

Jemez River Meander

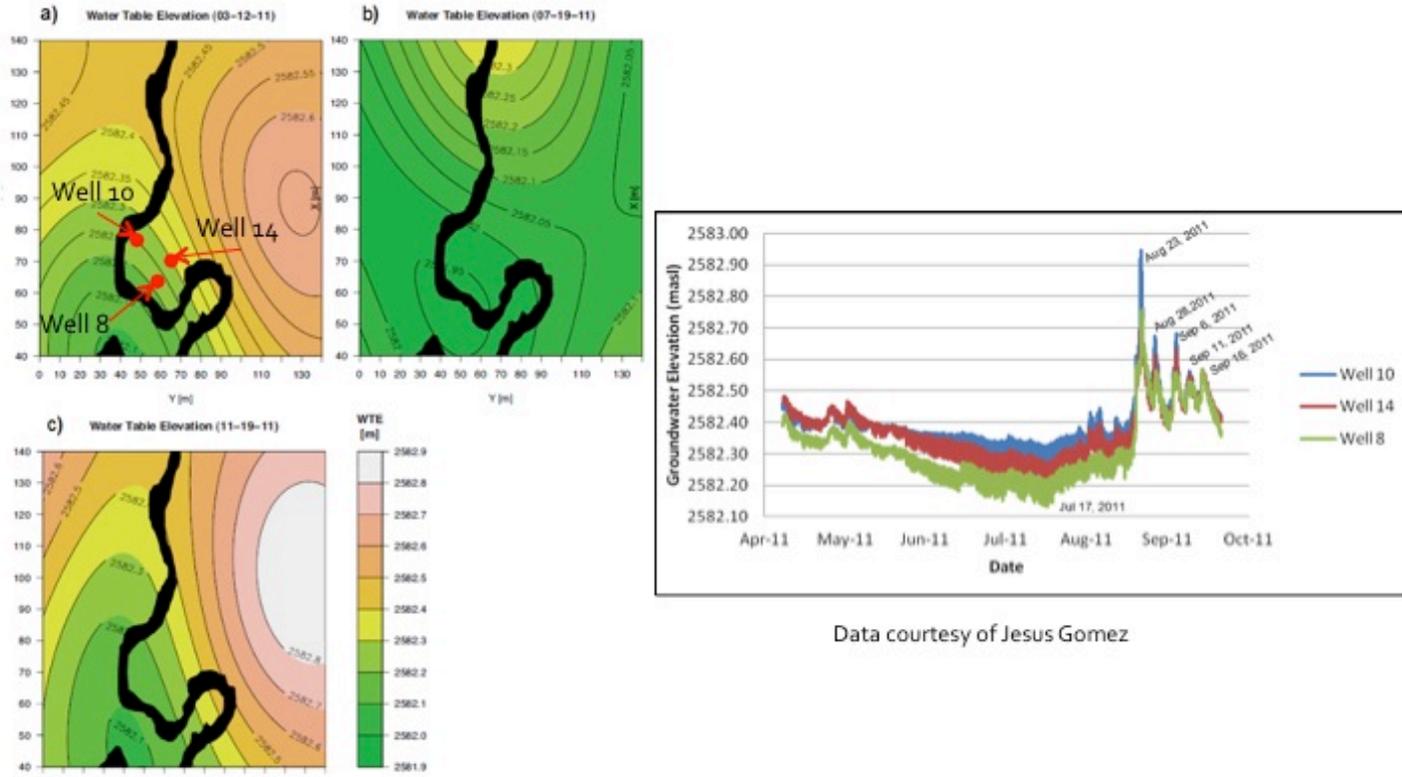


Figure courtesy of Jesus Gomez

Hyporheic Dissolved Organic Carbon Dynamics in Valles Caldera National Preserve, GSA presentation 2010-2011 Gabrielsen et al. with the graph courtesy of Jesús Gomez and USGS

Paul Gabrielsen and his fellow researchers from New Mexico Tech (2012) have discovered that dissolved organic carbon (DOC) is being washed into the stream. The flow path includes a very important zone called the Hyporeheic Zone where geochemical and biochemical reactions (with the help of microbes) takes place. You could think of the Hyporeheic Zone as the "liver" of the stream that is filtering the water through bio and geological processes to maintain high water quality. (Gabrielsen 2011) After a severe wildland fire followed by a severe weather event such as a monsoon the Hyporeheic Zone is overwhelmed and scientists are trying to figure out what all the variables might be and what impact climate change has on the system. There is still work to be done that will require ongoing monitoring and analysis. Use the graphs and charts above to answer the questions below.

Questions:

1. Which well experienced the highest ground water rise on August 21, 2011? Explain why.
2. Which well experienced the lowest ground water rise on Sept 11, 2011? Explain why.

3. Describe the conditions that would have caused the water to rise quickly.
4. What form of carbon is processed by hydrological, ecological and biogeochemical processes?
5. Why would the stream's meander be a site of intense HZ activity?
6. The hyporeheic zone is the site of high biochemical activity in the stream ecosystem. What kind of impacts may have been experienced in the HZ after the monsoon-flooding event?
7. Why would scientist be anxious to find out about the HZ and how might climate change impact the HZ?

Check out JPL NASA's link to Global

<http://www.jpl.nasa.gov/news/news.php?release=2012-346> - [NASA's Global Nutrient Limitation in Terrestrial Vegetation](#)

