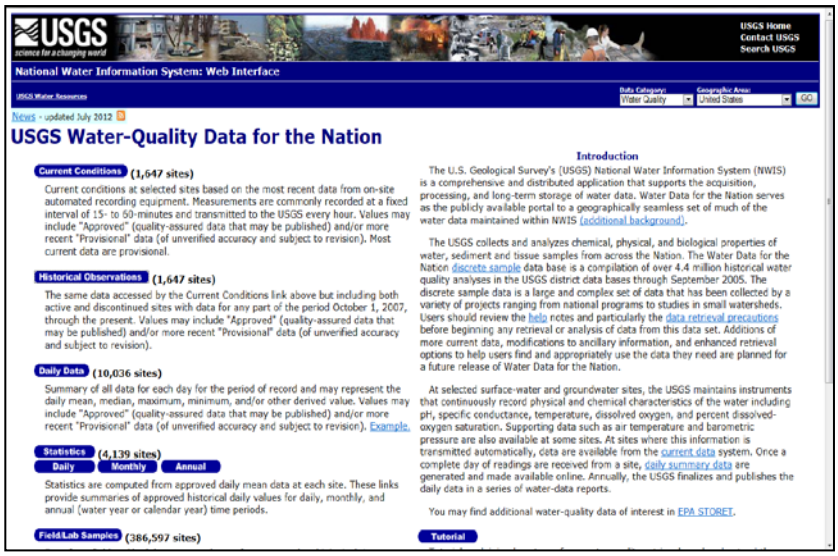
EXPLORING USGS GROUNDWATER DATASETS

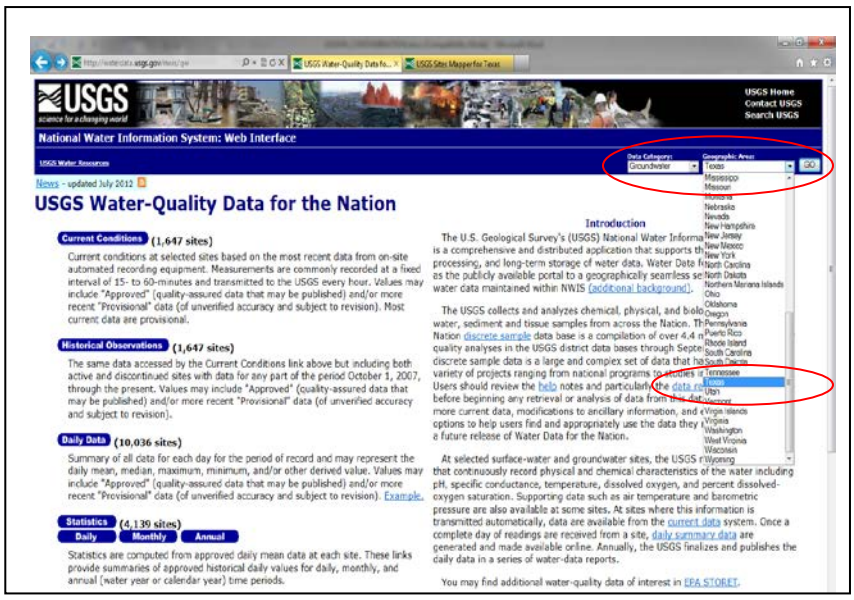
The following walk through exercise provides a sample project for you to explore the USGS online database for groundwater use in the US. The United States Geological Survey (USGS) is a scientific agency of the United States government. The scientists of the USGS study the landscape, natural resources, and natural hazards within the US. The organization has four major science disciplines, concerning biology, geography, geology, and hydrology. The USGS collects several types of hydrological data sets are readily available on their website.

