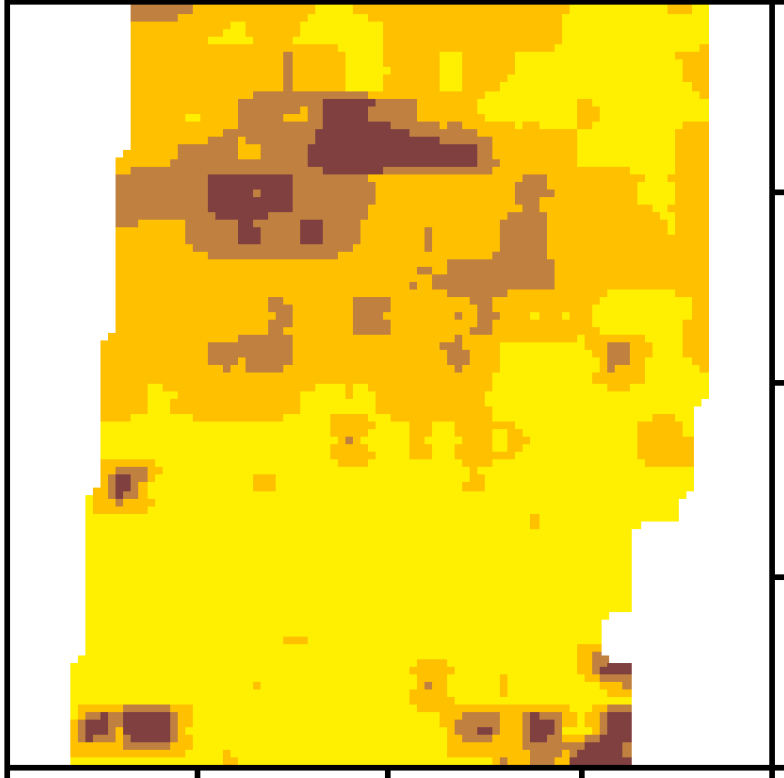Soil Profile Average Ece of DA784 field

ECe(ave)
dS/m

● < 1
● 1 - 3
● 3 - 5
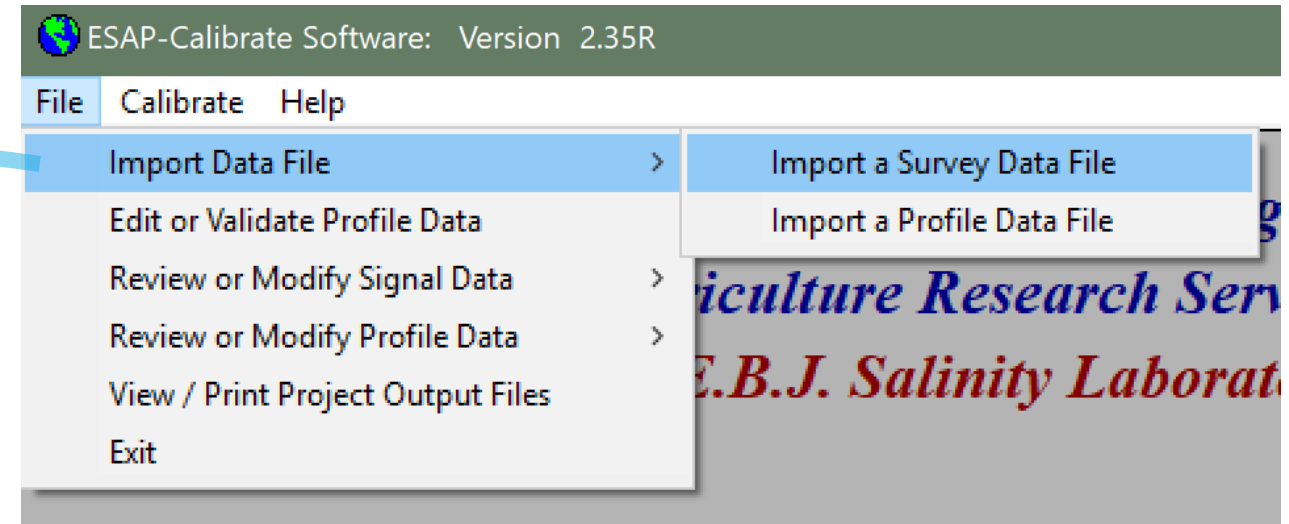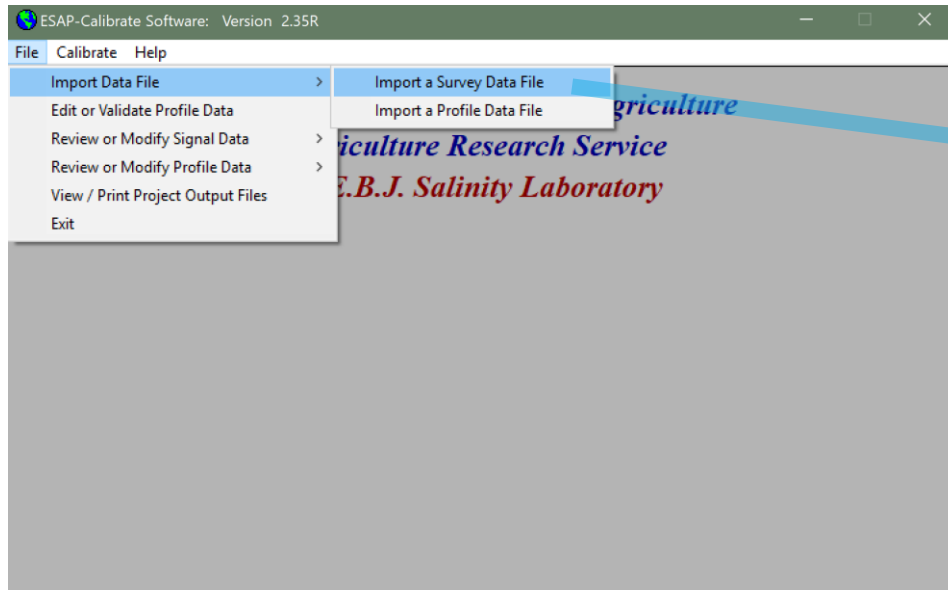● > 5

Coord System
UTM (m)

X: Easting
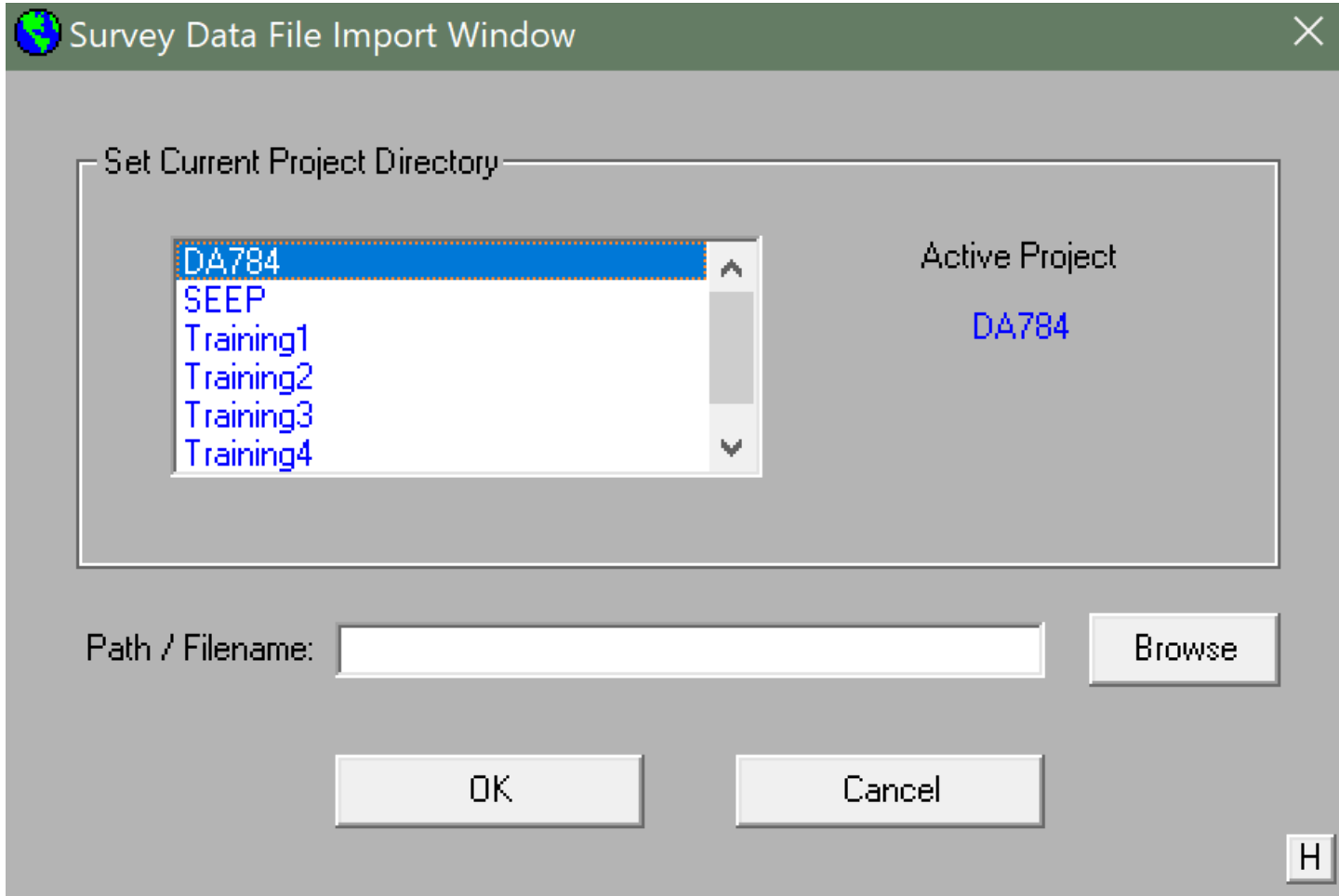Y: Northing

Using ESAP-Calibrate and ESAP-SaltMapper

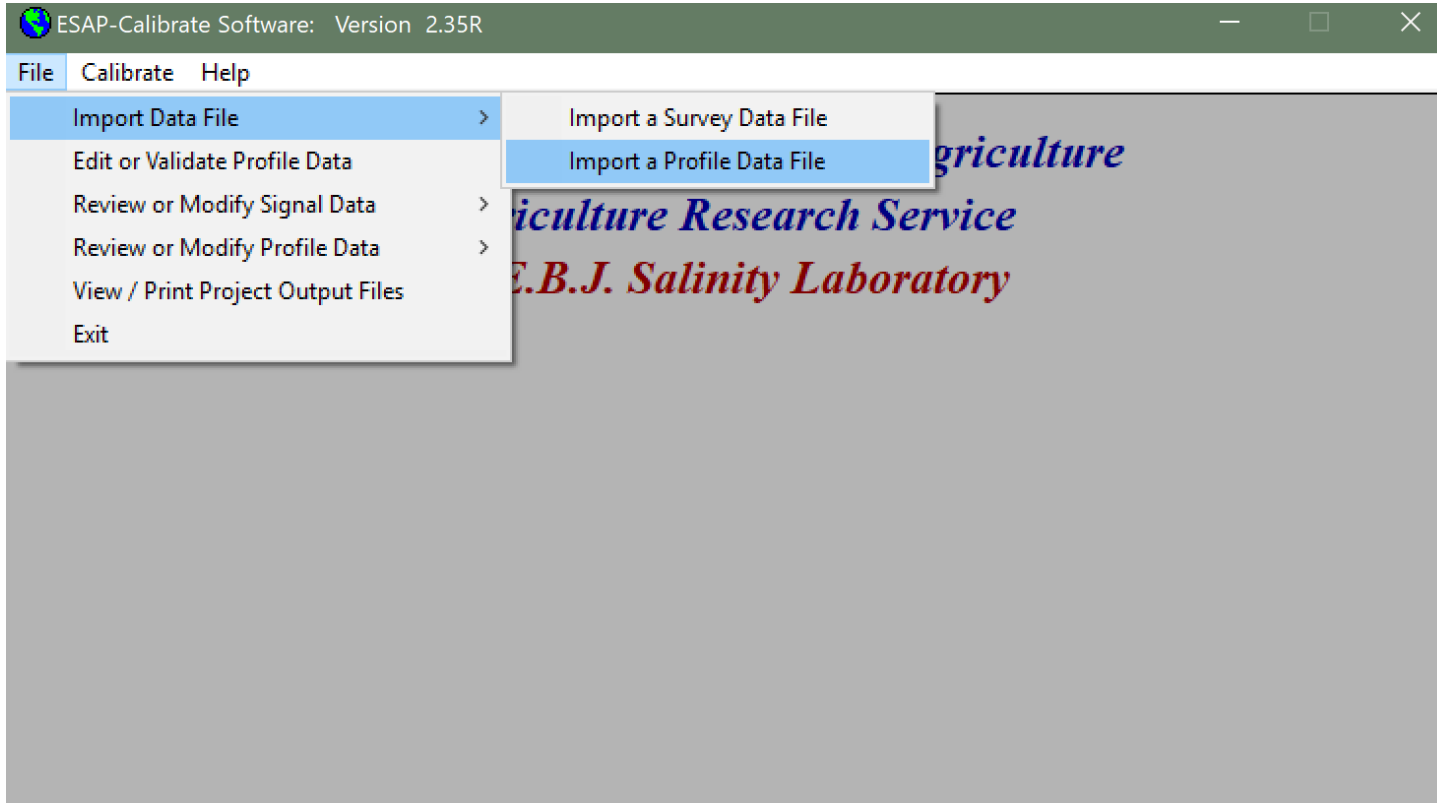HOW TO CREATE EFFECTIVE CALIBRATIONS OF EMI READINGS TO OTHER SOIL CHARACTERISTICS

