Groundwater Connections

RBC Blue Water Project™

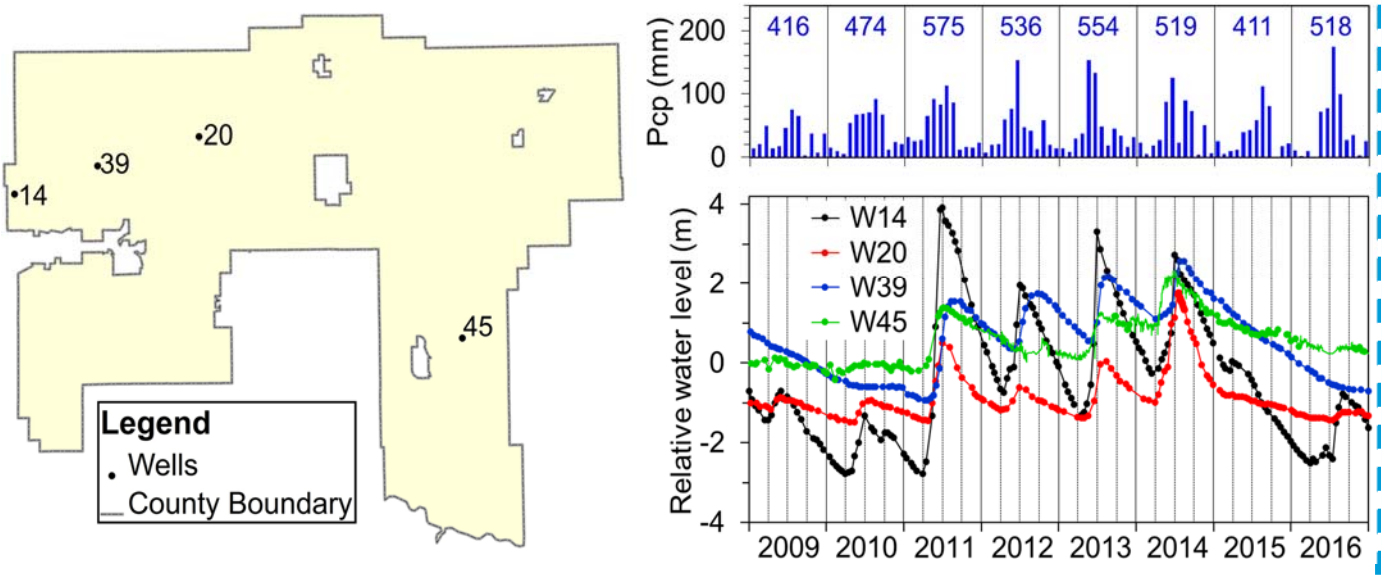
UNIVERSITY OF CALGARY

FEBRUARY 2017

Newsletter for Rocky View County Community-Based Groundwater Monitoring Program
Reporting progresses and updates of the program to community volunteers.

Declining trend in groundwater level continued in the county

Rocky View Well Watch is entering the tenth year of operation, thanks to your time and efforts in measuring and reporting water level data. Long-term data of groundwater level are very important because they tell us how groundwater responds to year-to-year change in meteorological conditions. In the last edition of Groundwater Connections (January 2016), you heard about a declining trend of groundwater levels in Rocky View County as a result of low precipitation in 2015. The declining trend continued in 2016 in much of the county (see the line graph below). In an average year, we receive about 480 mm of precipitation (rain and snow) in Calgary. There were some dry years such as 2009 and 2015, when we received much less than average, and wet years such as 2011-2013 (see the bar graph below). 2016 was not particularly dry, but groundwater received relatively little replenishment (or recharge). Why? This question is scientifically interesting, and also practically important when we think about the sustainable use of groundwater in our region. A group of students and researchers at the University of Calgary is working on this question. We do not have a firm answer, but it is likely that snowmelt runoff in the spring is an important driver of groundwater recharge. Numerous small puddles forming after snowmelt seems to play an important role in focusing the infiltration of melt water and recharging groundwater. We did not have much of snowmelt runoff in 2016 because the snowpack disappeared before the unusually warm winter ended. That may have had something to do with the lack of recharge. We are having a "normal" winter so far. We expect to see some recharge if we get a good snowmelt runoff. Rocky View Well Watch is providing valuable data for advancing our understanding of the precious groundwater resources.

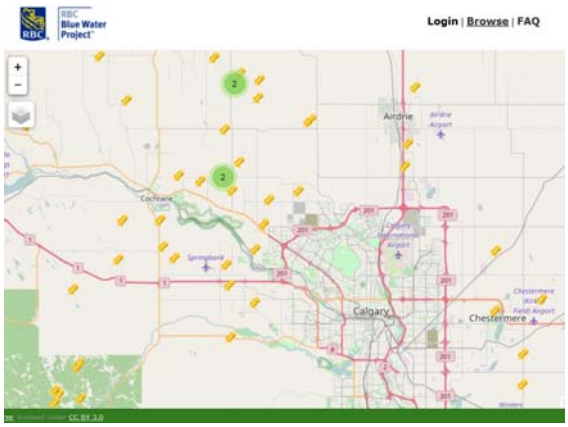


Map showing the location of selected wells within Rocky View County (left), a bar graph of monthly precipitation in Calgary (top right), and lines showing relative changes in water level in these wells (bottom right). Numbers in the precipitation graph are annual total precipitation (mm).

New data portal for Rocky View Well Watch

The web-based data portal for Rocky View Well Watch was first introduced in December 2011. It was developed by a research team from the Department of Geomatics Engineering at the University of Calgary, led by Dr. Steve Liang. Things move very fast in the world of software engineering, and old systems quickly become obsolete. To keep up with the standard protocol used by the rest of the world, we had to migrate the Rocky View Well Watch portal to a new system. After several months of testing and adjustment, the migration took place in April 2016. The new system was developed by a team of software engineers from a university spin-off company Sensorup (www.sensorup.com). The new web portal (rockyview.sensorup.com) has a slightly different appearance compared to the old one, but basic functions remain the same. We will welcome any comments or suggestions to improve the system. Please feel free to call or write to us.

Sensorup software development team.



New look of Rocky View Well Watch

Increasing interests in community-based groundwater monitoring

Rocky View Well Watch is a successful example of “community-based” or “citizen science” approach to collecting environmental data and information. Similar approaches are commonly used in biological studies, such as bird survey or tracking butterfly migration, but application of this approach to groundwater study is very unique. A scientific paper describing Rocky View Well Watch was published in the international journal *Groundwater* in May 2016 (please contact us if you would like a copy of the paper), and generated interests from groundwater researchers and educators from around the world. For example, Rocky View Well Watch was used as a case study in a course on water resource management at the University of Zurich in Switzerland in the fall of 2016. Our program is also receiving interests from local watershed groups and municipalities who are interested in implementing a similar program, such as the Municipal District of Foothills and the Saskatchewan Association of Watersheds. Your continued support to our program is making valuable contributions to developing and testing a useful approach to groundwater monitoring and management.

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