USGS web search activity:

USGS water-Quality Data for the Nation webpage walk through:

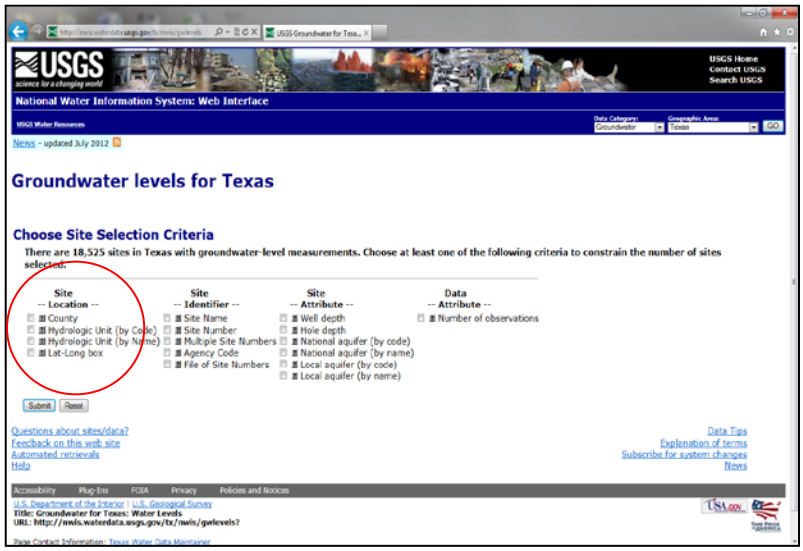


Step 1: Go to http://waterdata.usgs.gov/nwis/qw



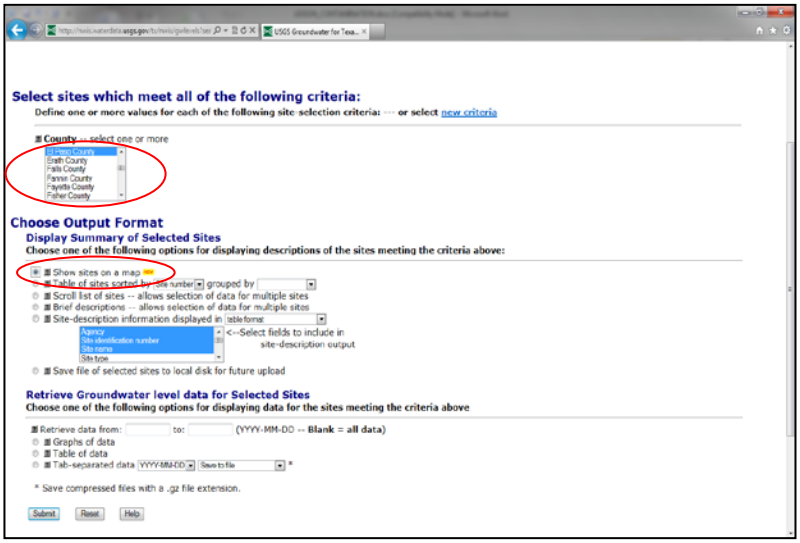
Step 2 On the **Data Category** tab select **Groundwater** and on the **Geographic Area** choose **Texas**

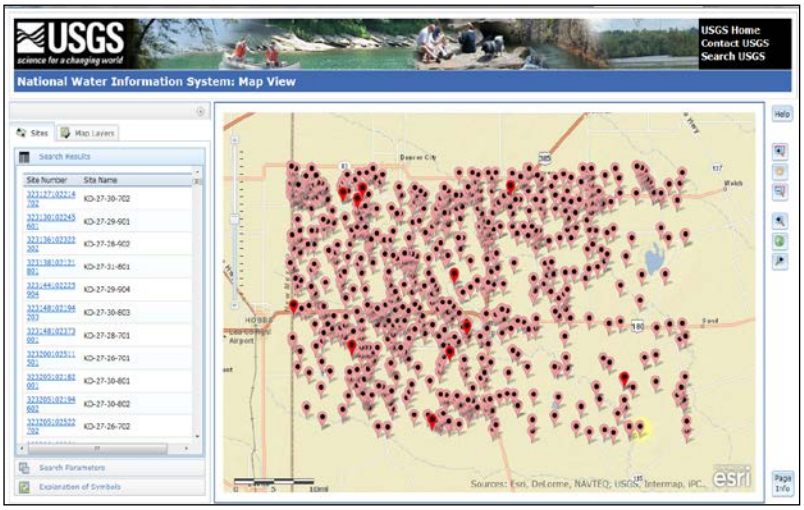
Step 3. Click the **field-water-level measurements** link.