Open ESAP-Calibrate from the main ESAP menu

Import Survey Data File

Import .svy file generated from ESAP-RSSD

Create New Profile Data File

Input Lab Data as .csv in correct format. Under "Data Input File Format" click "Generic"

Fill in boxes with appropriate values and press "OK"

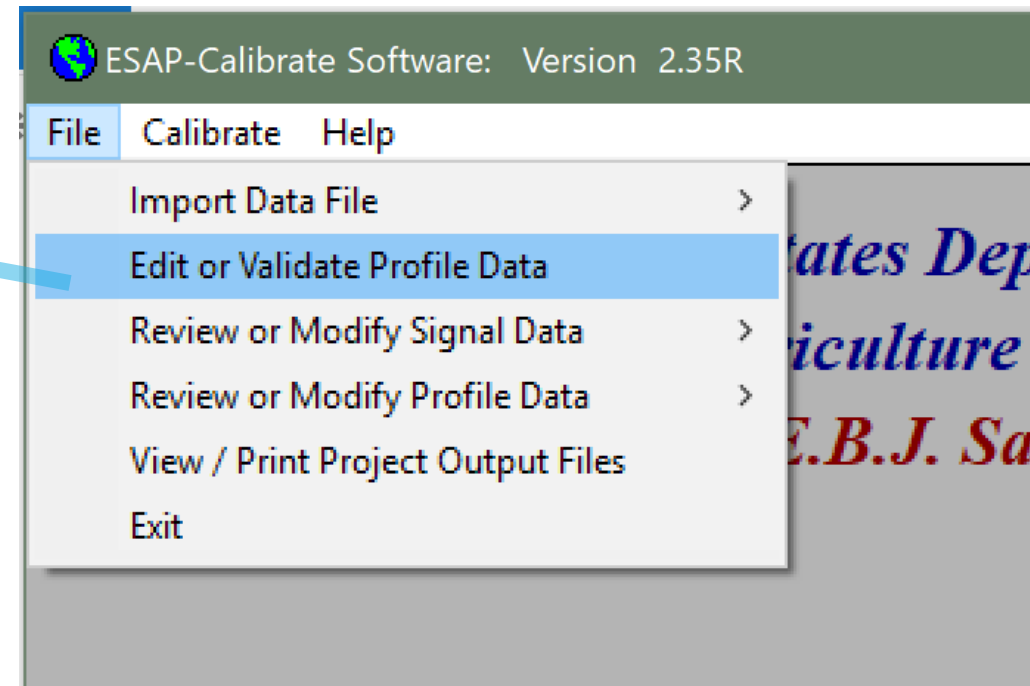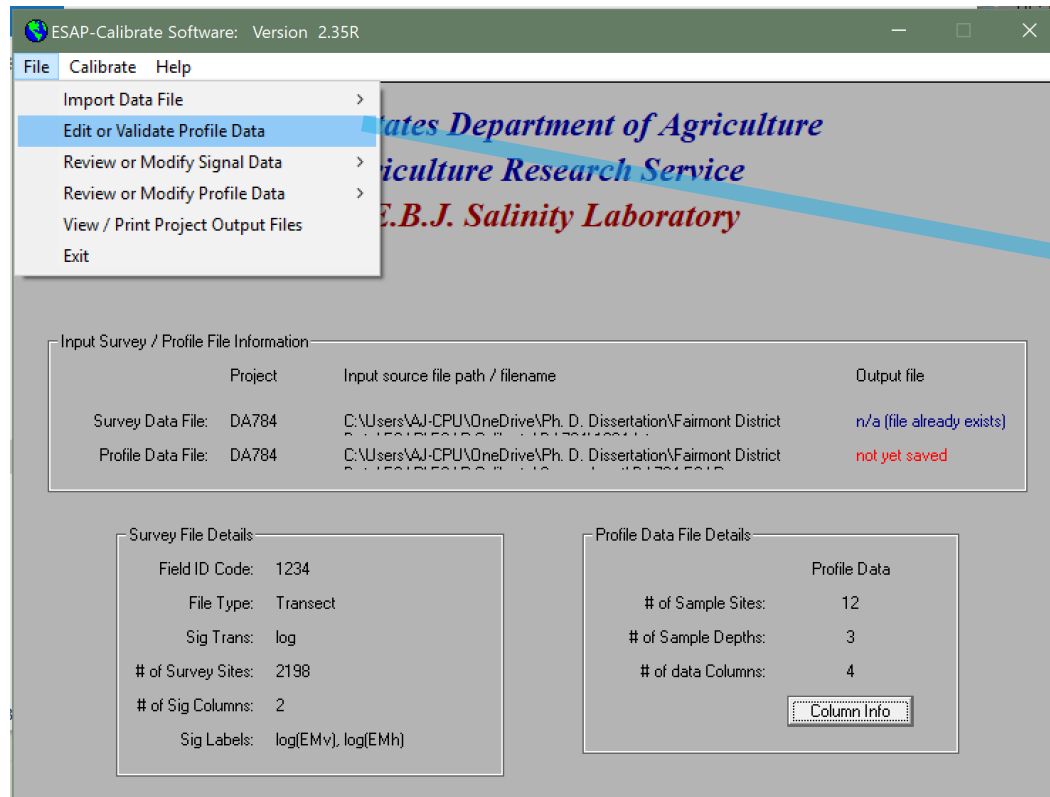# At the main menu, go to the Regression Modelling module
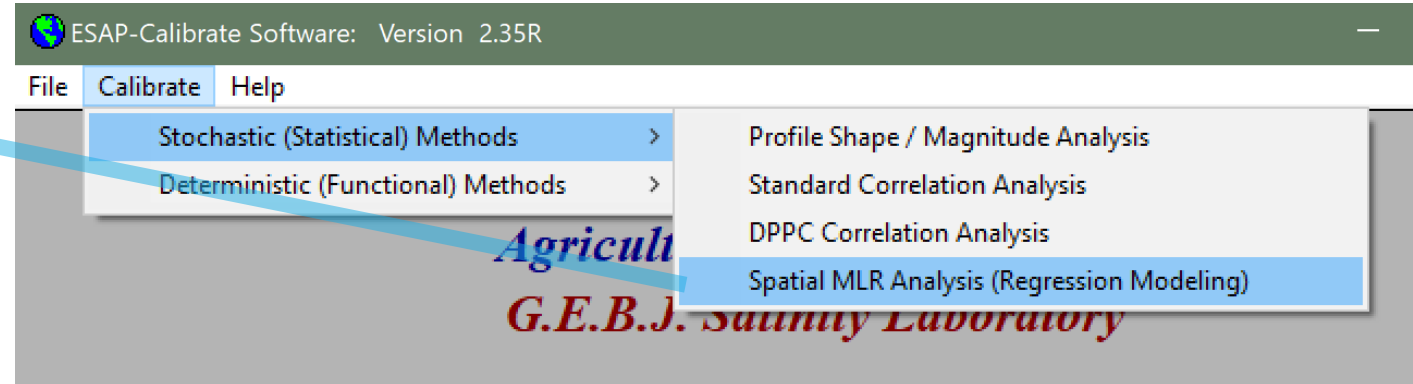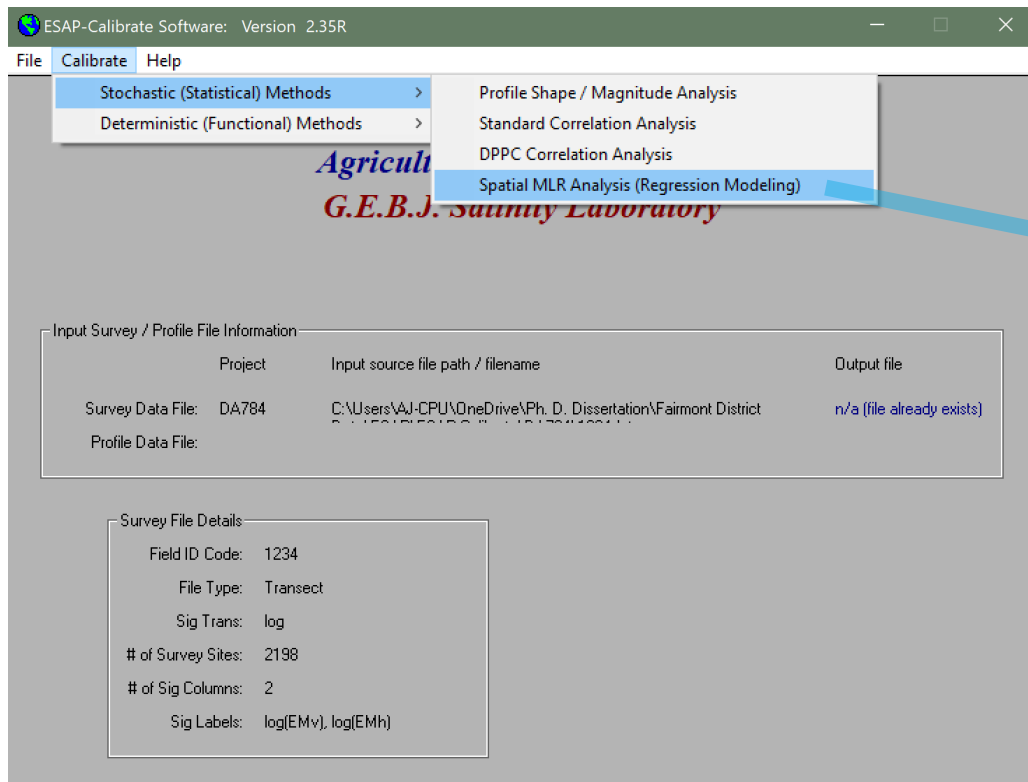
At the menu under "File" go to "Edit of Validate Profile Data"
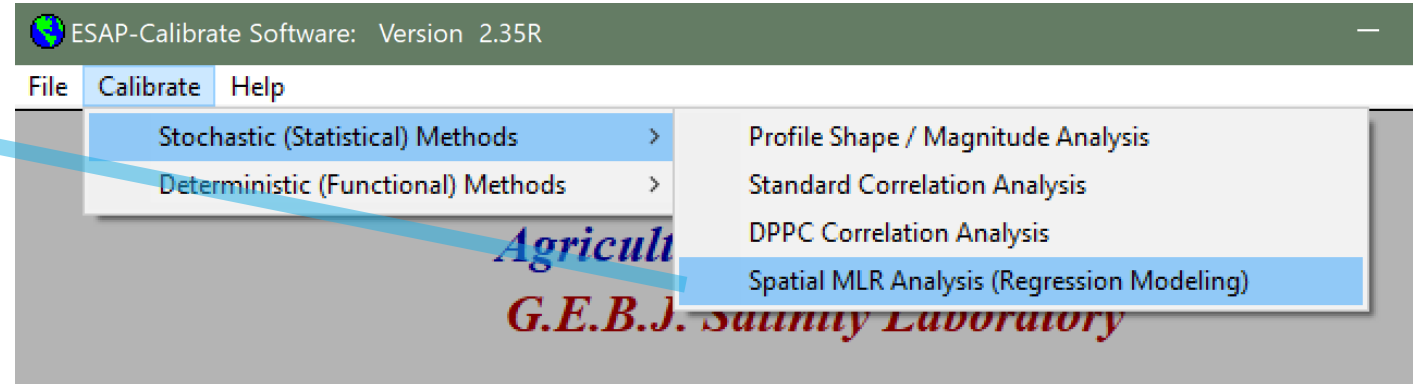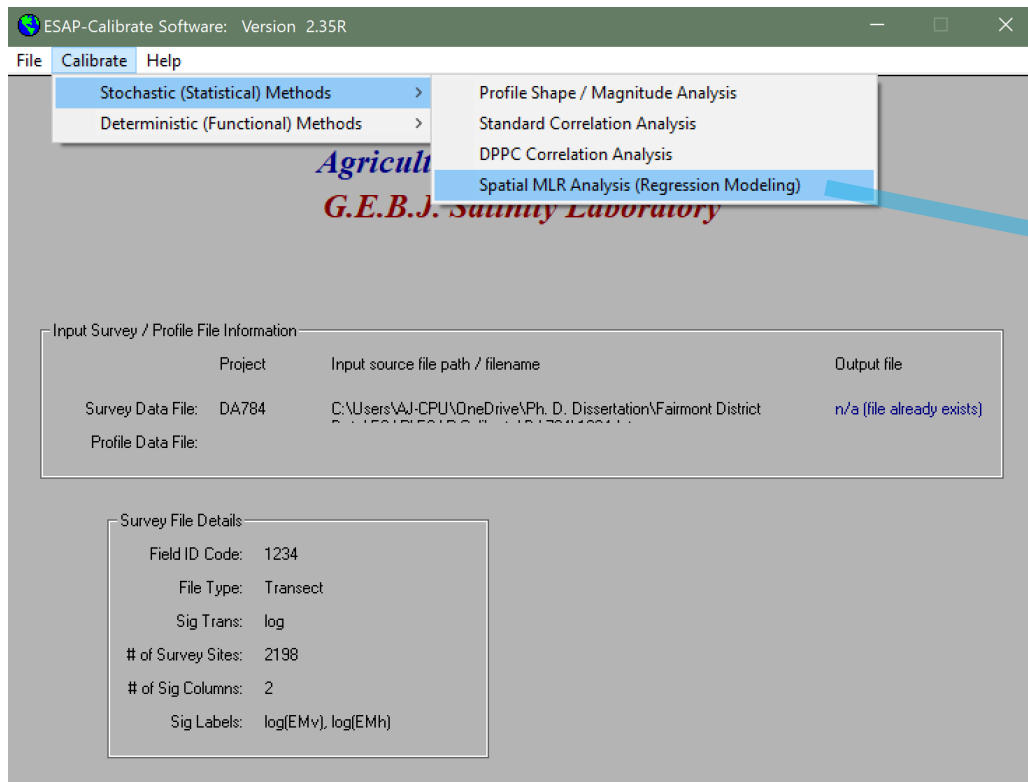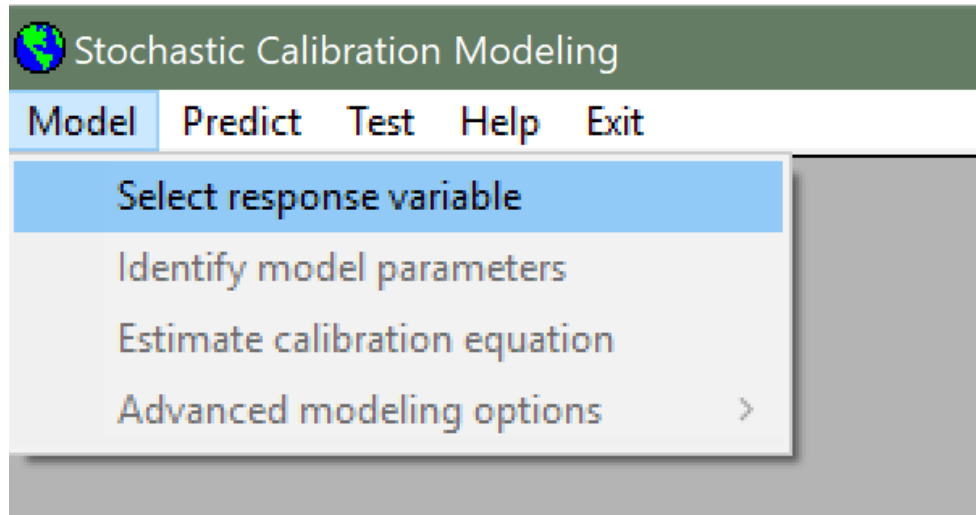
Compute summary statistics, then save your results

