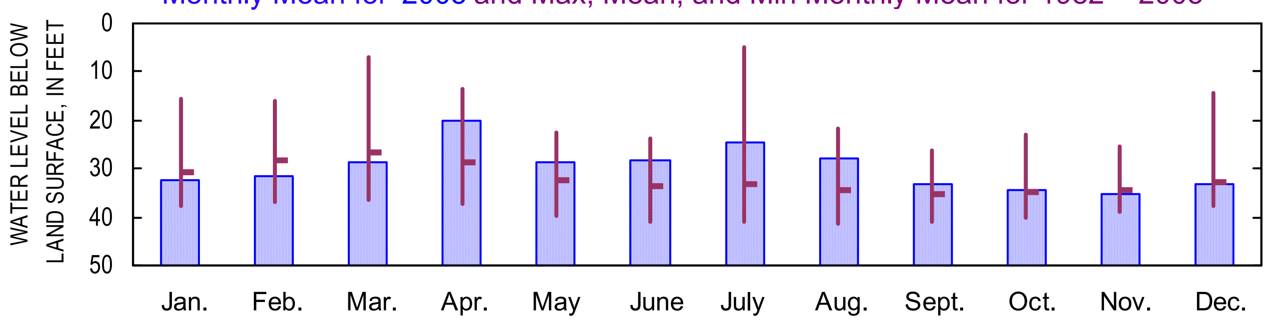
312704084071601 **Site Name: 13K014**

Latitude: 31° 27 ' 04" Longitude: 084° 07 ' 16" DOUGHERTY Period of Record: 1982 – 2005
Well Depth: 131 feet Datum: 183.00 feet NGVD29 Well Diameter: 4 inches

Daily Mean Water Level



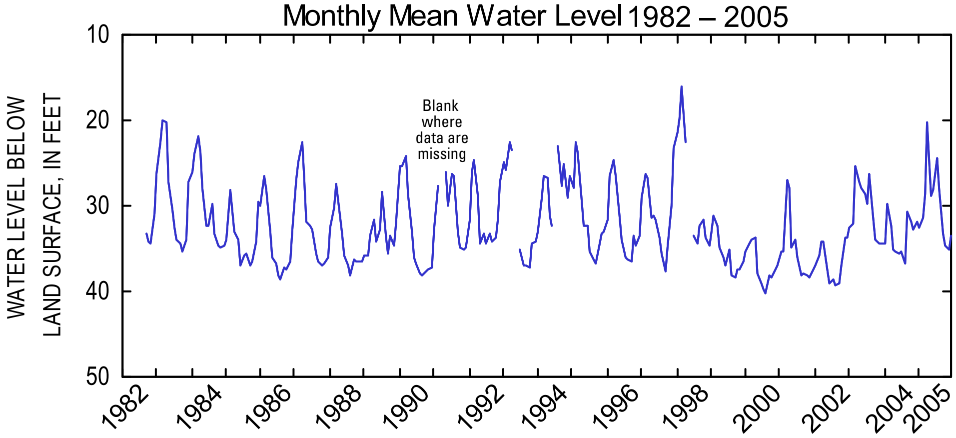
Monthly Mean for 2005 and Max, Mean, and Min Monthly Mean for 1982 – 2005

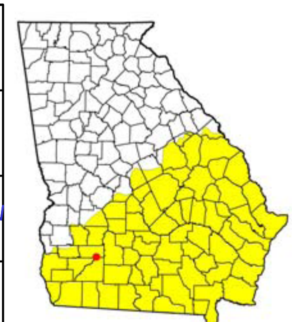


Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean	32.56	31.37	28.70	20.28	28.88	28.08	24.48	27.87	33.35	34.61	35.19	33.40
Max	33.24	32.64	31.80	25.38	32.34	32.22	31.72	30.61	35.26	35.77	36.75	34.29
Min	31.30	29.62	15.02	13.39	24.94	23.65	14.87	25.65	29.22	33.63	34.17	32.64
1982 – 2005												
Mean	30.87	28.34	26.62	28.58	32.28	33.71	33.29	34.28	35.25	34.97	34.61	32.86
Max	37.66	37.07	36.62	37.28	39.80	40.79	41.17	41.40	40.87	40.04	39.02	37.89
Min	15.38	15.84	7.00	13.39	22.71	23.65	5.11	21.85	26.39	23.01	25.24	14.19