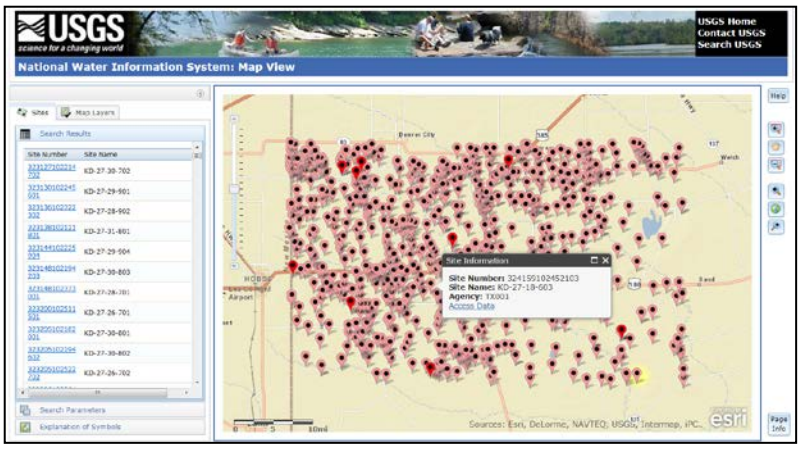
Step 4. Under **Site Location** check the box **County** and click **Submit**.

Step 5. Under **County** click **Gaines.**
Under the **Choose Output Format** click the **Show sites on map** and click **Submit**.

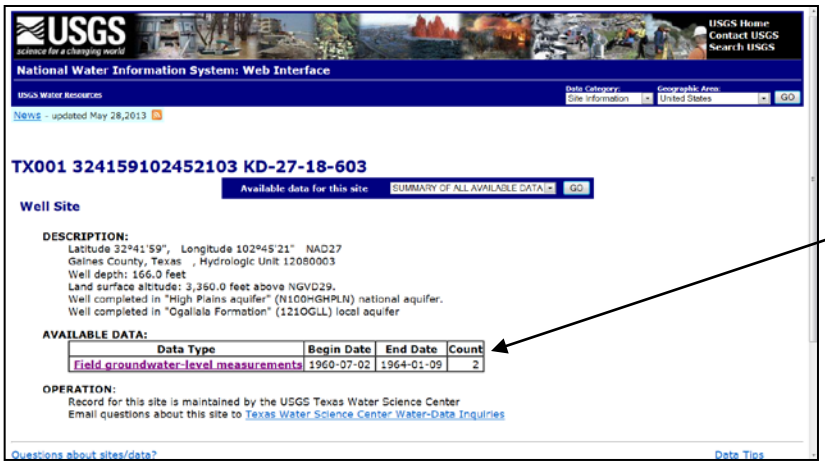




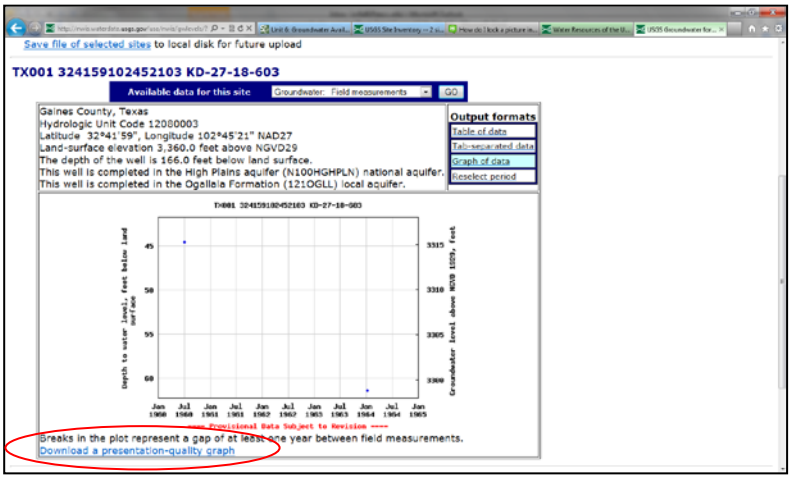
Step 6. You can now access the data for any well (red circle) by clicking on a well.