At the main menu, go to the Regression Modelling module

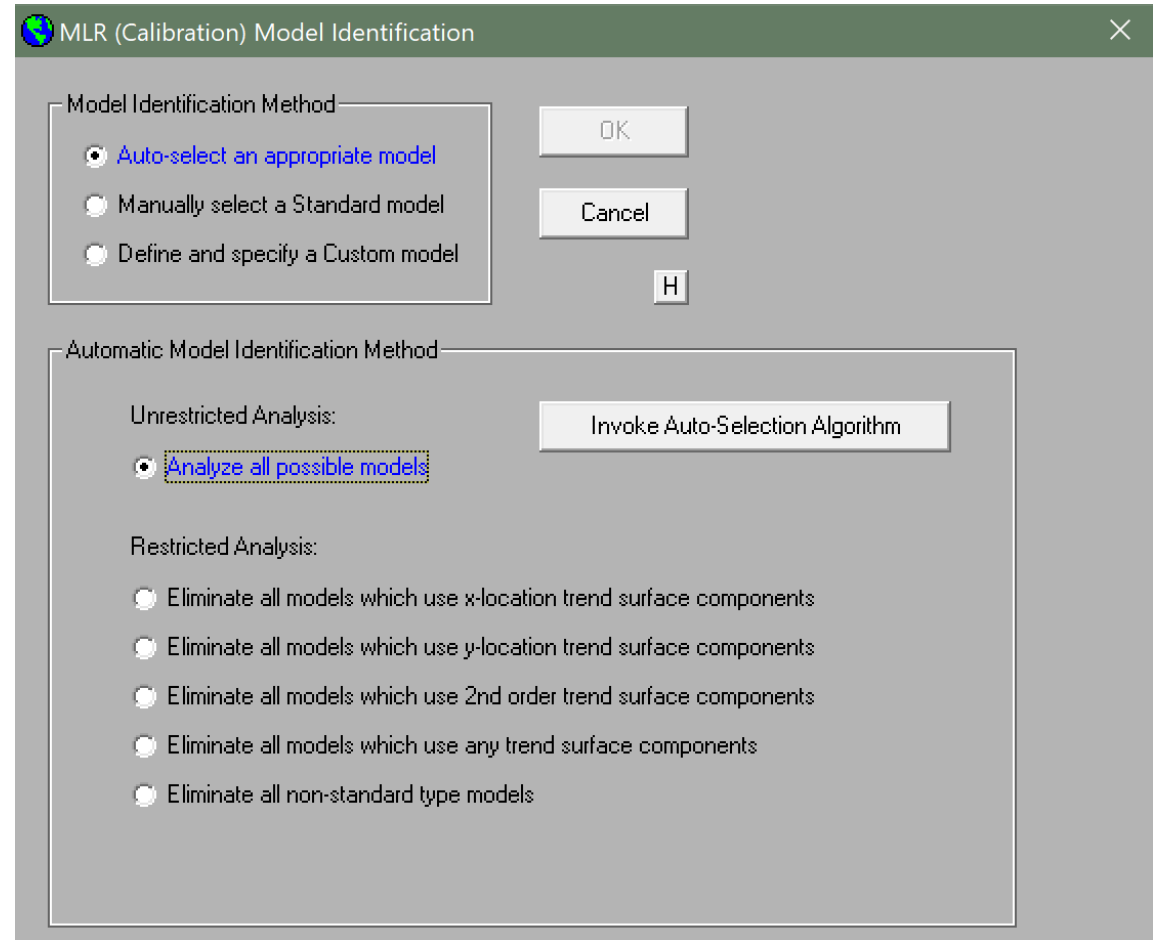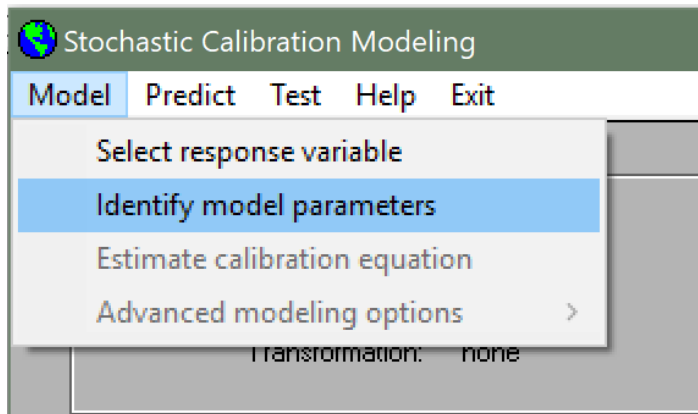# Select Response Variable and Merge Data. Accept Results.

"Model" → "Identify model parameters" → "Auto-Select an appropriate model" → "Analyze all possible models" → Invoke
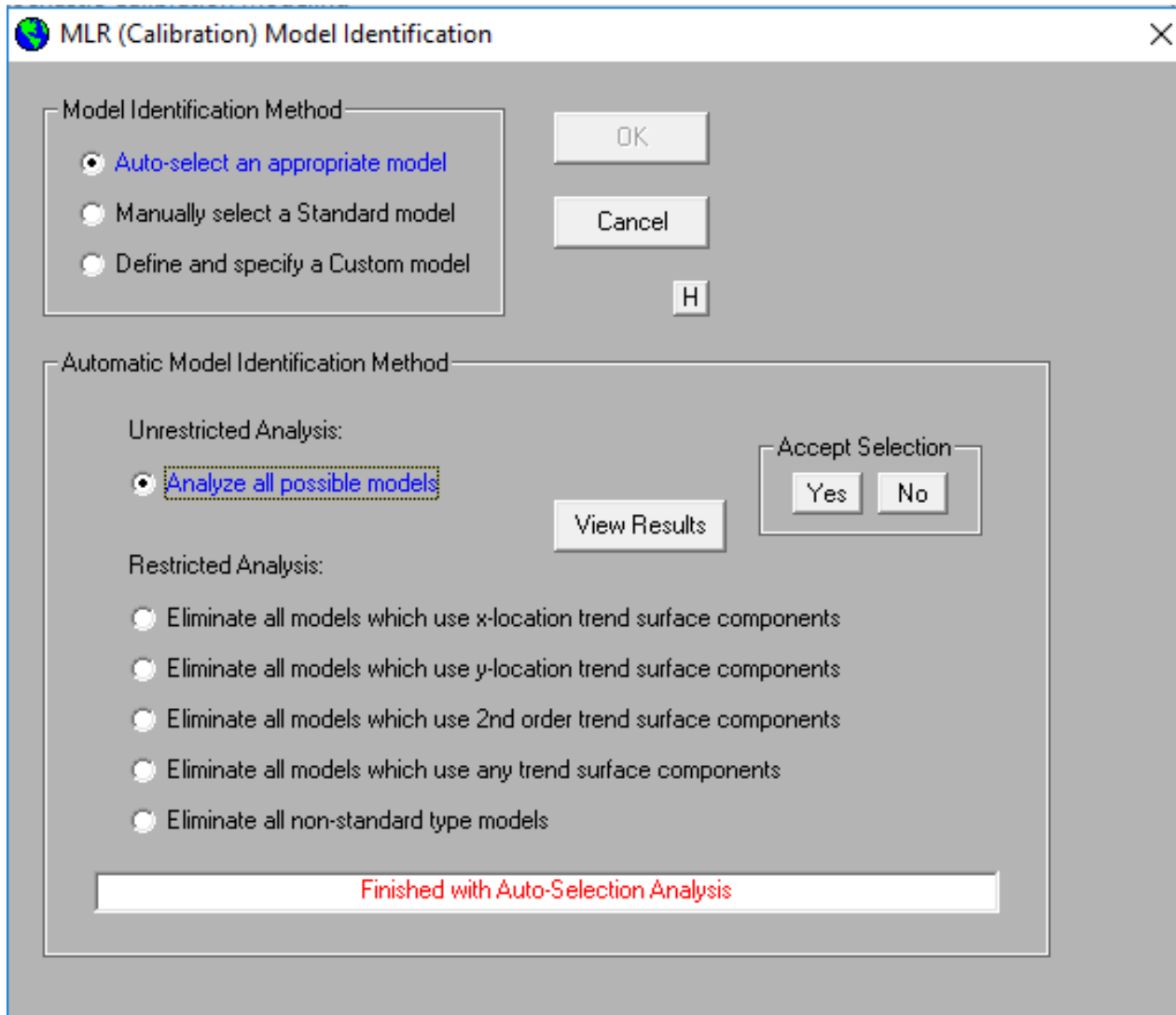
View Results (optional) to obtain PRESS score rankings, and then accept selection

