Raw Pressure Viewer Java Applet

by John R. Victorine

Introduction

The continuous pressure monitoring in the lower Arbuckle was set up because a large rate and high volume brine disposal in the area is believed to be responsible for the induced seismicity. "*The assumption in the case of the testing in the Arbuckle is that the observed pressure is being transmitted at depth in the basement where faults are critically stressed, requiring a small force to move. To date the vast majority of earthquakes have occurred in the shallow basement.*" Quarterly Report-19, 2016. Trilobite Testing of Hays Kansas installed the pressure gauge in the Wellington KGS 1-28 at about 5020 feet depth from surface. The instrument is programmed to sample every second with an accuracy of 0.1 psi. About a week of pressure data is sent to KGS as a Comma Separated Values (CSV) file.

To access the Lunar & Solar Tidal Pressure Profile Viewer web site, go to the web address http://www.kgs.ku.edu/PRS/Ozark/Software/PSI_Plot/. At the top of the web page there is a menu "Main Page|Applet|Download|Help|Copyright & Disclaimer|". Select the "Applet" menu
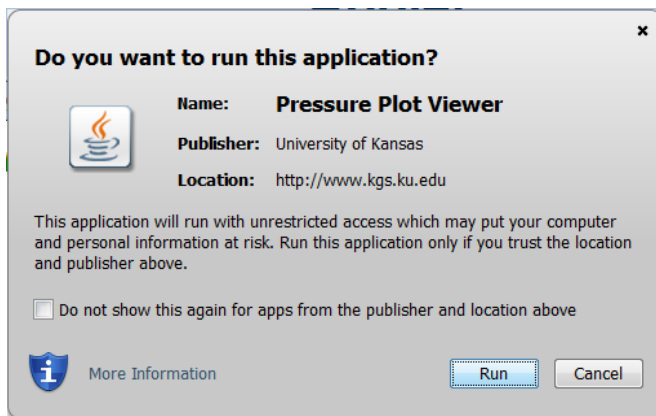
option a "Warning - Security" Dialog will appear *("Do you want to run this application?")*. The program has to be able to read and write to the user's PC and access the Kansas Geological Survey (KGS) Database and File Server, ORACLE requires this dialog. The program does not save your files to KGS, but allows you to access the KGS for well information. The program does not use Cookies or any hidden software. The blue shield on the warning dialog is a symbol that the Java web app is created by a trusted source, which is the University of Kansas. Select the "Run" Button, which will display the Seismic Image Icon Button in the "Enter" Panel illustrated below,
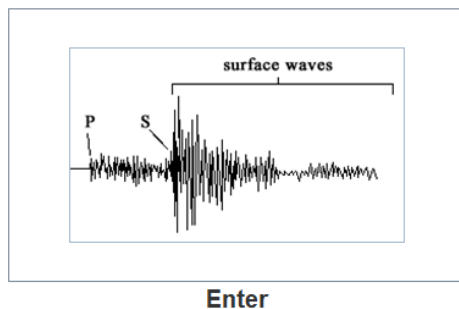

The Applet automatically downloads the necessary data from the Kansas Geological Survey (KGS) ORACLE database to access the Raw Pressure Files that are stored on the KGS Server. To access the pressure/temperature file information, ORACLE PL/SQL stored procedures were created that loads the file information in an Extensible Markup Language (XML) data stream, which the applet will then parse and store in data structures. Click on the seismic wave icon button to display the Select Sampling Rate for Pressure File Dialog. The Applet will then make a PL/SQL request for all the Raw Pressure Files with the following URL request,