Monthly Mean Water Level 1982 – 2005





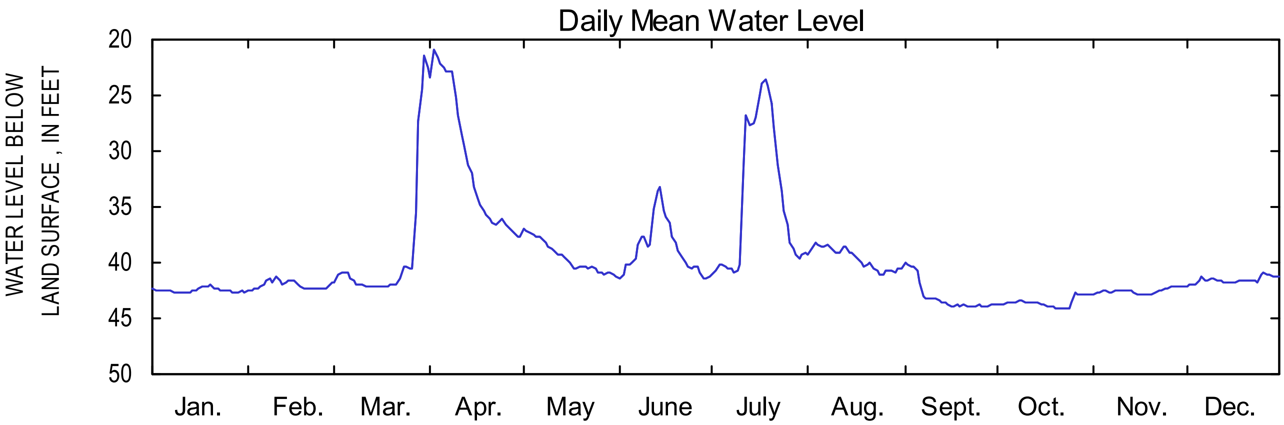
Negative value indicates water level above land surface

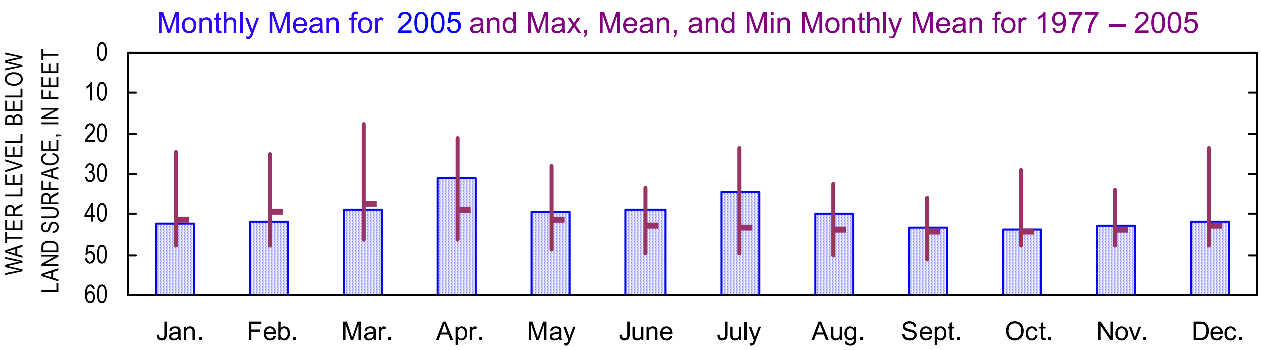
Upper Floridan aquifer
2005 Calendar Year

313105084064302 **Site Name: 13L012**

Latitude: 31° 31 ' 05" Longitude: 084° 06 ' 43" DOUGHERTY Period of Record: 1977 – 2005