"Model" → "Estimate calibration equation" → Check both boxes → "Estimate"
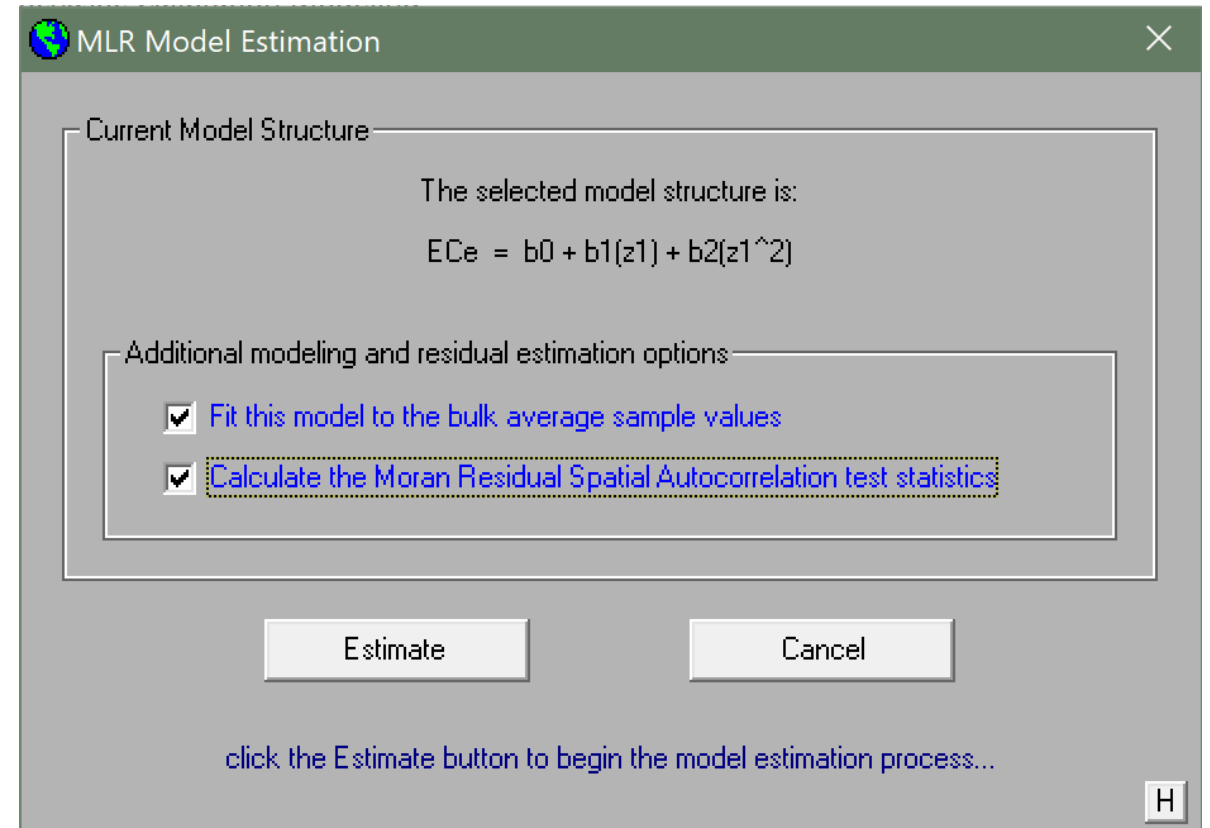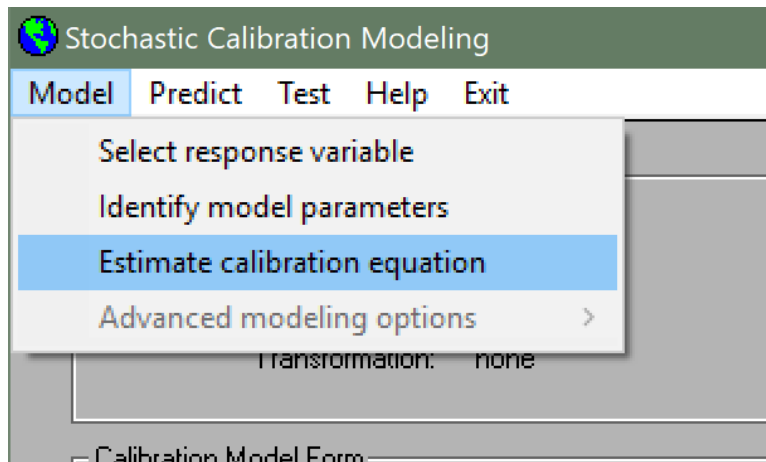
"Model" → "Advanced modeling options" → "View model summary statistics" → "Specify Output File Name" → "Finished"

THIS FILE HAS THE REGRESSION EQUATION COEFFICIENTS FOR EACH DEPTH AND AVERAGE
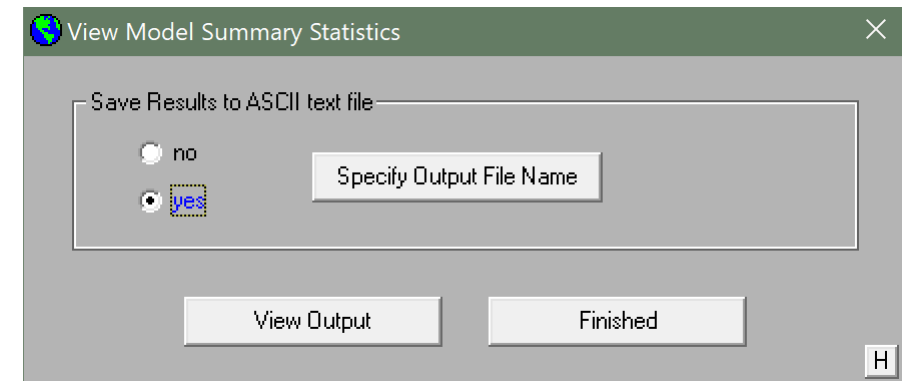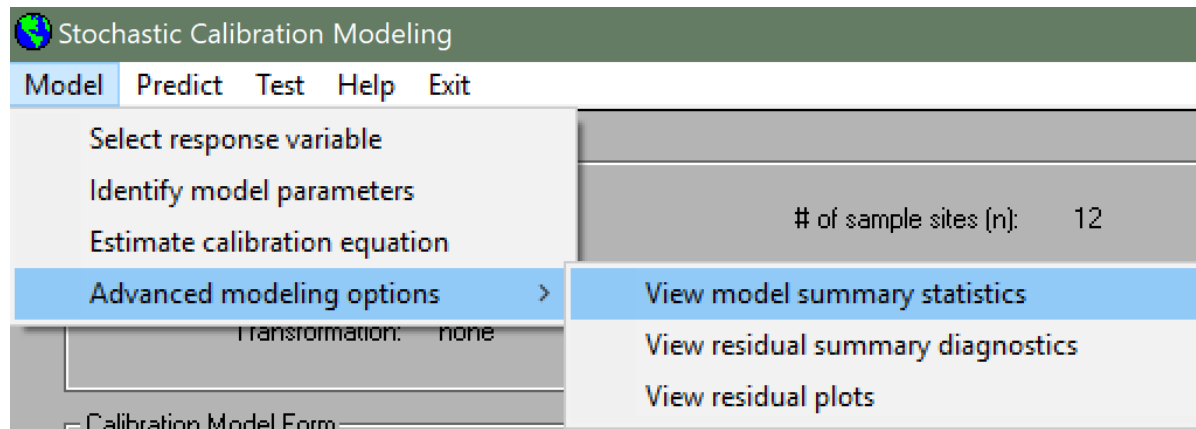
Optional: View prediction plots for accuracy
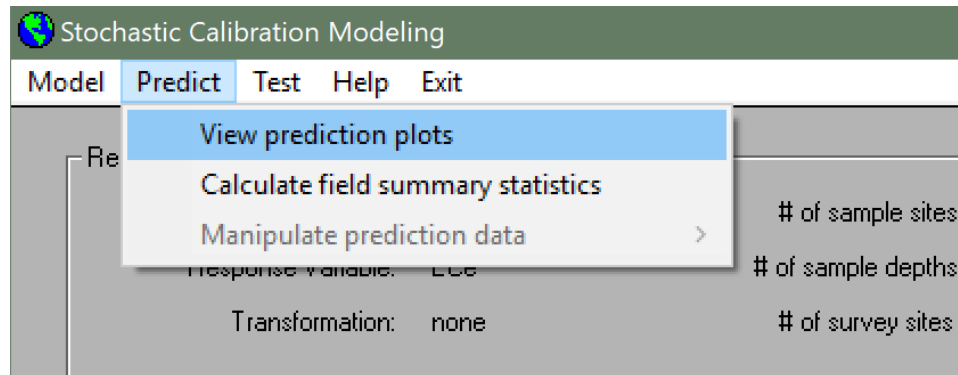
"Predict" → "Calculate field summary statistics" → Specify Soil Variable → Specify Cut-off values → "Calculate Statistics"

