Creating Earthquake Boundaries

Christopher Smith & Elizabeth Fernandez

Geographic Information Network of Alaska

Workflow solid boundaries: Make shapefile, Vertices to points, export feature attributes to ASCII

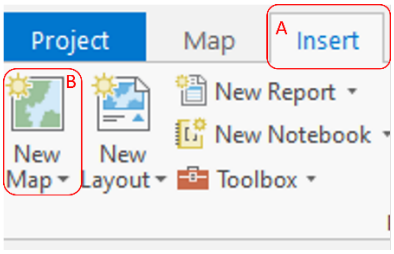
First, we created and edited the earthquake boundary line shapefile in ArcGIS Pro. Vertices number varied depending on the shape and size of the earthquake boundary. The Feature Points to Vertices tool was used to create a point shapefile of the vertex points. The Export Feature Attributes to ASCII tool was used to extract the latitude and longitude coordinates from the vertices shapefile and save them in a csv file.

Workflow for dashed lines: Make a shapefile with all the lines, then use Add Geometry attributes, copy table to excel, save as CSV.

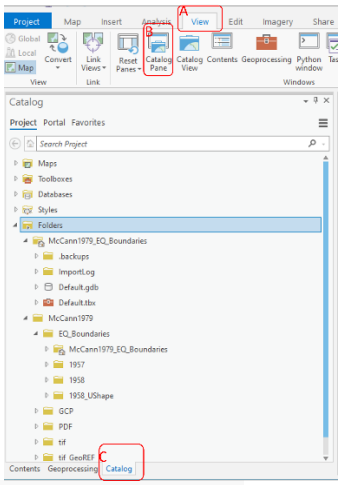
First, we created and edited the earthquake boundary shapefile in ArcGIS Pro. Each dashed line was created using 2-3 vertices. The latitude and longitude for each line start, mid and end were obtained using the Add Geometry Attributes. These values were then moved from the shapefiles attribute table and saved as a csv file.

Getting started

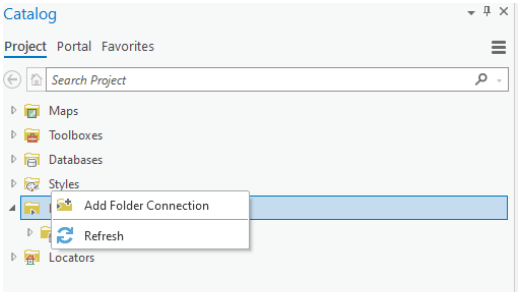
1. Open ArcGIS Pro
2. Insert map
    a. Click on **Insert** Tab
    b. Click **New Map**



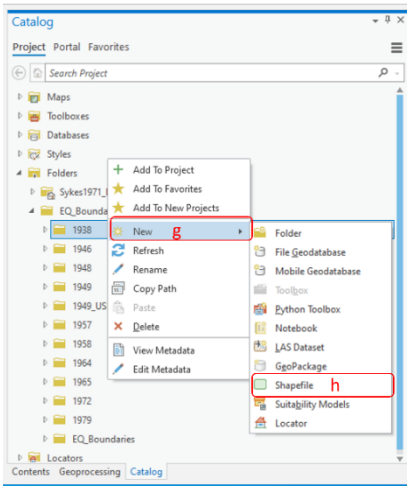
3. Create a shapefile in desired folder
    a. Click **View** tab
    b. Click **Catalog Pane**
    c. Click **Catalog** tab at the bottom of the page



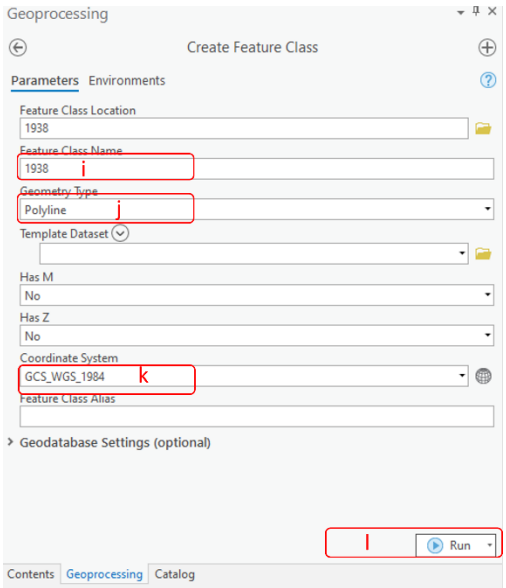
    d. Right click on **Folders** and **Add folder**