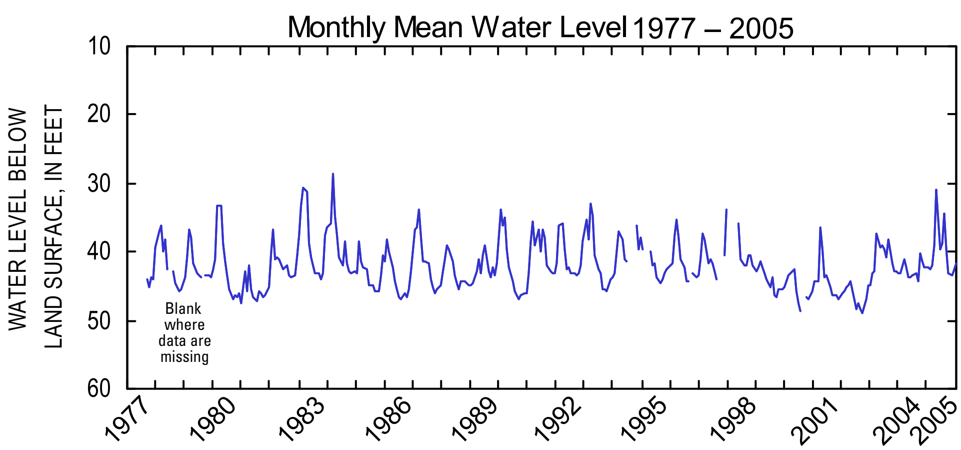
Well Depth: 218 feet Datum: 195 feet NGVD29 Well Diameter: 4 inches

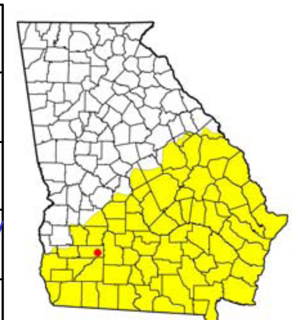




Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean	42.48	42.02	39.08	31.00	39.52	38.79	34.40	39.62	43.04	43.56	42.55	41.56
Max	42.70	42.56	42.18	37.63	41.31	41.40	41.02	41.09	44.01	44.14	42.84	42.08
Min	42.03	41.30	21.36	20.93	37.03	33.27	23.57	38.18	39.92	42.76	42.10	40.85
1977 – 2005												
Mean	41.48	39.48	37.52	38.97	41.46	42.79	43.10	43.76	44.28	44.16	43.90	42.86
Max	47.73	47.59	46.45	46.04	48.85	49.82	49.89	50.21	50.91	47.86	47.70	47.46
Min	24.48	25.00	17.60	20.93	28.20	33.27	23.57	32.43	35.86	29.25	33.84	23.76





Negative value indicates water level above land surface

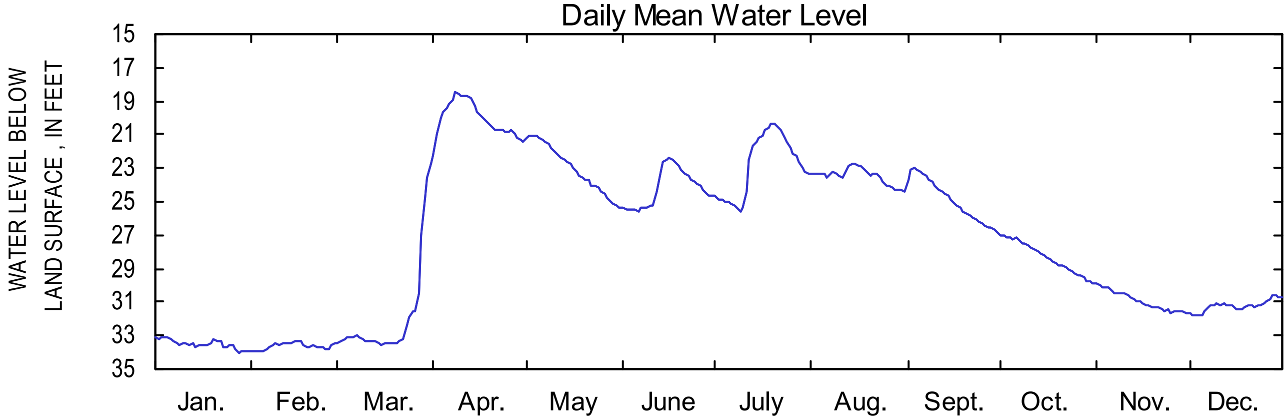
Upper Floridan aquifer
2005 Calendar Year