Specify Output File Name → Save File → Finished

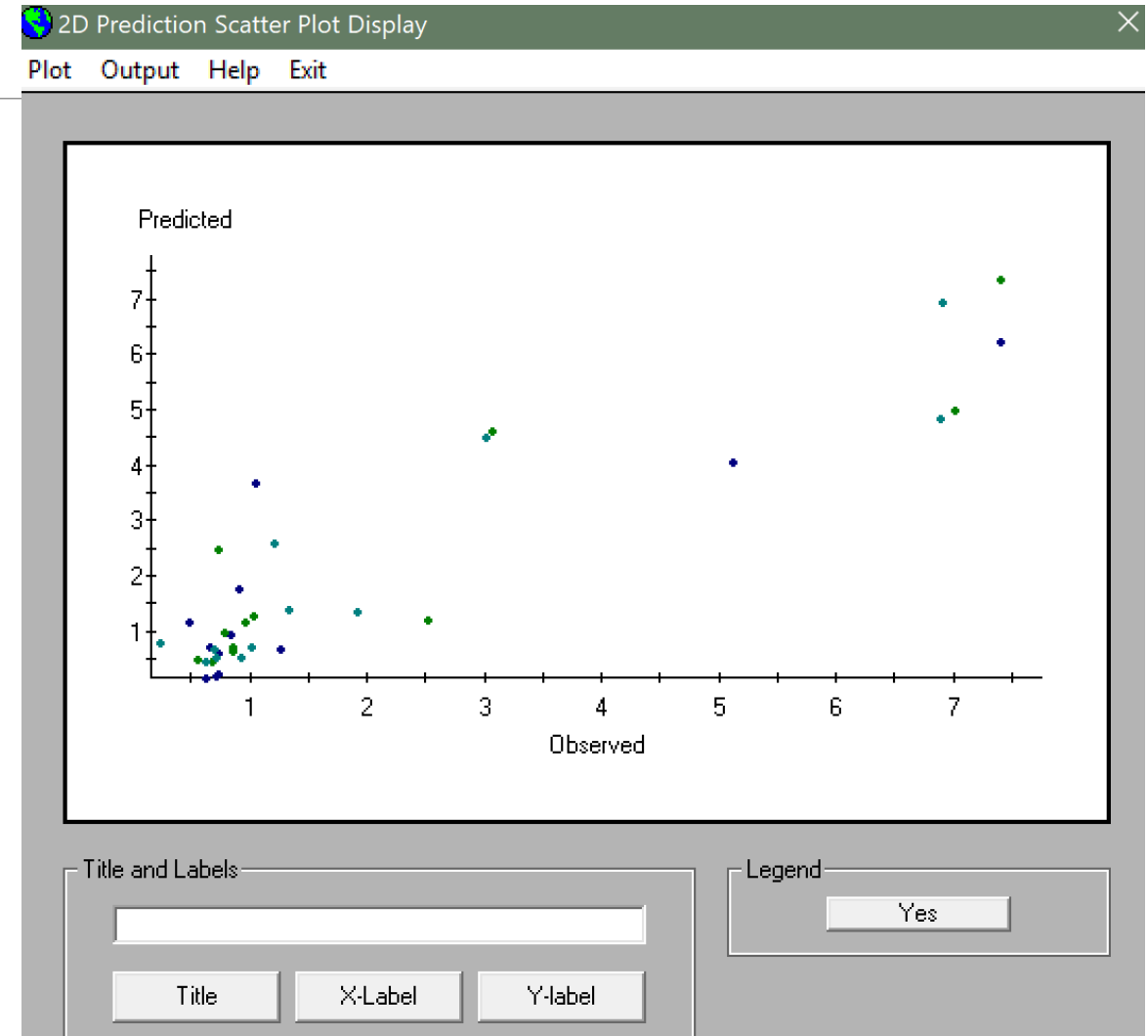# "Predict" → "Manipulate prediction data" → "Save output Predictions" → "Specify output file name" → "Finished"
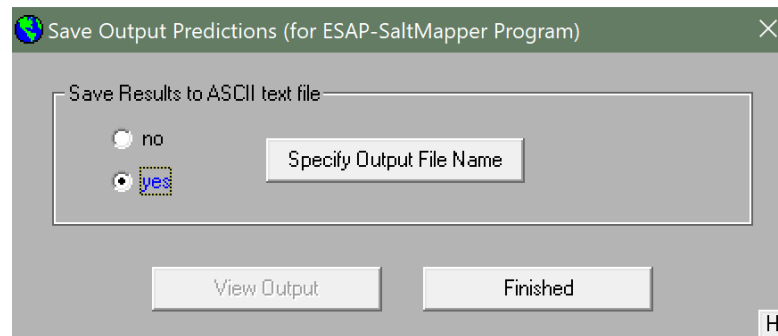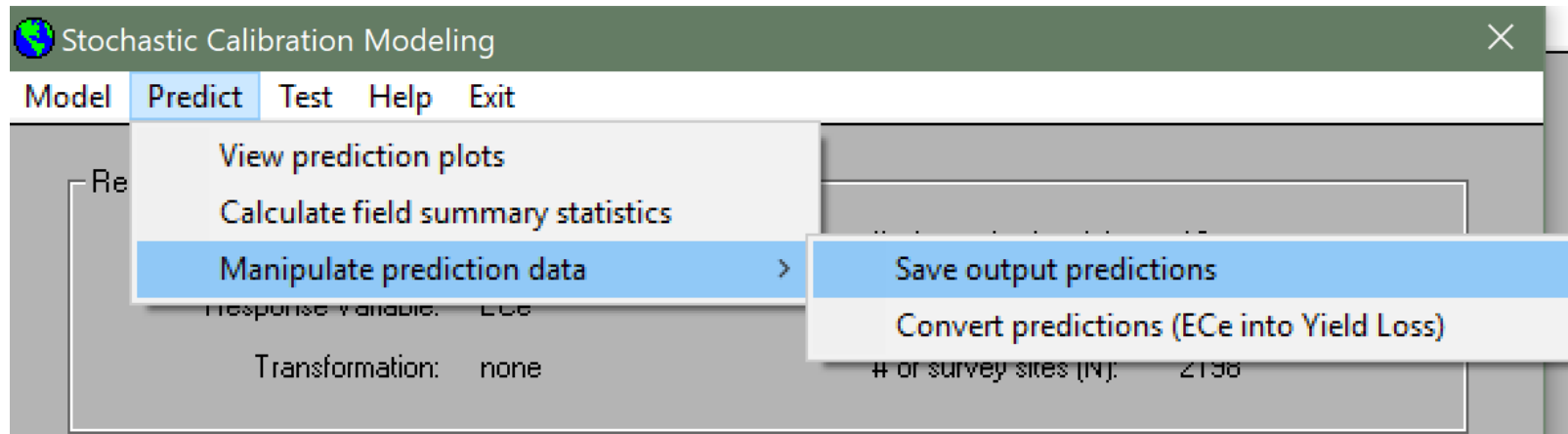
Calibration is Now Complete!
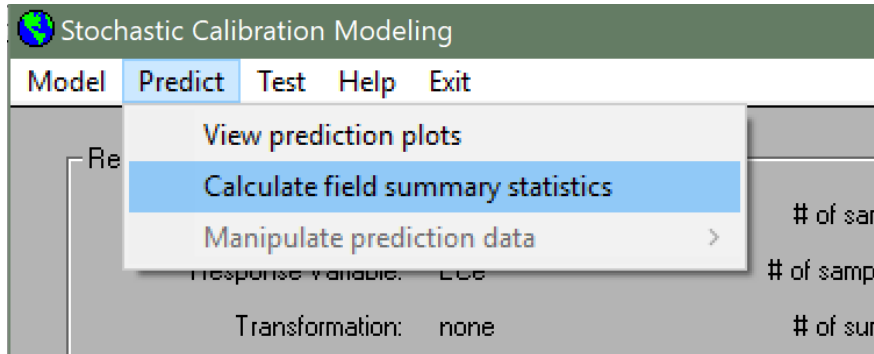
Additional options from here:

- Yield loss predictions
- Mean-Shift Tests to see if salt content in a field has changed from one EM38 survey to another
- Net-Flux tests to see if salt content in a single sample site location has changed via additional soil samples

To view calibration equations directly:

- Find the project folder in the file explorer and open the file created in slide 16. An example of an equation is shown

MLR Model Form:
$$ECe = b0 + b1(z1)$$

AOV Table and Parameter Estimates for depth: 0.15

Source	DF	SS	MS	F value	Prob >F
Model	2	41.0054	20.5027	15.74	0.0012
Error	9	11.7220	1.3024		
C-Total	11	52.7274			

model R-square =   0.7777
root MSE =   1.1412

press score =   25.380

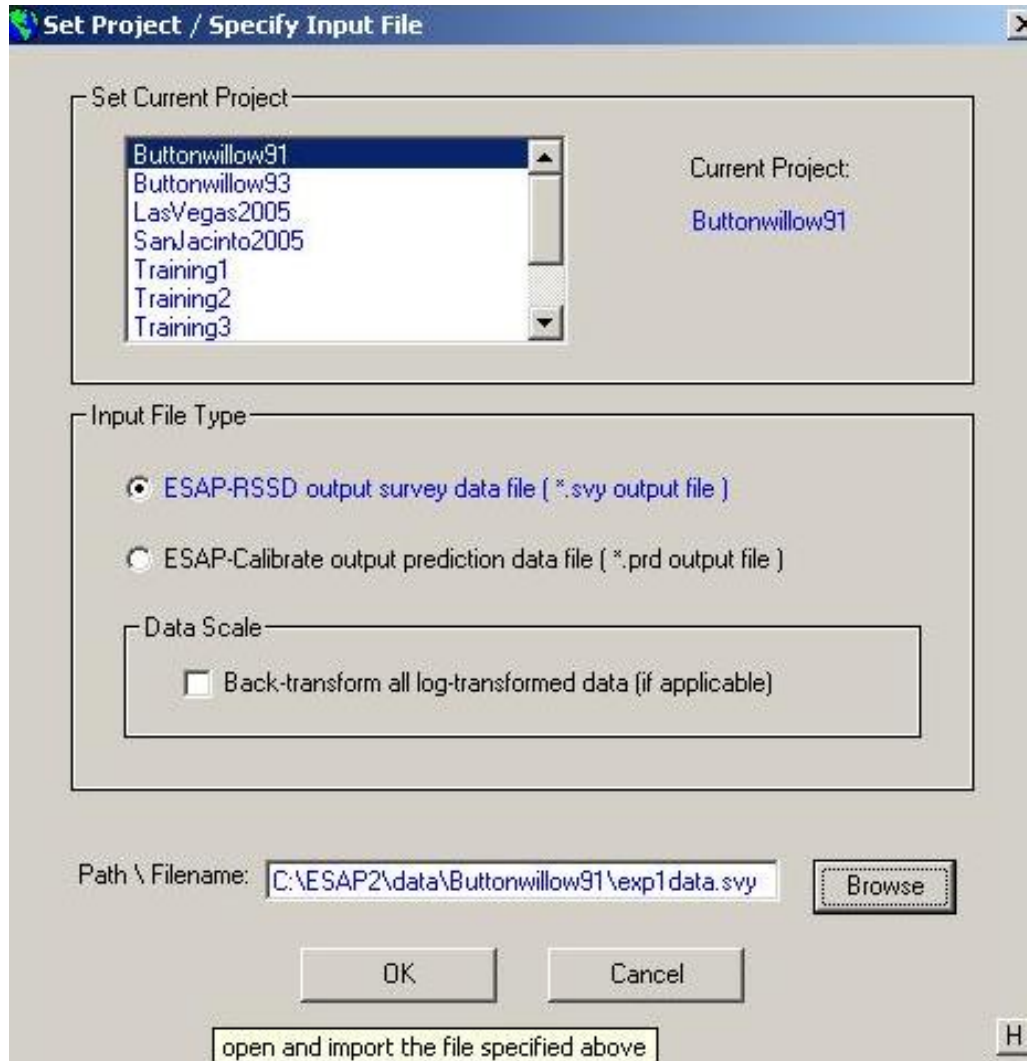| Parameter	Estimate	Standard Error	t value para=0	Prob >|t|
intercept	0.4374	0.5011	0.87	0.4054
z1	0.9874	0.2918	3.38	0.0081
z1^2	0.8948	0.2720	3.29	0.0094

The ESAP-Calibrate Predictions are Now Ready for Use for ESAP-SaltMapper

Select ESAP-SaltMapper from the "Programs" and "Analysis Software" menus.