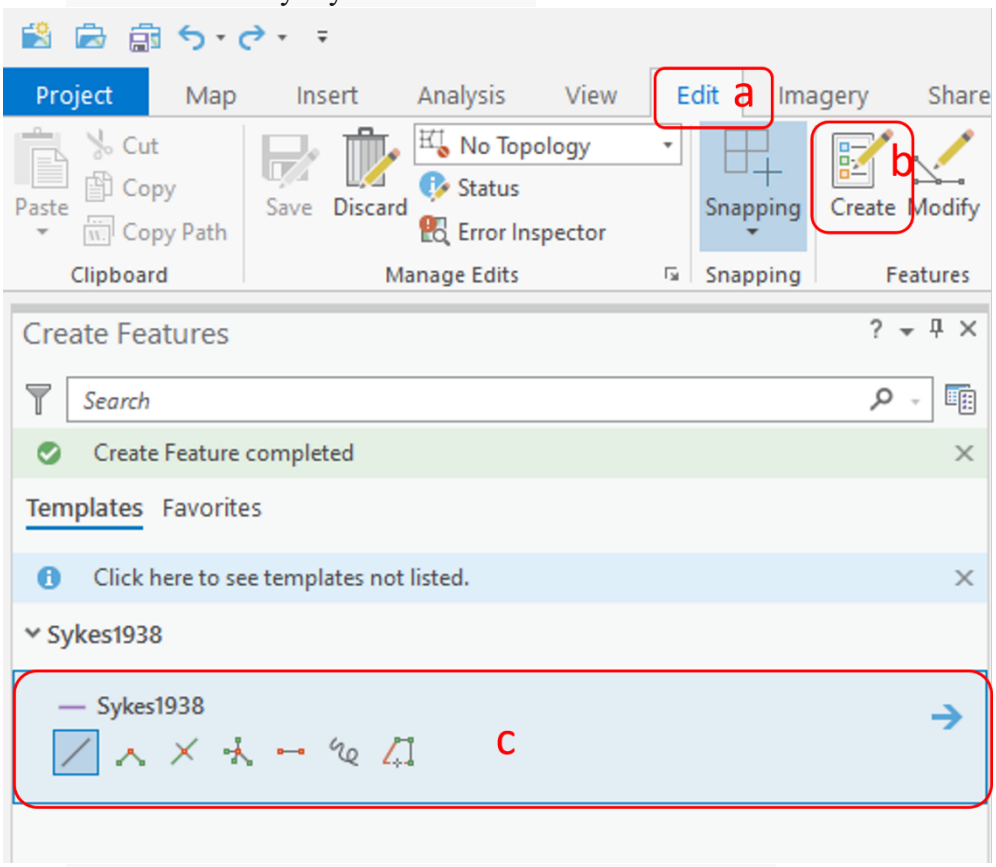
e. Select desired folder
f. Right click on desired folder
g. Click **New**
h. Click Shapefile



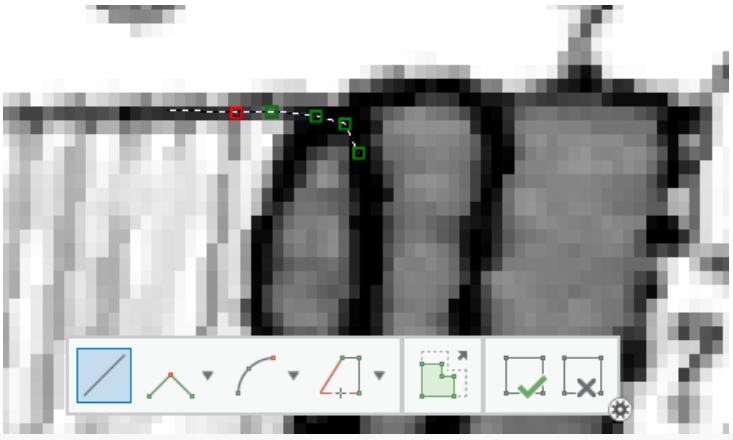
i. Give file a name
j. Change geometry type to Polyline
k. Change coordinate system to GCS_WGS_1984
l. Click Run



4. Edit Shape file (Dashed lines and solid lines need to be created separate)
    a. Click the **Edit** tab
    b. Click **Create**
    c. Then click the layer you want to edit

