

Creating Earthquake Boundaries Shapefiles

Elizabeth Fernandez

Geographic Information Network of Alaska

Workflow solid boundaries: ASCII to excel table, XY Table to Point, Point to Line, Feature to Polygon, Merge features

I began by importing the ASCII file into excel to create a table of XY values. After opening ArcGIS Pro, I used the XY Table to Point tool to make each set of coordinates into a point shapefile.

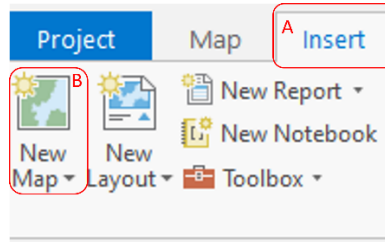
I then used the Point to Line tool to create a line shapefile. Following that, I created a polygon shapefile using the Feature to Polygon tool.

I made a single shapefile from all of the individual boundary polygon shapefiles by using the Merge tool and adding a field to the final merged shapefile's attribute table to label each polygon by year.

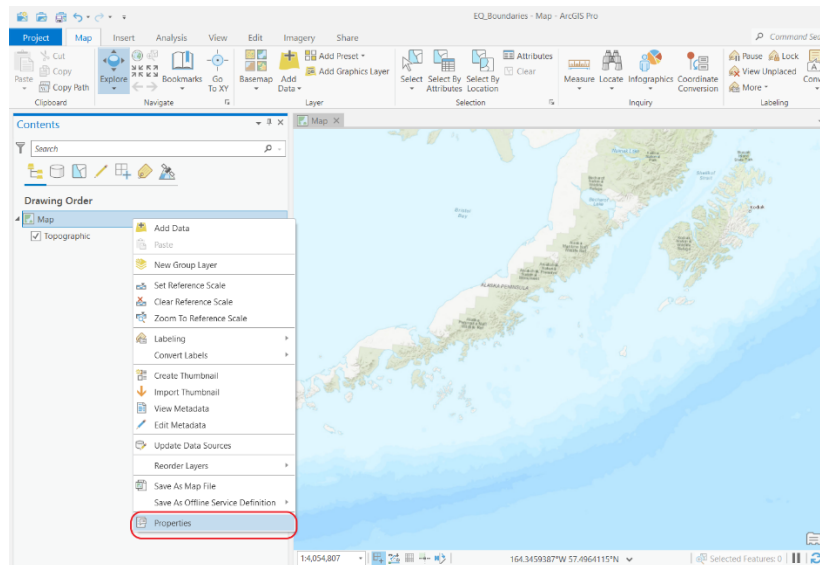
Lastly, I used the project tool to converted the shapefile into the WGS1984 datum.

Getting started

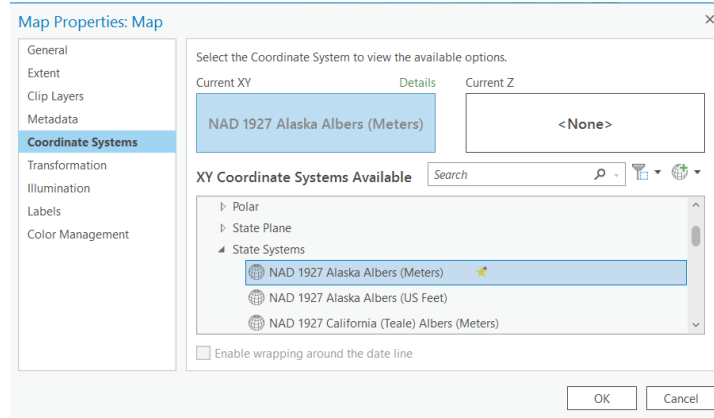
1. Open ArcGIS Pro
2. Insert map
 - a. Click on **Insert** Tab
 - b. Click **New Map**



3. Change Map Projection
 - a. Right click on **Map** on the Contents pane on the left side of the screen
 - b. Open **Properties**