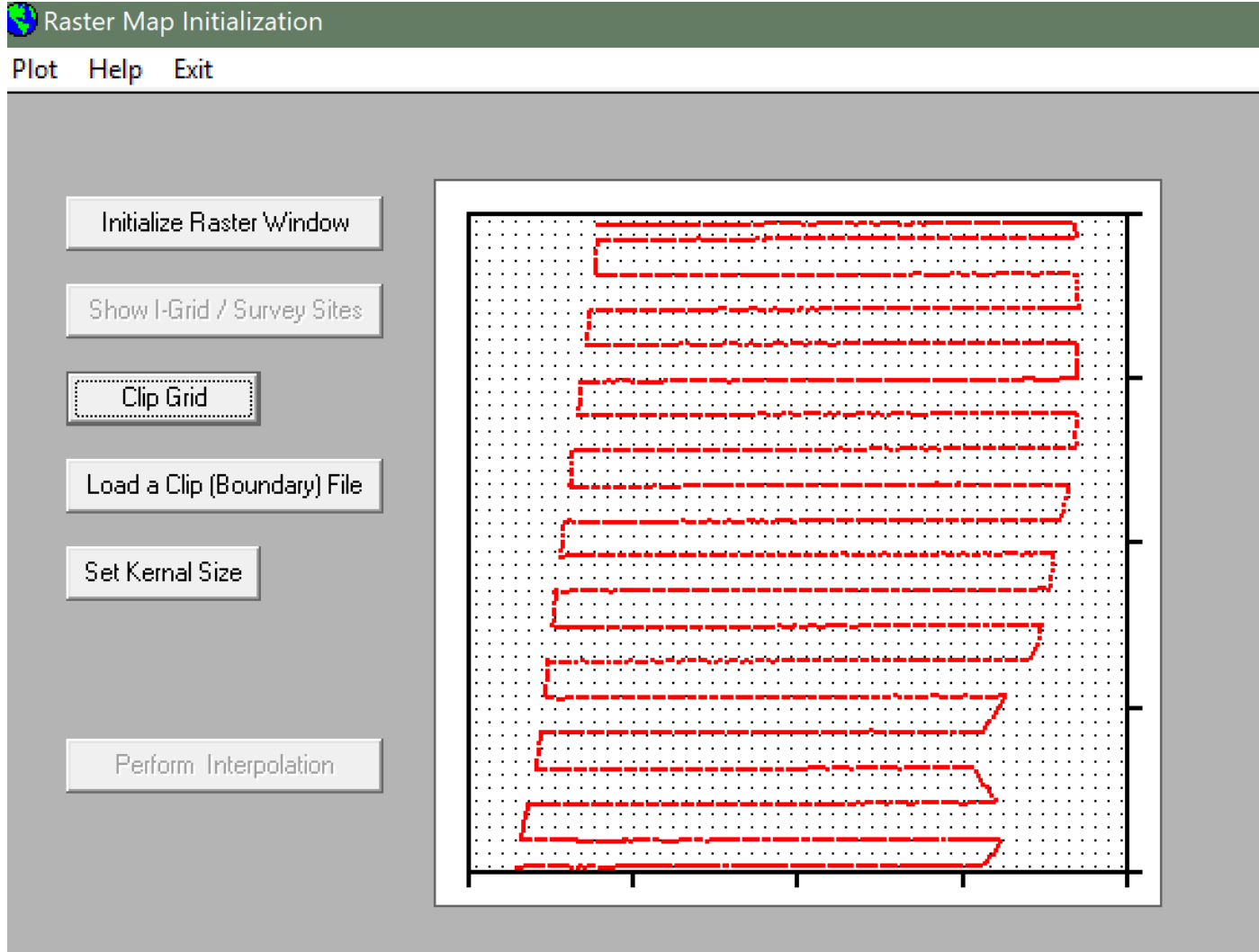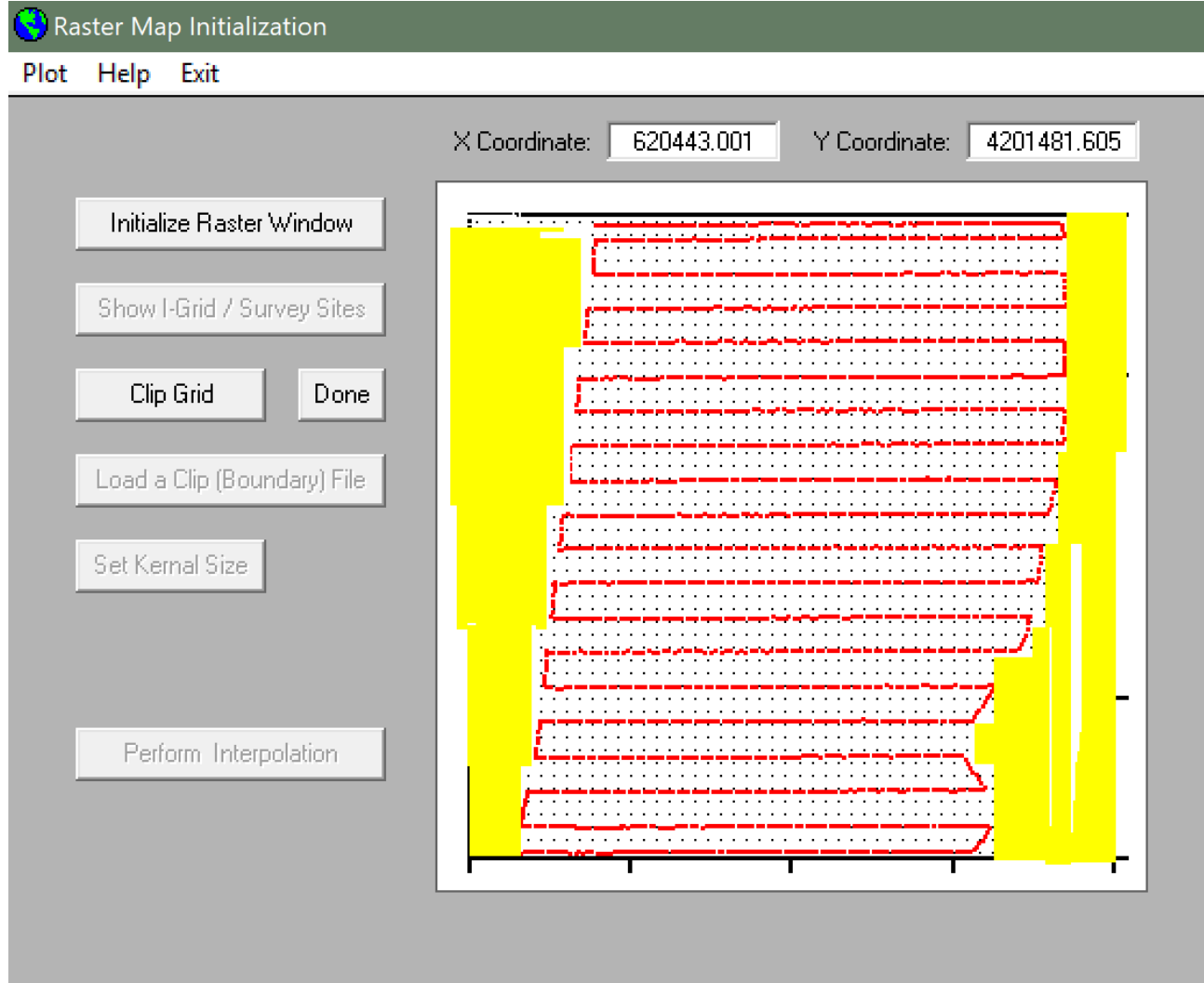# Select Specify/Input File Info from the "File" menu.
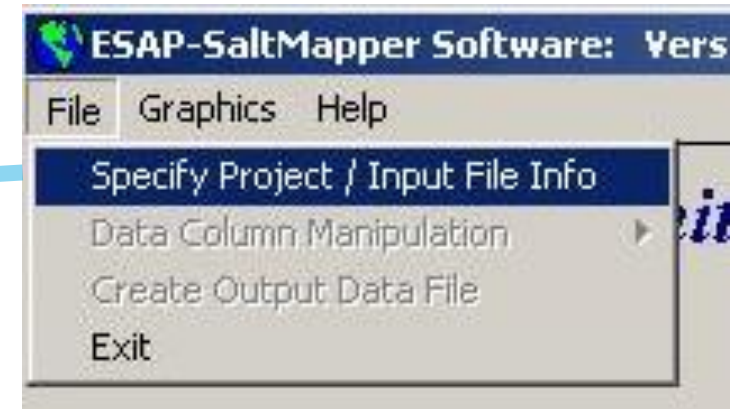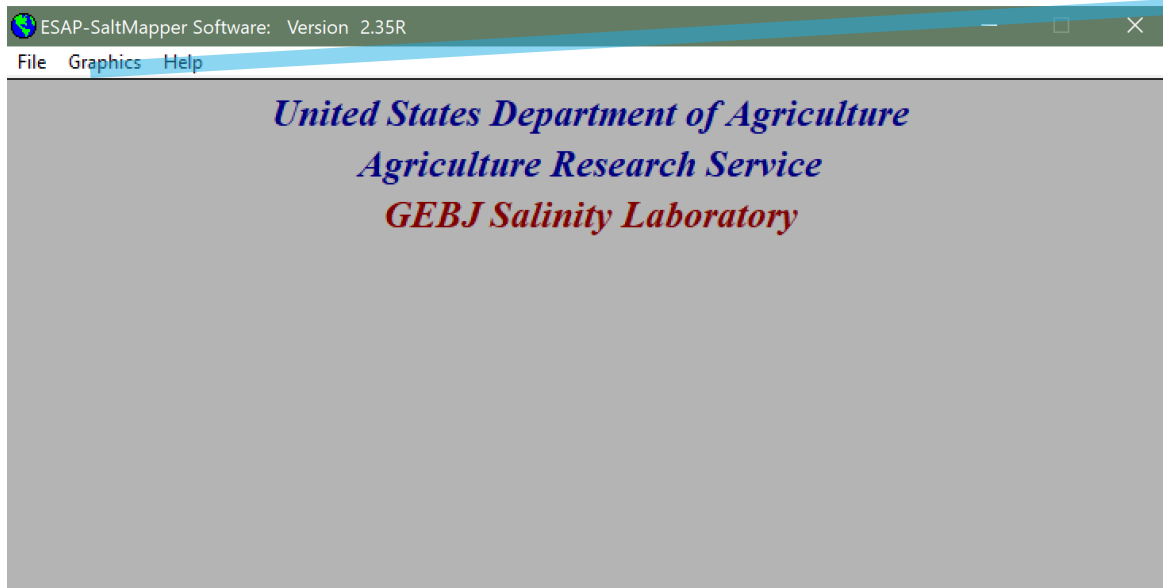
Specify the project and input file location

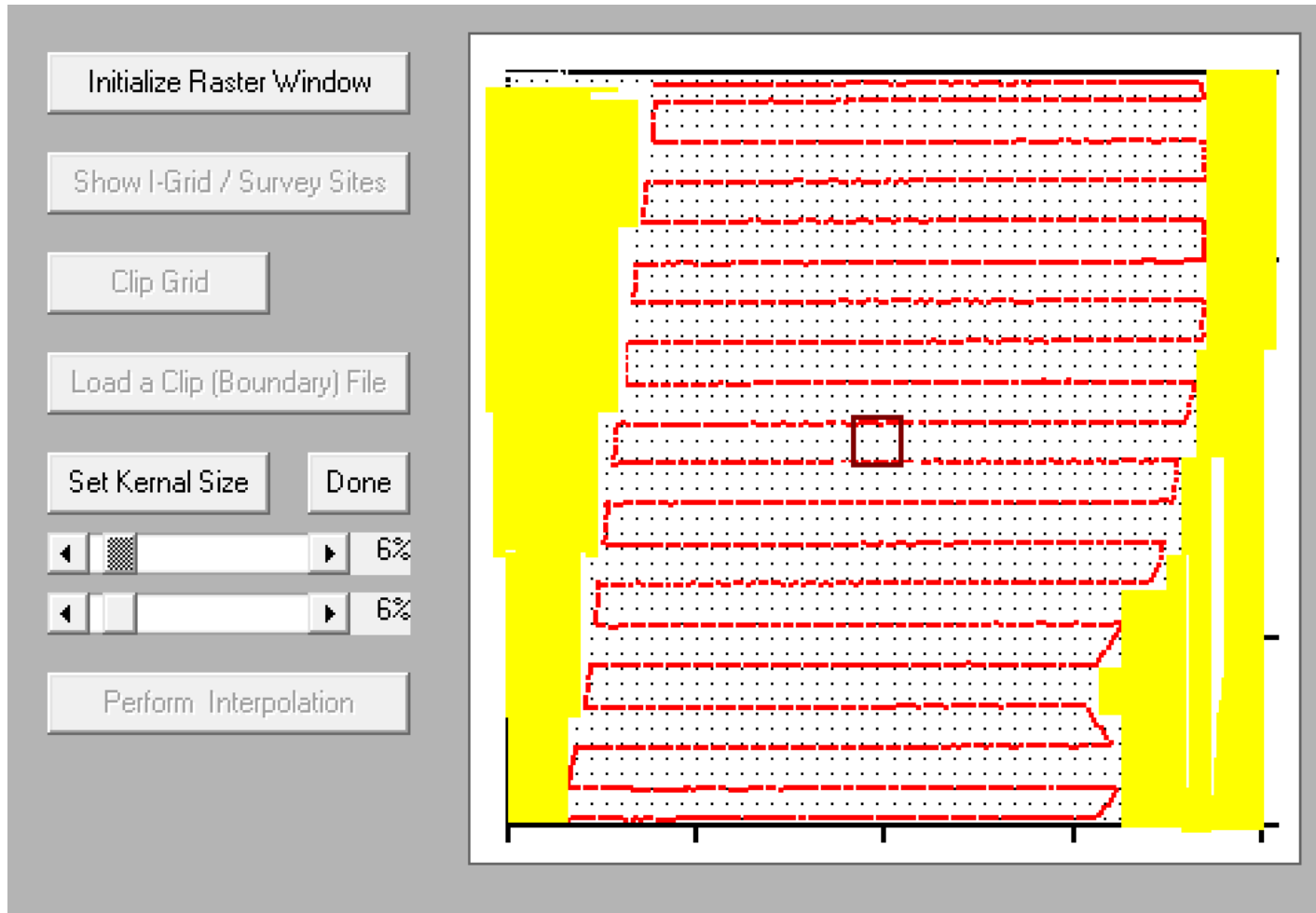# Select 2-D Raster Image Map from "Graphics" menu.