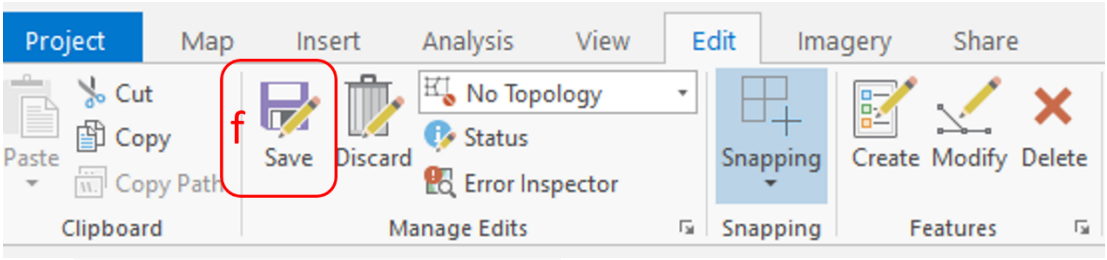


    d. Click to create vertices along a solid line or dashed line



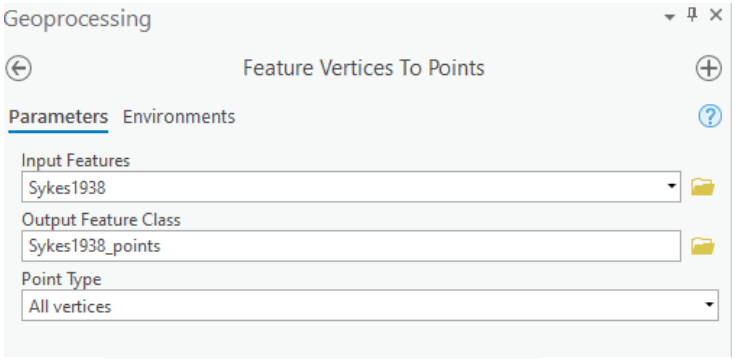
    e. Double click when finished creating either the full line or a section of the dashed line

f. Click save at the top of the page to keep you edits



Step 5: Create CSV file for solid lines

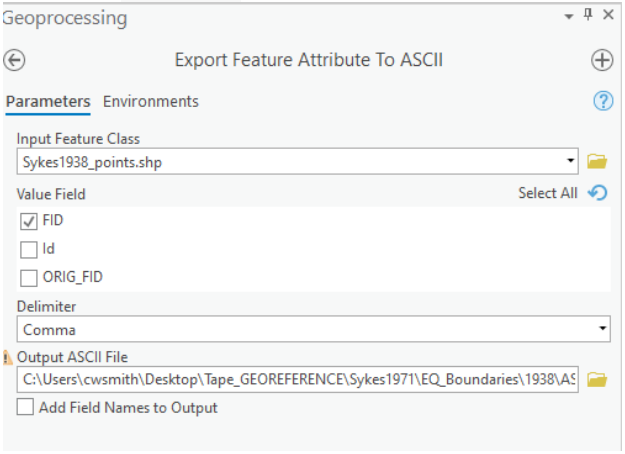
a. Run the **Feature Vertices to Points** tool
   i. Input Features will be the boundary layer
   ii. Output Feature Class will be the path and what you want to name the file



   iii. For Point Type select **All vertices**
   iv. Click Run

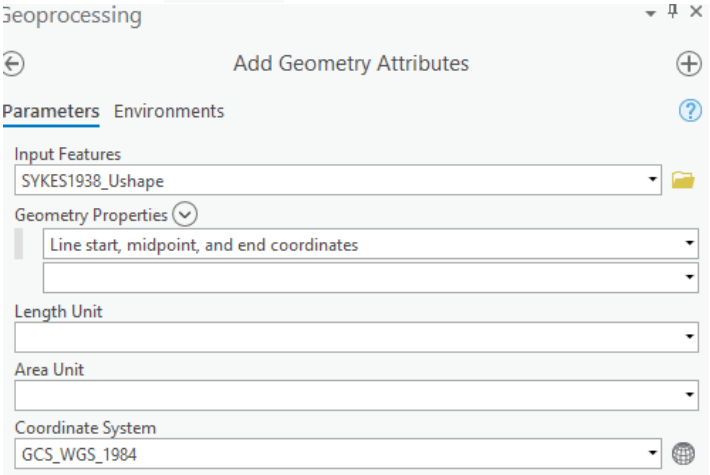
b. Use the **Export Feature Attributes to ASCII** tool to create a CSV file with lat. and long. coordinates for the vertices points
   i. Input Feature Class will be the boundary's vertex point
   ii. Use FID for Value Field
   iii. Make Delimiter a comma
   iv. Output ASACII File will be the path and what you want to name the file (add csv extension