http://chasm.kgs.ku.edu/ords/iqstrat.co2_pressure_files_pkg.getXML

This above stored procedure will generate a XML data stream with all pressure files location on the KGS Server as well as the date ranges the pressure/temperature data was measured. The Select Sampling Rate for Pressure Files dialog will allow the user to select re-sample the raw data file, e.g. 1 point every ½ hour. The original raw pressure data file is sampled every second, the re-sampling allows the program to read in all data files and plot it.
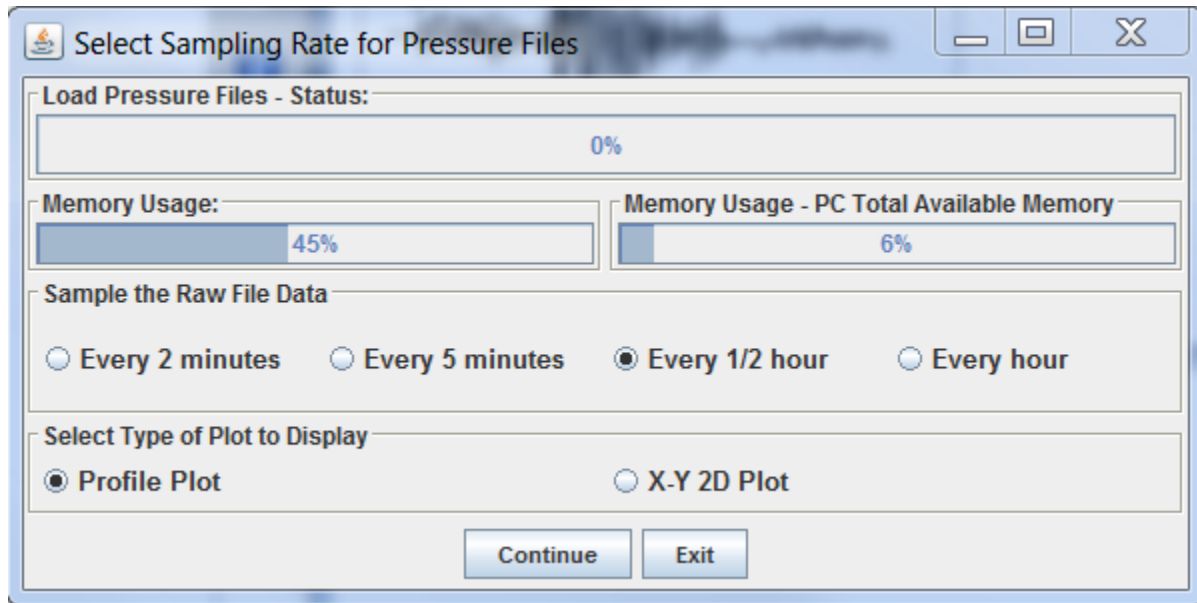

The "Load Pressure Files – Status" status bar will show the user the progress in loading the raw pressure files. The Memory Usage bars shows how much memory the program is accessing on the user's PC. The "Sample the Raw File Data" panel allows the user to sample the raw data at varying rates, default is set at one point every ½ hour. The last panel is the plot type, the profile plot and the X-Y 2D Plot. The profile plot is really an expanded X-Y plot except the user can change the number of minutes or hours per inch, this is the default radio button selected. The X-Y 2D Plot is a fix width plot. The file information is automatically loaded when the user clicks on the seismic wave icon button. When the user selects the "Continue" button the applet reads in each raw pressure file and re-samples the pressure data at the rate that is selected and attaches to a pressure data structure until all the raw data files have been re-sampled. The program then plots the data to either the profile plot or the X-Y 2D Plot depending on the plot type radio buttons.

Note: Once the pressure data is loaded the user can click on the either of the plot types and the plot will load. In other words the user can plot both plots without having to reload the data first, once the data has been loaded.

X-Y 2D Plot:

The X-Y 2D Plot is a standard X-Y plot, which allows the user to see all the pressure data that has been collected in a finite width.