Initialize the Raster Window, then Show the Grid/Survey Sites

Clip the grid to the appropriate field shape. Yellow indicates clipped area.
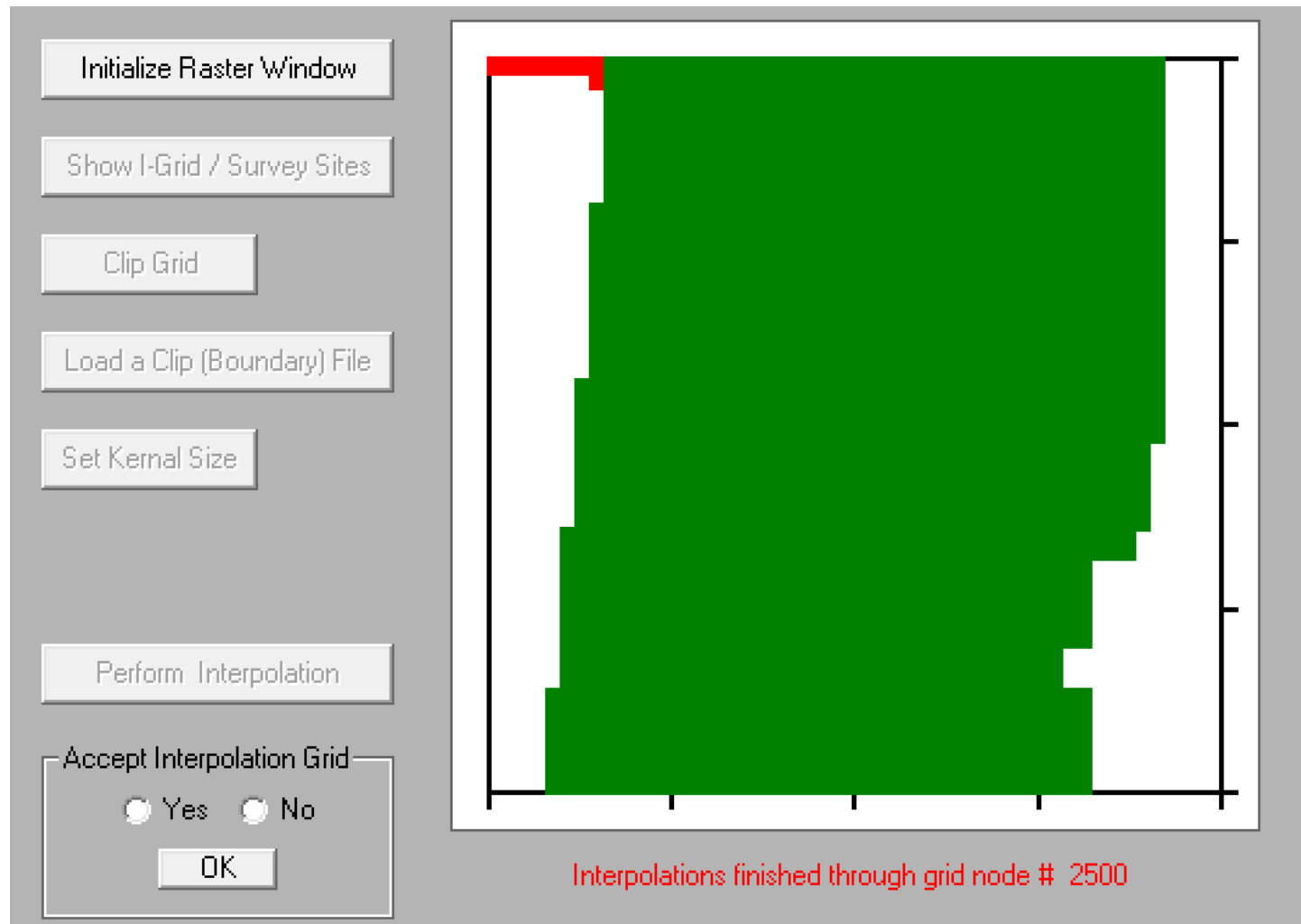
Press, "Done"

Set the Kernel Size
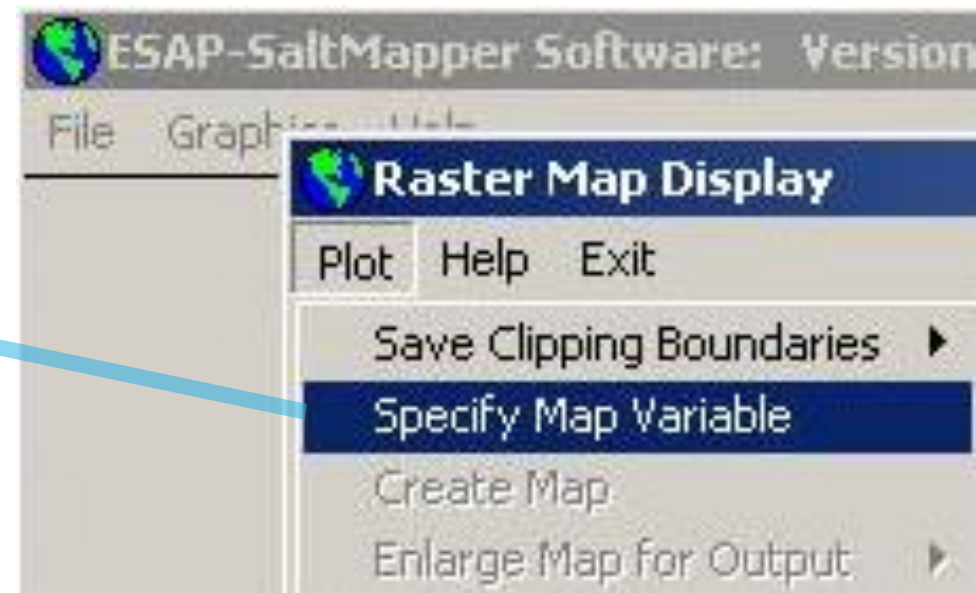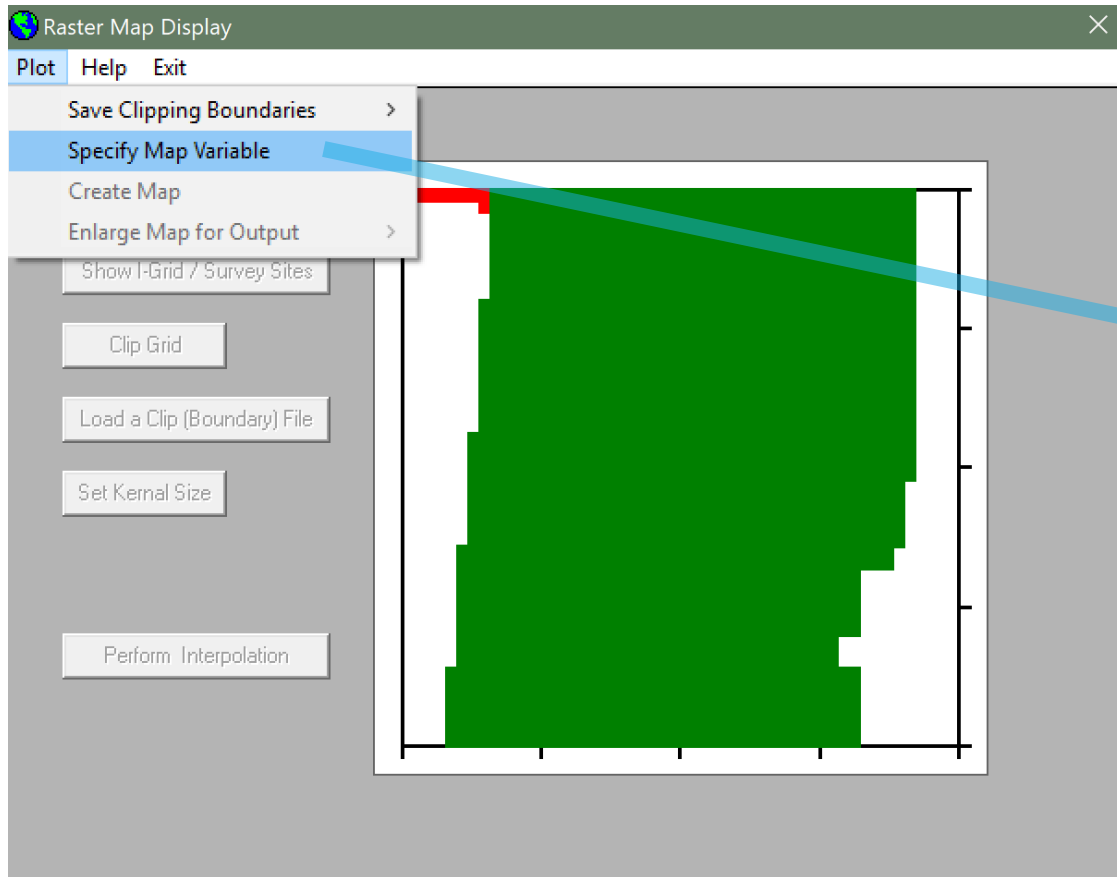Dense survey grid (6%)
Sparse survey grid (10%+)

Press "Done"
Press "Perform Interpolation"

Accept Interpolation Grid After Checking Boundaries

Select Specify Map Variable from the "Plot" menu.