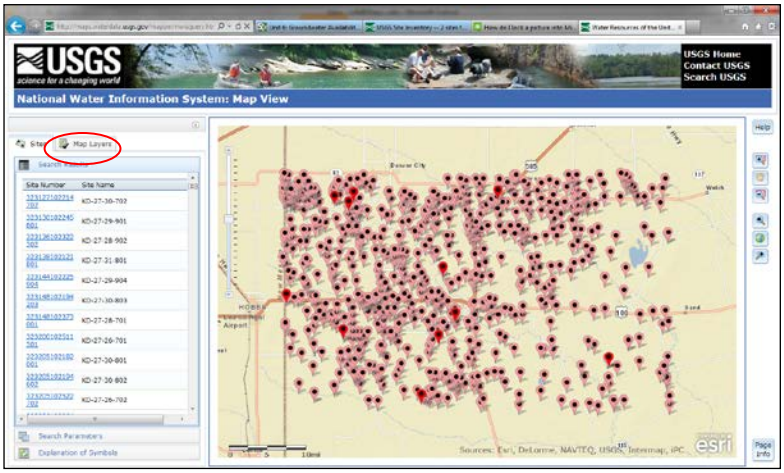
Step 7. Click the **Access data** button in the small window to see the data type that is available.



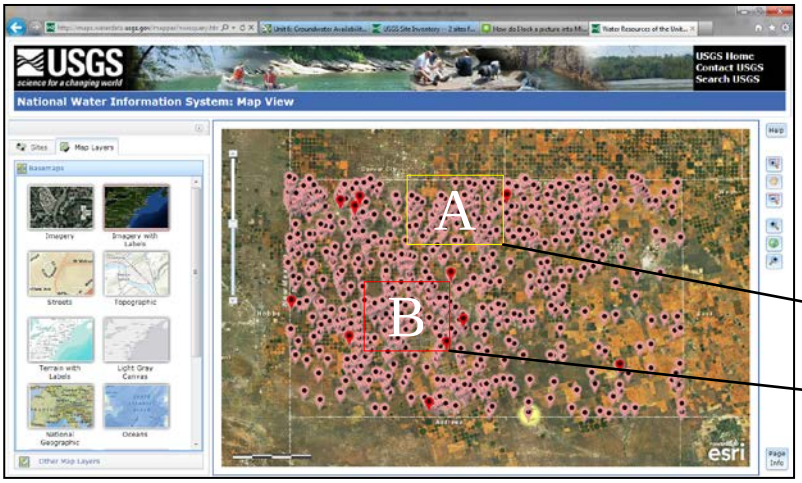
Step 8. Click on the **Field groundwater-level measurements** data type. (when choosing a well to investigate try to choose wells that have a Count more than 10)



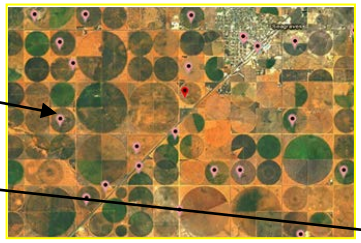
Step 9. Now you see the entire groundwater data set in a graph from the period that the data has been collected! You can save a copy of the graph by clicking on **Download a presentation quality graph**.



Step 10. Go back to the Map View screen and click on the **Map Layers** tab and click on **Imagery with Labels.** *You can explore other layers to see features such as elevation, county lines, roads, etc.*



Step 10. Zoom in to areas A (pivot irrigation farmland) and B (oil fields) .



Assignment: Locate 3 agriculture and 3 oil wells in either site A or site B. In site A, choose wells that have a count of greater than 5 (the more the better!) and in site B, try to find wells that have a count greater than 2 (there are some that have counts greater than 10, can you find them?)

Using the data you've collected and the website, answer the following questions:

1. Were there any overall trends in groundwater levels over time? If so, why?

2. Were there differences in groundwater levels over time in one area versus another?

3. Give a prediction on the future availability of groundwater resources using this data.

4. Locate a well in your area and report interesting information you find about the groundwater there.