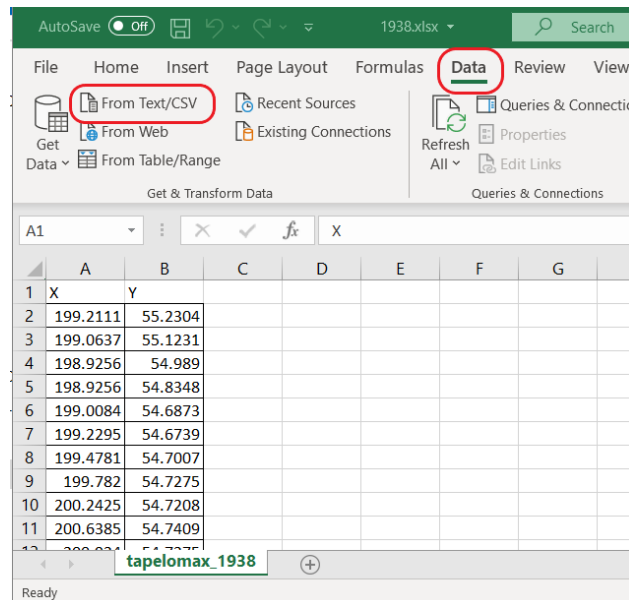


- c. Ensure that Coordinate Systems is set to **NAD 1927 Alaska Albers (Meters)**



4. Create Excel Table

- a. Open Excel
- b. Click on the **Data** tab
- c. Click on the **From Text/CSV** tool
- d. Import the data and label each respective column X & Y

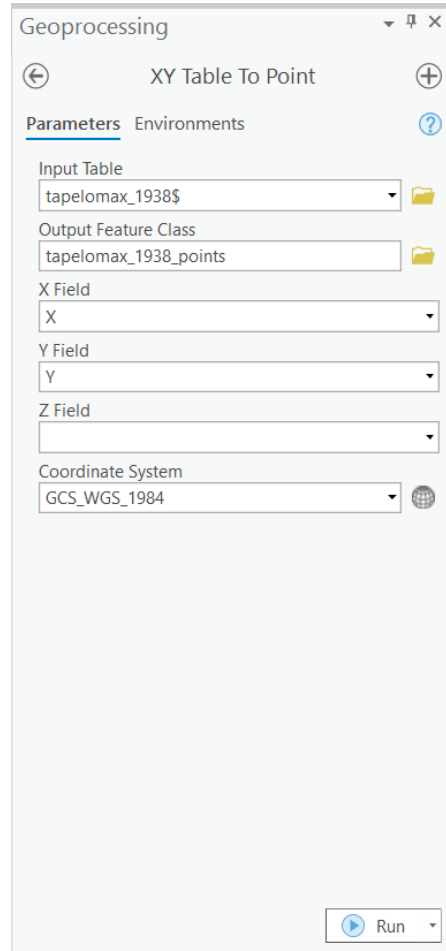


- e. Save the file

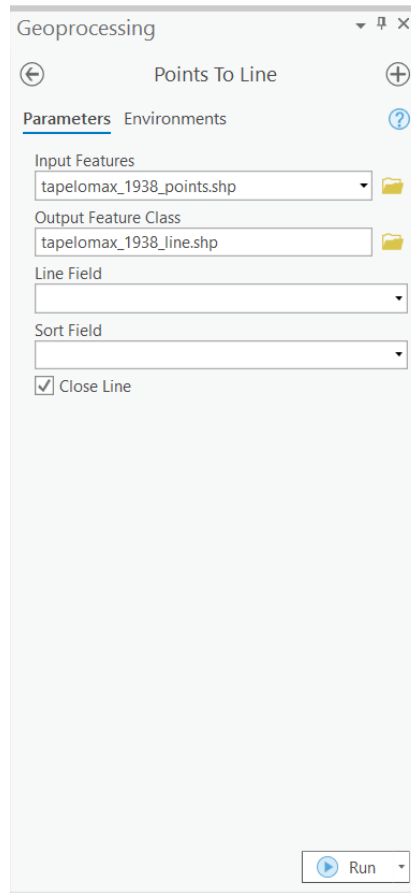
5. Use **XY Table to Point** tool

- a. Click the **Analysis** tab
- b. Click **Tools** to open the Geoprocessing tab
- c. In the search bar, type “XY Table to Point”

- d. Click on the tool
- e. Input the excel table as the Input table and ensure that Coordinate System is set to “GCS_WGS_1984”
- f. Click **Run**