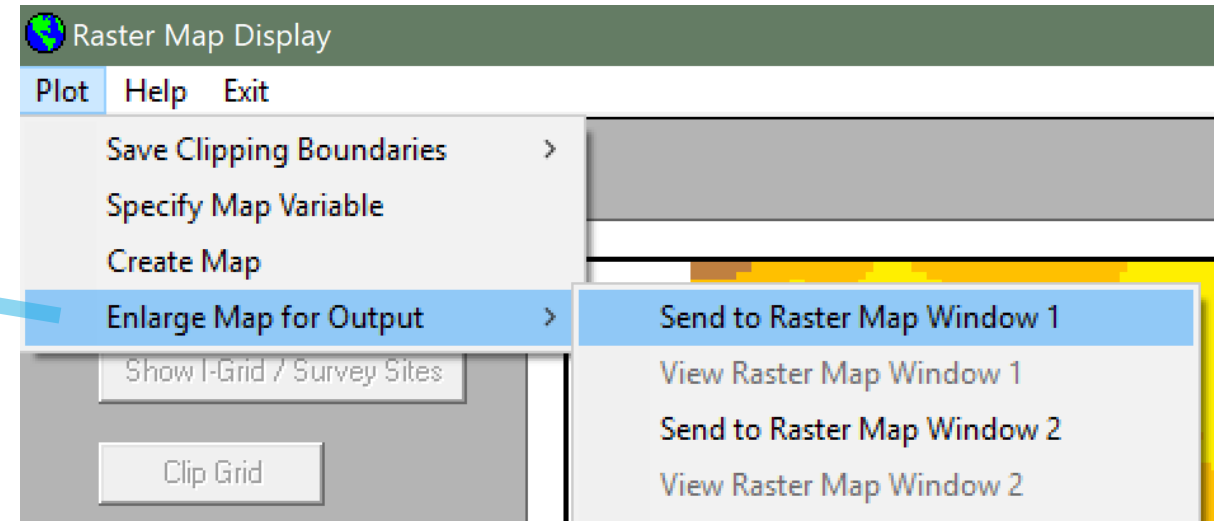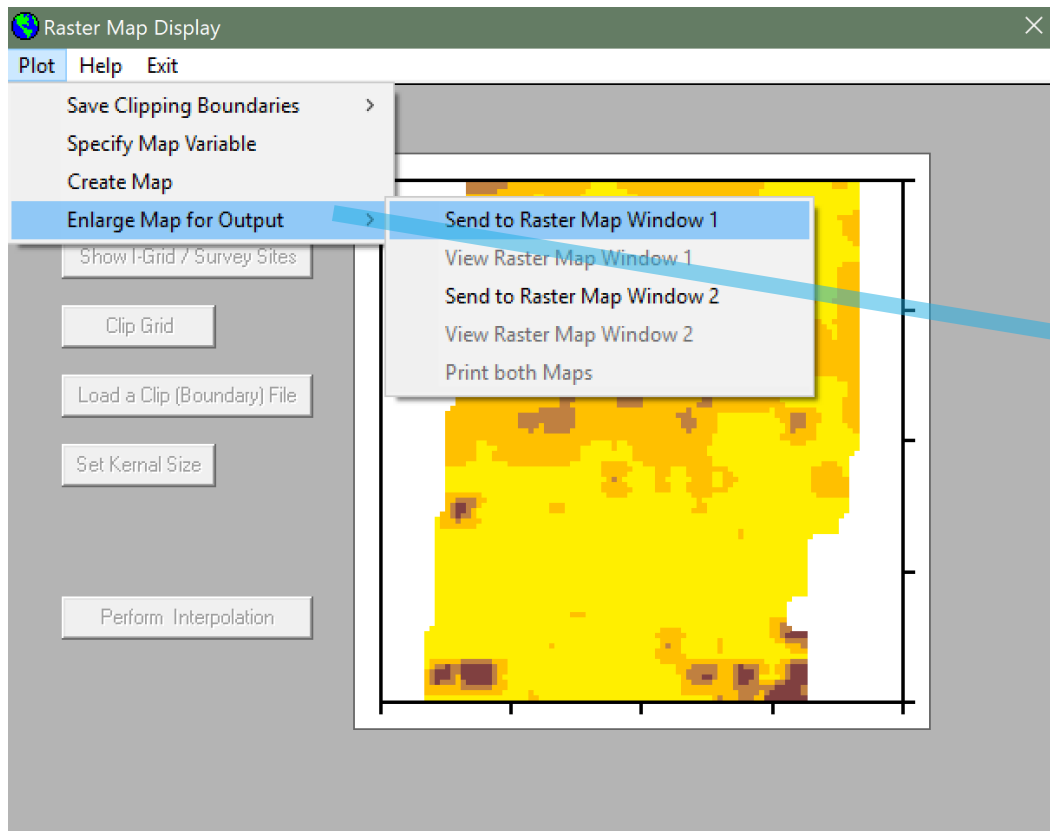# Customize Variable, Map Features, and Map Appearance. Sample sites may also be overlaid.
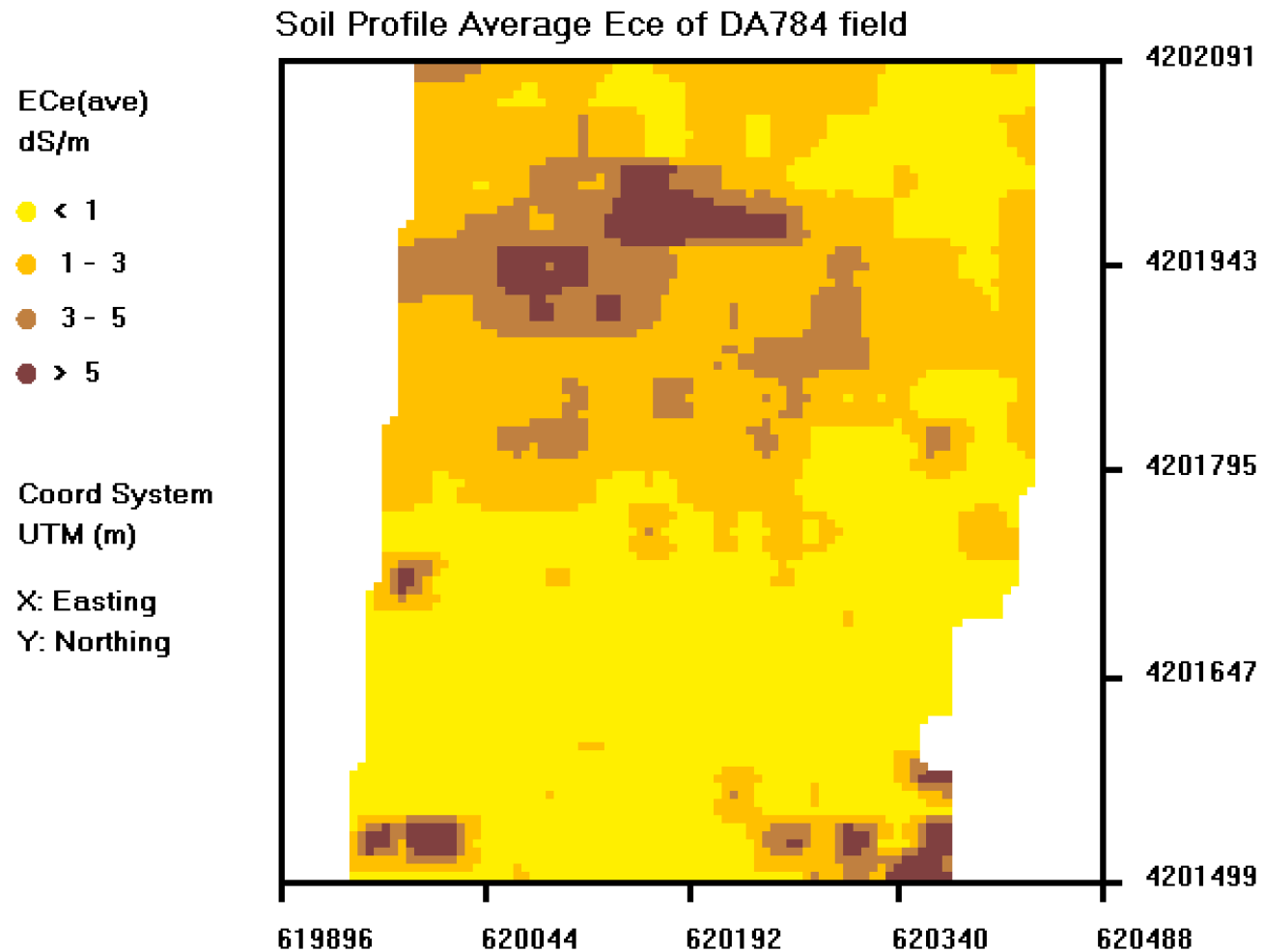
Press "OK"

Select Create Map from the "Plot" menu
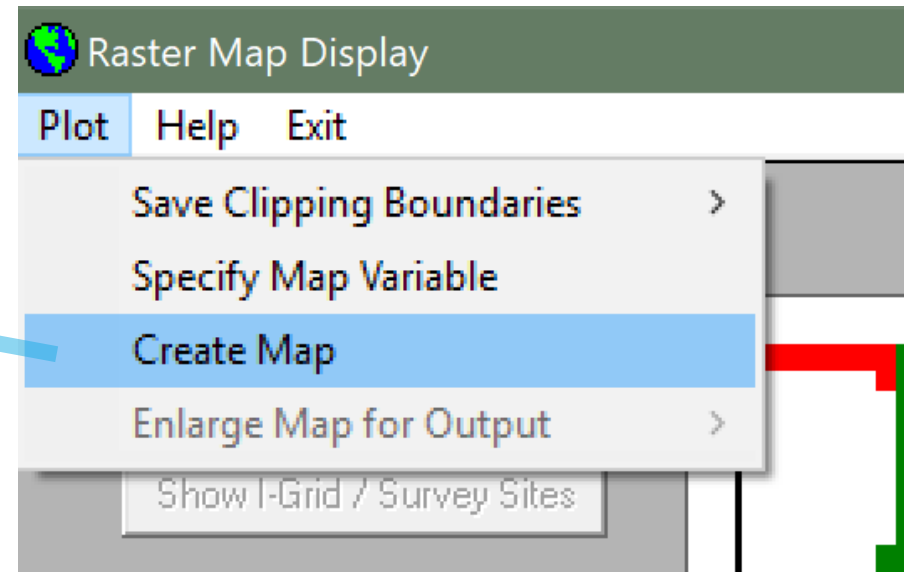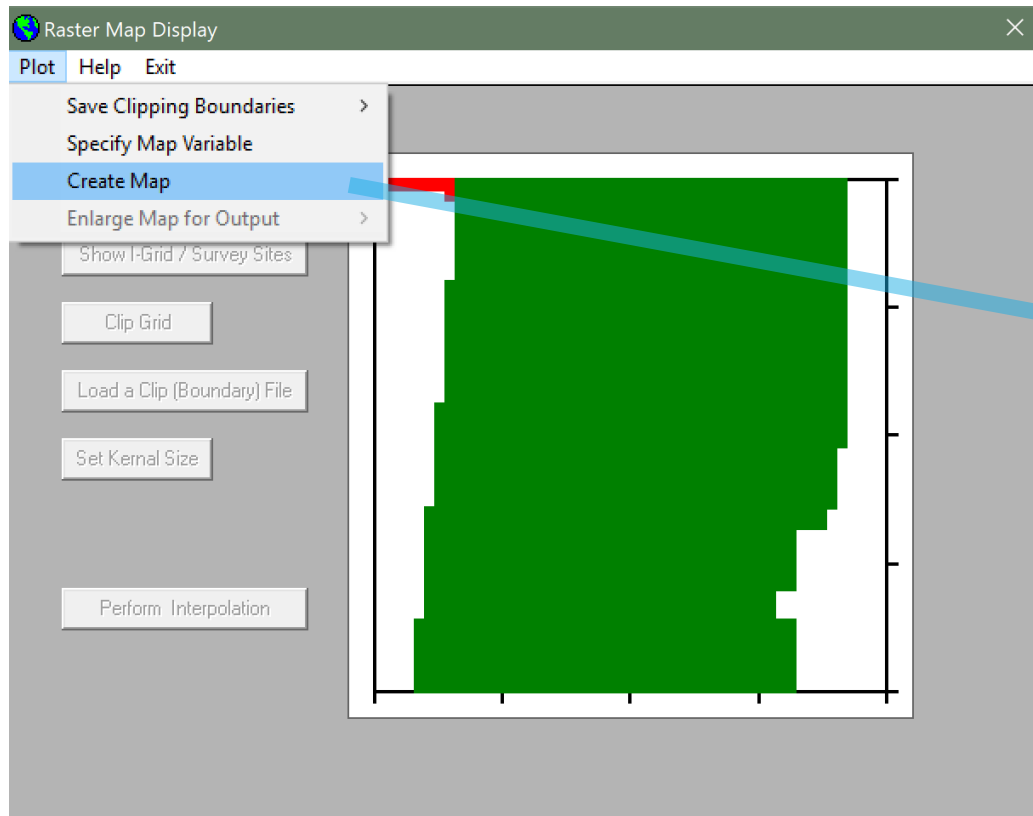
You can now view your salinity map. Select Enlarge Map for Output from the "Plot" menu to view or print your map.

Soil Profile Average Ece of DA784 field

Final Product!

Questions