Kansas Geological Survey
Raw Pressure Data
WELLINGTON KGS 1-28 [15-191-22590]
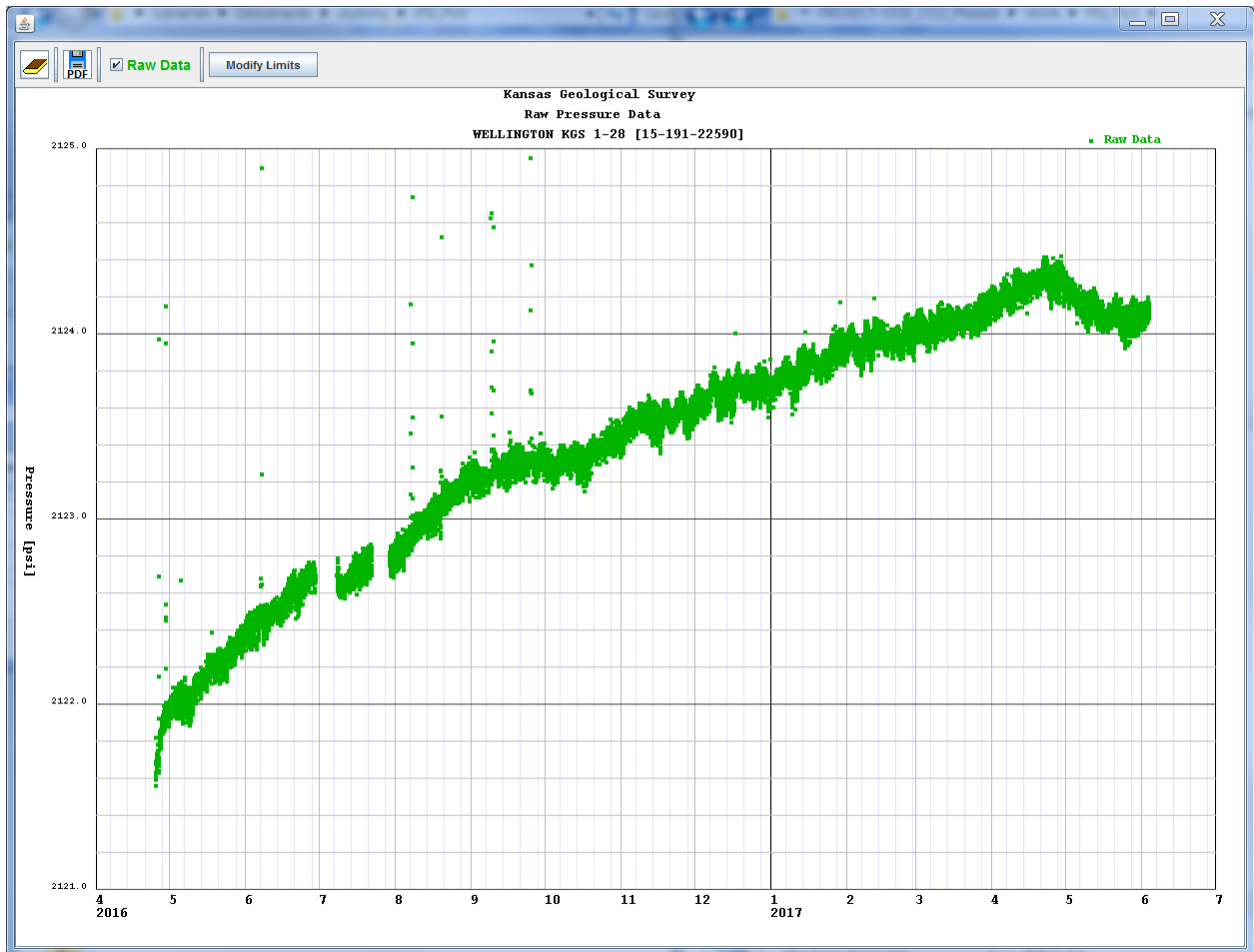
Close Plot Dialog

Create a Portable Network Graphics (PNG) image of the plot

Change any plot limits value and tab out of the field, which will automatically modify the plot

Limits

1st Title:
Kansas Geological Survey

2nd Title:
Raw Pressure Data

3rd Title:
WELLINGTON KGS 1-28 [15-191-22590]

X-Axis:

Start Date

YYYY	MM	DD	HH	mm	ss.S
2016	04	01	00	00	00.0

End Date

YYYY	MM	DD	HH	mm	ss.S
2017	07	01	00	00	00.0

Y-Axis:

Pressure [psi]

Minimum:	Maximum:	Increment
2121.0	2125.0	1.0

Profile Plot:

This plot allows the user to expand the time scale, e.g. 6 hours per inch.
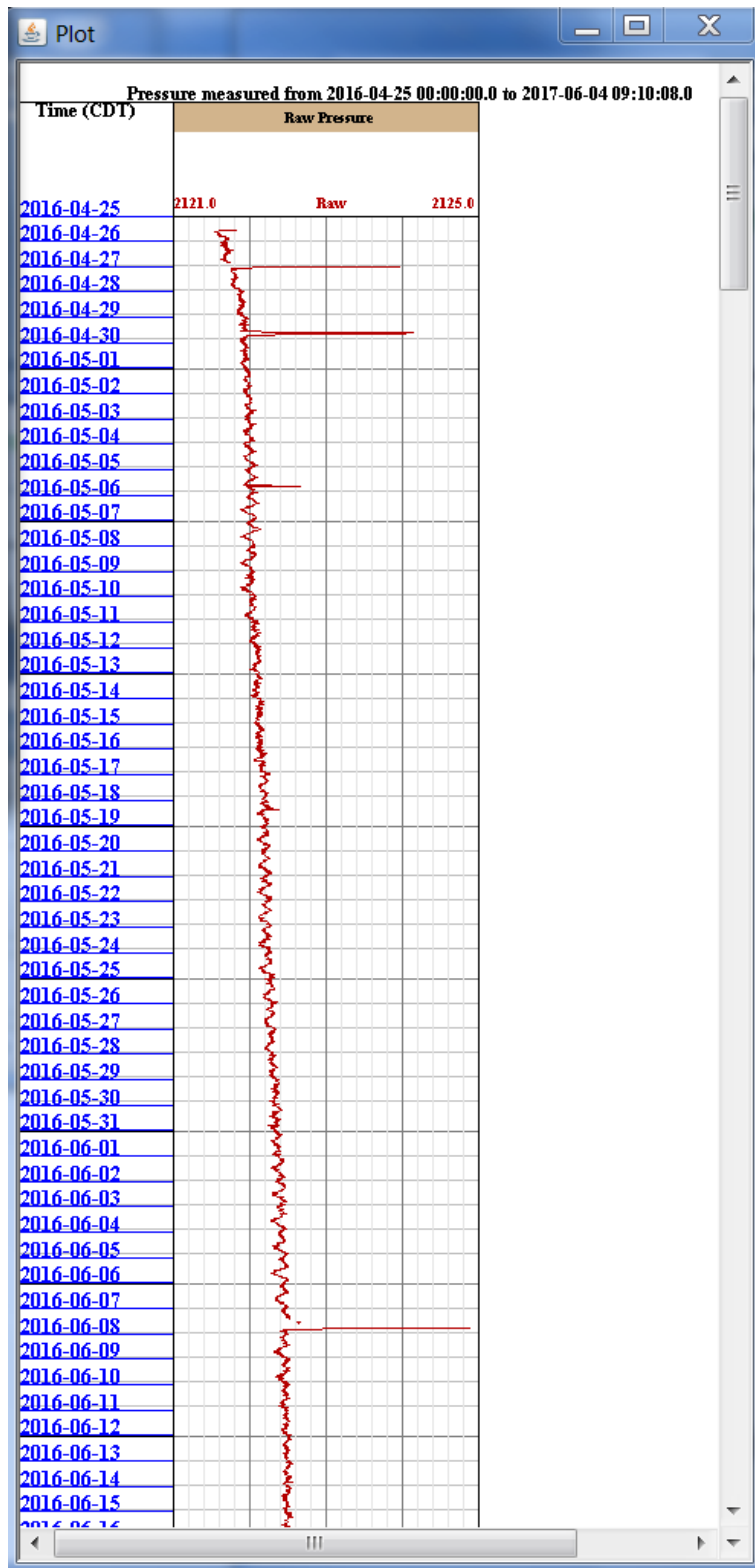
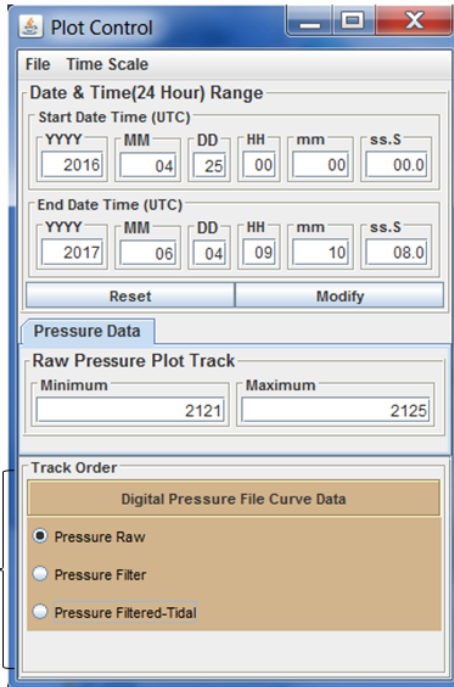The plot control dialog allows the user to change the time interval or the change the time scale. To create a portable network graphics (PNG) image of the plot image.

Menu Options
File – Create PNG image of plot
Time Scale – Vary the vertical time scale to number of minutes or hours per inch.

Turn Plot Tracks on or off – Radio button is selected plot track is displayed.
Raw Pressure Track is the only plot track with data.

Plot Control

File   Time Scale

Date & Time(24 Hour) Range

Start Date Time (UTC)

YYYY	MM	DD	HH	mm	ss.S
2016	04	25	00	00	00.0

End Date Time (UTC)

YYYY	MM	DD	HH	mm	ss.S
2017	06	04	09	10	08.0

Reset   Modify

Pressure Data

Raw Pressure Plot Track

Minimum   Maximum
2121   2125

Track Order

Digital Pressure File Curve Data

◉ Pressure Raw

○ Pressure Filter

○ Pressure Filtered-Tidal

Change the start and stop date/times in the profile plot.

Modify button - alters the start and stop date/times in the plot.
Reset button - sets the original start and stop date/times in the plot.

Change the minimum and maximum of the Raw Pressure Plot Track