v. Click run



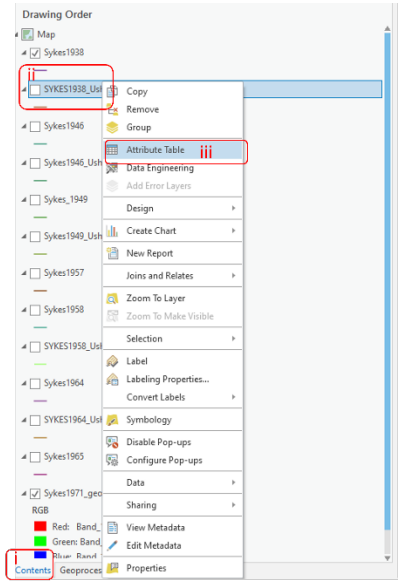
Step 6. Get a CSV file for dashed lines

b. Run the **Add Geometry Attributes** tool to get coordinates of the start, mid and end of each dashed line
   i. Input features is your boundary line
   ii. Change Geometry properties to Line start, midpoint, and end coordinates
   iii. Leave Length Area and Area Unit Blank
   iv. Change coordinate system to GCS_WGS_1984
   v. Click run



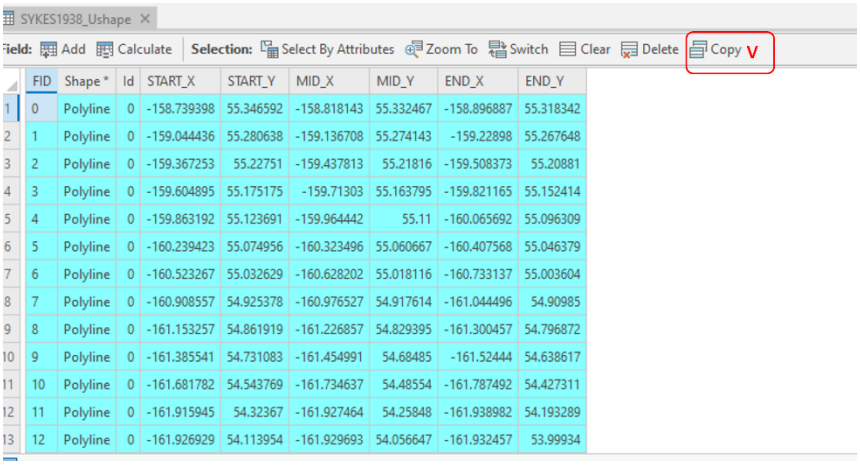
c. Get Coordinates of the line from an attribute table
   i. Click on the contents tab
   ii. Right click the dashed line boundary

iii. Click Attribute Table



iv. Select all the features in the attribute table by clicking and dragging to the bottom of the table

v. Click copy



	FID	Shape *	Id	START_X	START_Y	MID_X	MID_Y	END_X	END_Y
1	0	Polyline	0	-158.739398	55.346592	-158.818143	55.332467	-158.896887	55.318342
2	1	Polyline	0	-159.044436	55.280638	-159.136708	55.274143	-159.22898	55.267648
3	2	Polyline	0	-159.367253	55.22751	-159.437813	55.21816	-159.508373	55.20881
4	3	Polyline	0	-159.604895	55.175175	-159.71303	55.163795	-159.821165	55.152414
5	4	Polyline	0	-159.863192	55.123691	-159.964442	55.11	-160.065692	55.096309
6	5	Polyline	0	-160.239423	55.074956	-160.323496	55.060667	-160.407568	55.046379
7	6	Polyline	0	-160.523267	55.032629	-160.628202	55.018116	-160.733137	55.003604
8	7	Polyline	0	-160.908557	54.925378	-160.976527	54.917614	-161.044496	54.90985
9	8	Polyline	0	-161.153257	54.861919	-161.226857	54.829395	-161.300457	54.796872
10	9	Polyline	0	-161.385541	54.731083	-161.454991	54.68485	-161.52444	54.638617
11	10	Polyline	0	-161.681782	54.543769	-161.734637	54.48554	-161.787492	54.427311
12	11	Polyline	0	-161.915945	54.32367	-161.927464	54.25848	-161.938982	54.193289
13	12	Polyline	0	-161.926929	54.113954	-161.929693	54.056647	-161.932457	53.99934

vi. Paste in app that can be used to create a csv (ie excel)