313521084051001 **Site Name: 13L049**

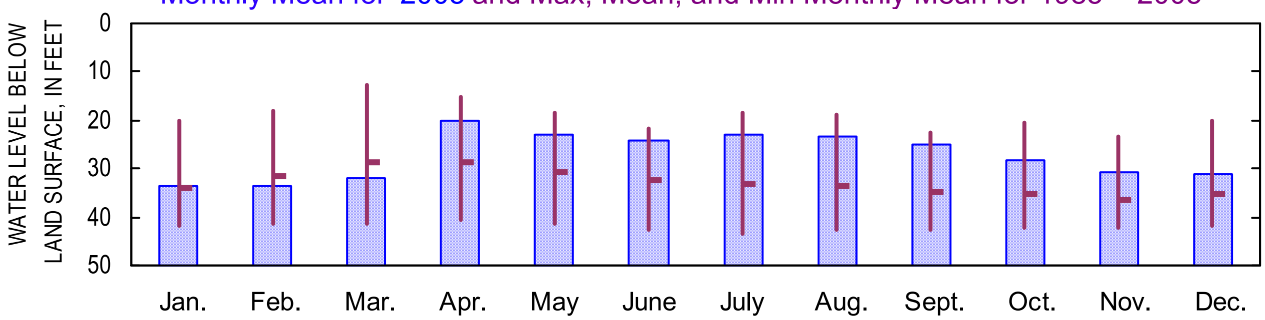
Latitude: 31 ° 35 ' 21" Longitude: 084° 05 ' 10" DOUGHERTY Period of Record: 1985 – 2005

Well Depth: 170 feet Datum: 204.00 feet NGVD29 Well Diameter: 4 inches

Daily Mean Water Level



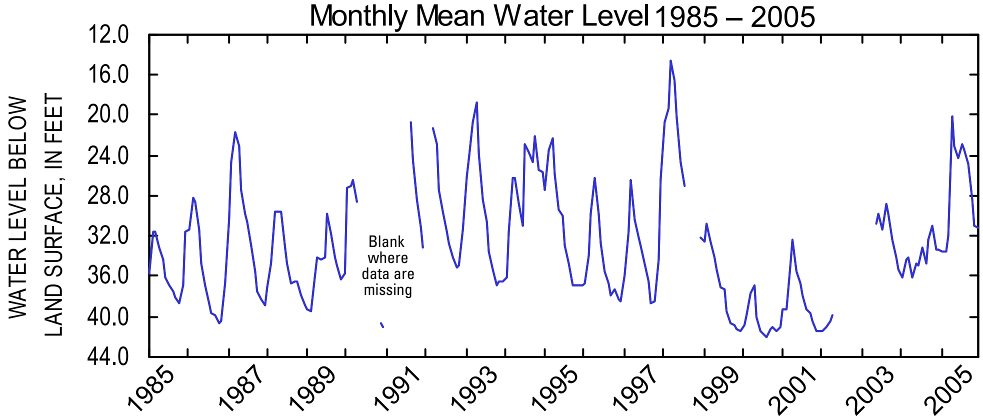
Monthly Mean for 2005 and Max, Mean, and Min Monthly Mean for 1985 – 2005

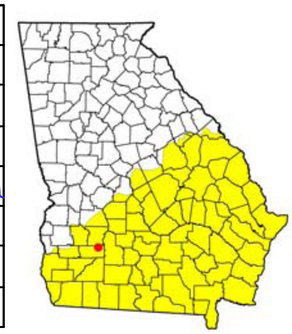


Monthly Water Level Statistics

2005												
Mean	33.50	33.64	31.90	20.05	23.01	24.20	22.83	23.47	24.91	28.33	30.94	31.22
Max	34.00	33.98	33.55	22.24	25.32	25.55	25.60	24.36	26.76	29.83	31.70	31.84
Min	33.10	33.32	22.78	18.48	21.03	22.40	20.30	22.74	23.01	26.98	29.90	30.60
1985 – 2005												
Mean	33.97	31.61	28.70	28.75	30.85	32.39	33.03	33.61	34.63	35.14	36.39	35.37
Max	41.75	41.59	41.59	40.41	41.48	42.66	43.35	42.78	42.74	42.11	42.05	41.67
Min	19.98	17.98	12.54	15.20	18.39	21.65	18.45	18.84	22.36	20.65	23.44	19.94