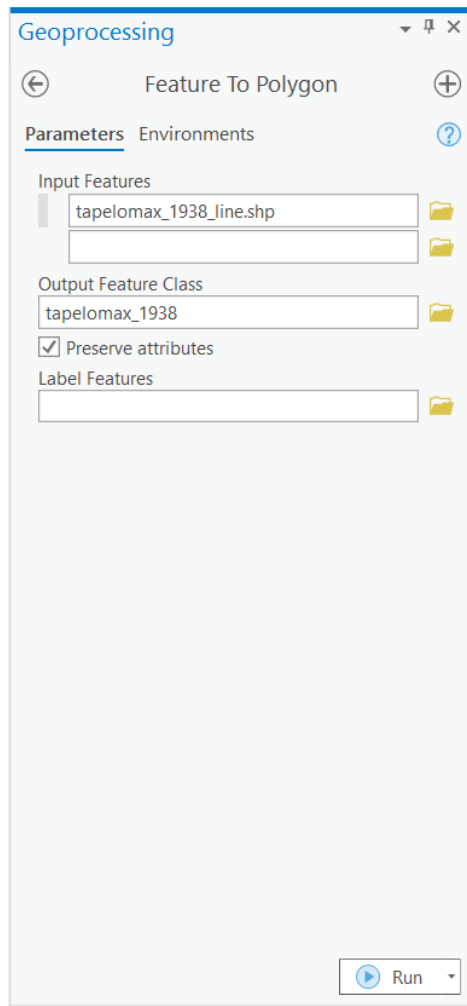


6. Run the **Points to Line** tool
 - a. Input Features will be Points layer
 - a. Output Feature Class will be the path and what you want to name the file
 - b. Line Field and Sort Field can remain blank
 - c. Check Close Line
 - d. Check that the projection is in WGS_1984
 - e. Click **Run**

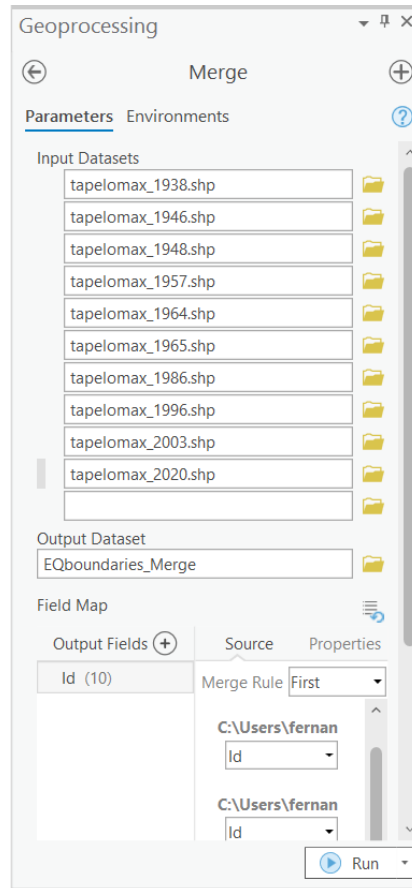


7. Run the **Feature to Polygon** tool

- a. Input Features will be the Line layer
- a. Output Feature Class will be the path and what you want to name the file
- b. Leave Preserve Attributes checked
- c. Leave Label Features blank
- d. Under the Environments tab of the tool, check that the projection is in Alaska Albers, or the same projection as the Current Map
- e. Click **Run**



8. Use **Merge** tool to make a single Shapefile of all boundaries
 - a. Input datasets should include all of the individual boundary shapefiles
 - b. Output Dataset will be the path and what you want to name the file
 - c. Leave all other boxes at default settings
 - d. Click on the Environments tab to ensure that Coordinate System is set to "GCS_WGS_1984"
 - e. Click **Run**



- f. If desired, after making the shapefile of all polygons, open the attribute table and add a new field labeled “Year” to add the year of the EQ boundary to each polygon
9. Use **Project** tool to convert Shapefile into WGS1984 datum
 - a. Search for “project” tool in the geoprocessing search bar
 - b. Select the tool
 - c. Input dataset will be the shapefile that should need a change in datums
 - g. Output Dataset will be the path and what you want to name the file
 - d. Output Coordinate System will be WGS1984
 - e. Check Preserve Shape box
 - f. Click on Run

Geoprocessing ▾ 🔍 ✕

⬅ Project ➕

Parameters Environments ?

Input Dataset or Feature Class
tapelomax_eqboundaries_ 📁

i Input Coordinate System:
NAD_1927_Alaska_Albers_Meters

Output Dataset or Feature Class
tapelomax_eqboundaries_ 📁

Output Coordinate System
WGS_1984_Web_Mercator_Auxiliary_Sphere 🌐

Geographic Transformation ⌵
NAD_1927_To_WGS_1984_79_CONUS
▾

Preserve Shape

Maximum Offset Deviation
▭ Unknown ▾

▶ Run ▾

Ca... La... Cr... M... Ele... Ex... Ch... **Ge...**