Connecting GPRKit to a GUI

1. Loading a File and Displaying a Radargram

* 1. The user will first have to select the input data format they are using (GSSI, Sensors and Software, Mala) in one of the radials.
  2. The user will select a data file from their data directory using the “Select Data” button. The chosen file will display in the text box “Display File Name”
  3. Clicking the “Load” button will initialize file read in and display the data.

Currently if the GSSI radial is clicked then the script to be run on pressing Load is radarviewnew\_plusobj.m. For Sensors and Software the read in script is ekko2mat\_plusobj.m. After read in is completed the file is saved to a new subdirectory called “Raw\_Data”. The file is then loaded from the Raw\_Data folder and the method displaydata (line 51 in GPR.m) is run.

Output files are saved by using the file name that appears before its extension. Ie. FILE\_\_\_\_003.DZT or SC03.HD are named FILE\_\_\_\_003.mat and SC03.mat, respectfully.

\*\*\*\*If its difficult to attach the read in script, file load, and displaydata all to the load button I can try to compress the steps so that its more streamlined. Please let me know\*\*\*\*

2. Viewing the Radargram

2.1 Y-axis should be labeled the two-way travel time in ns, x axis should be labeled distance in m. If possible the user should be able to zoom in and out of the radargram as well as move the image around when zoomed in. See buttons “Zoom In” and “Zoom Out”.

3. Processing the Data

3.1 Selecting a Source File

Input Data Source is NOT a button. It is just a string to orient the user. After each processing step an outfile is created which includes the original file name without extension (e.g. FILE\_\_\_\_003) followed by an underscore and the type of processing applied (e.g. FILE\_\_\_\_011\_Dewow). Each output file after processing is saved in a separate directory of the same name as the processing step applied. Currently all these folders are located in the same directory as the data directory.

When the user wants to begin processing they must select where the input file is located. This allows the user to process the same input radar data continuously by applying multiple techniques.

To perform any processing a radial under the Input Data Source is selected. The user would begin by selecting Raw as this is the only created subdirectory which contains data. The user could then perform a Time Zero correction which would result in filename\_TimeZero.mat being created. To continue processing the user would select the Time Zero radial to access the newly created file.

\*\*\*\*Maybe a long “if-else” statement followed by load would make this workable\*\*\*\*

\*\*\*\*The required inputs for running the methods are currently loaded using the input function. Their lines are currently listed. They can be moved to the method inputs when attached to the GUI\*\*\*\*

3.2 AGC

2 inputs required to run method

lines 84 and 85

AGC window size

Maximum AGC gain

3.3 SEC

3 inputs to run method.

Might be able to pare the number of inputs down

Lines 227,228,229

3.4 Time Zero

1 input to run method

Shift Value – can rename. Currently this method shifts the whole radargram up by a fixed amount. Assume the profile is collected on level ground. Could be modified in the future

3.5 Pick Hyperbola

1 required input

Dielectric

Currently this is a constant value on line 324

2 outputs- the depth of the hyperbola that draws on screen, radar velocity of the material where the hyperbola was picked

\*\*\*\*this method doesn’t produce any output files currently\*\*\*\*

3.6 Dewow

1 input required to run method

line 179

Window Size