Monthly Mean Water Level 1985 – 2005





Negative value indicates water level above land surface

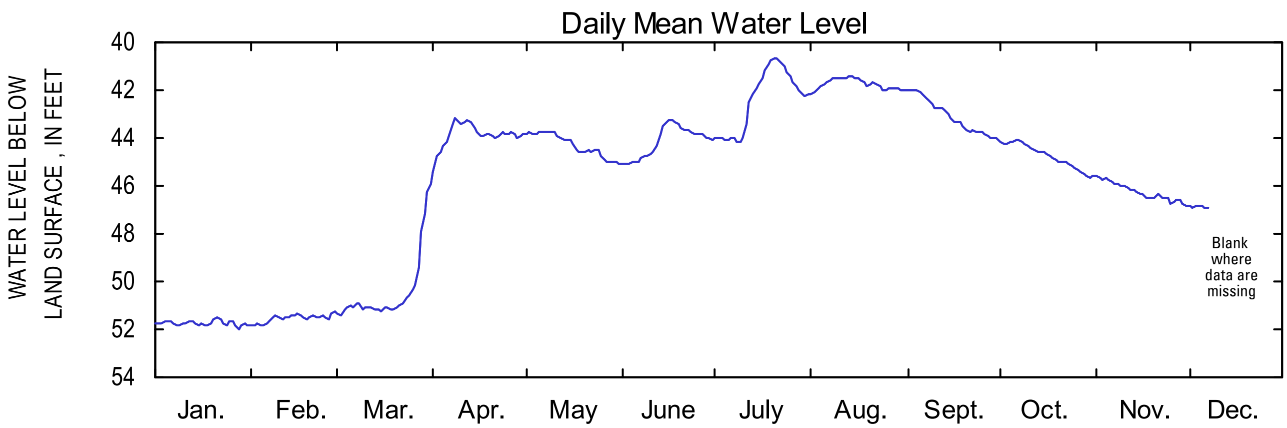
USGS science for a changing world

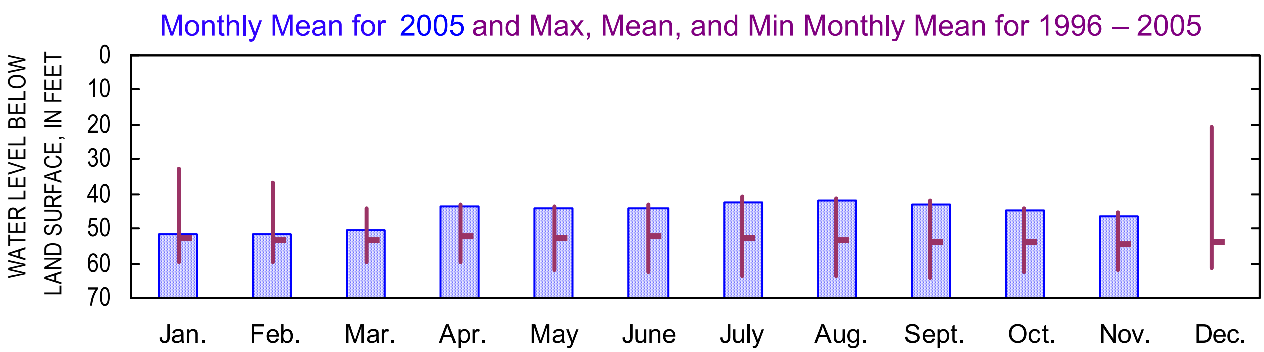
Upper Floridan aquifer
2005 Calendar Year

313247084005001 **Site Name: 13L180**

Latitude: 31° 32 ' 47" Longitude: 084° 00 ' 50" DOUGHERTY Period of Record: 1996 – 2005

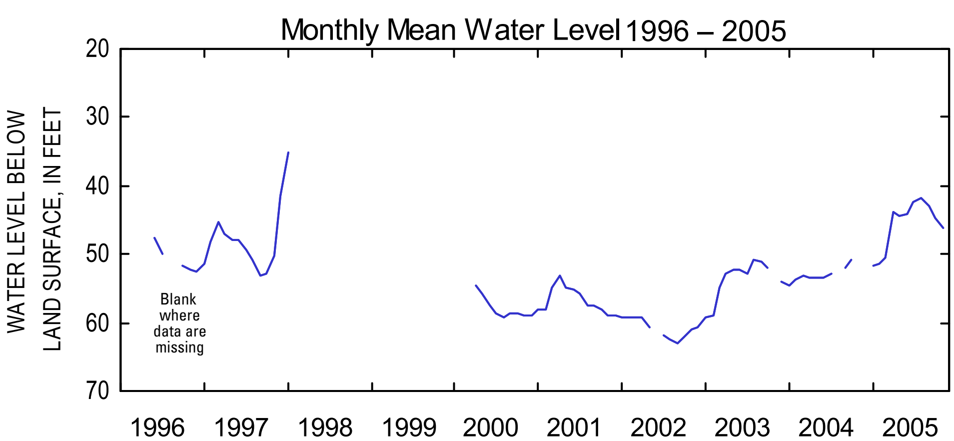
Well Depth: 310 feet Datum: 230.10 feet NGVD29 Well Diameter: 6 inches

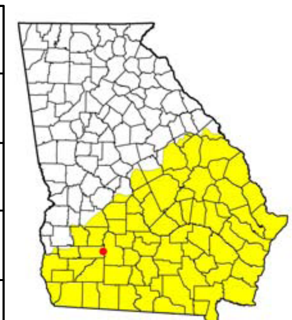




Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean	51.74	51.54	50.42	43.87	44.29	44.14	42.41	41.74	43.08	44.75	46.24	
Max	51.97	51.86	51.39	45.45	45.04	45.11	44.19	42.13	44.01	45.64	46.80	
Min	51.52	51.28	45.89	43.14	43.72	43.24	40.70	41.39	42.00	44.06	45.55	
1996 – 2005												
Mean	52.78	53.17	53.08	51.96	52.55	52.22	52.96	53.39	53.83	53.86	54.25	53.90
Max	59.51	59.84	59.86	59.70	61.74	62.39	63.51	63.60	64.29	62.56	62.03	61.15
Min	32.89	36.57	44.38	43.14	43.72	43.24	40.70	41.39	42.00	44.06	45.55	20.85





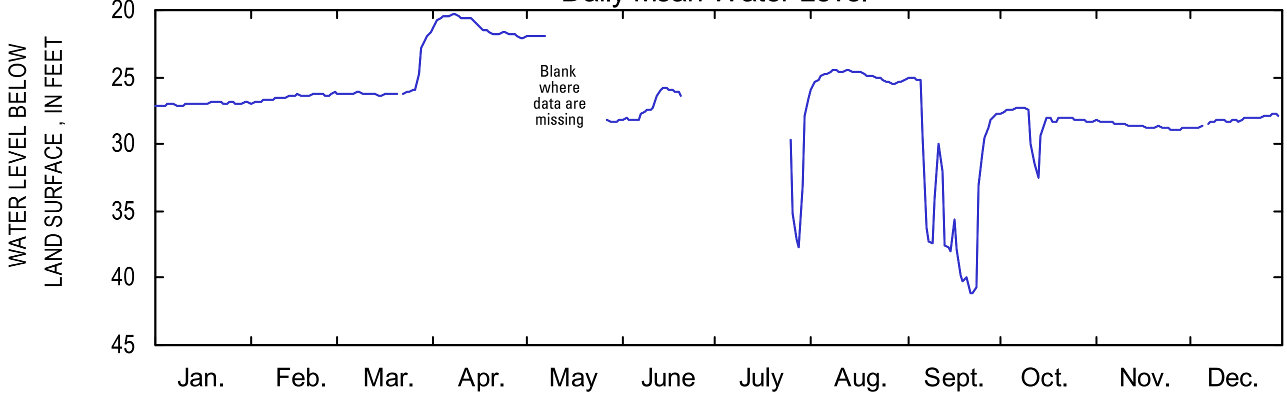
Negative value indicates water level above land surface

Upper Floridan aquifer
2005 Calendar Year

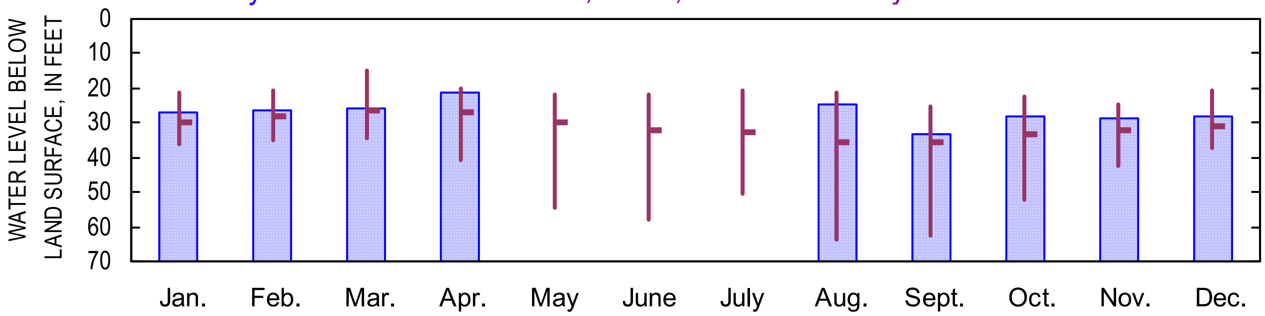
313808084093601 **Site Name: 12M017**

Latitude: 31 °38 '08" Longitude: 084° 09 '36" LEE Period of Record: 1982 – 2005
Well Depth: 181 feet Datum: 225 feet NGVD29 Well Diameter: 4 inches

Daily Mean Water Level



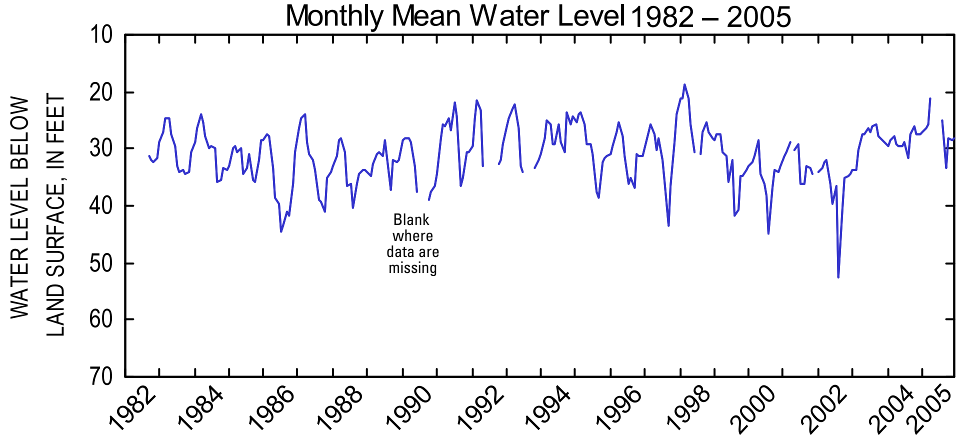
Monthly Mean for 2005 and Max, Mean, and Min Monthly Mean for 1982 – 2005

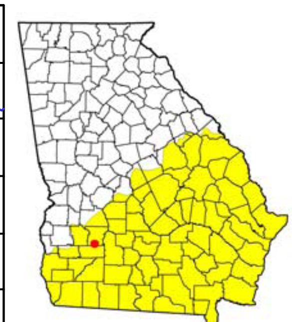


Monthly Water Level Statistics

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2005												
Mean	26.98	26.49	25.63	21.18				24.95	33.26	28.28	28.62	28.22
Max	27.12	26.92	26.42	22.04				25.88	41.20	32.46	28.90	28.84
Min	26.78	26.16	21.60	20.27				24.51	25.02	27.32	28.25	27.77
1982 – 2005												
Mean	29.83	28.25	26.63	27.07	30.10	31.92	32.43	35.34	35.61	33.11	32.04	30.92
Max	36.12	35.18	34.25	40.91	54.74	58.04	50.56	63.76	62.38	52.01	42.47	37.05
Min	21.06	20.67	15.15	19.89	21.86	22.08	20.45	21.17	25.02	22.30	24.52	20.80

Monthly Mean Water Level 1982 – 2005





Negative value indicates water level above land surface

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