

Lab 3: Automation

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GEOG 329 B01

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1. Screenshots of custom tools created throughout the exercise:

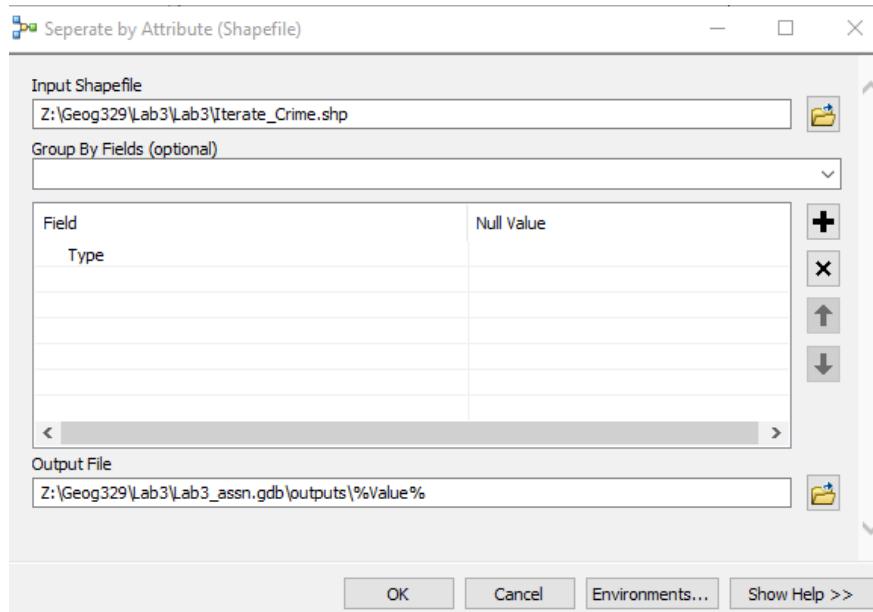


Figure 1: Iterate by Rows Tool Screenshot

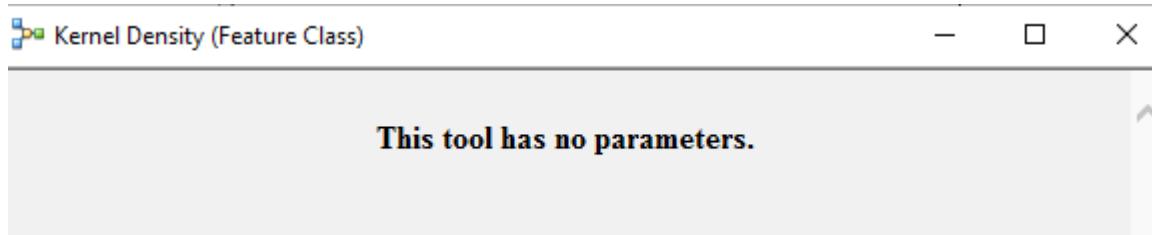


Figure 2: Iterate Feature Classes Tool Screenshot

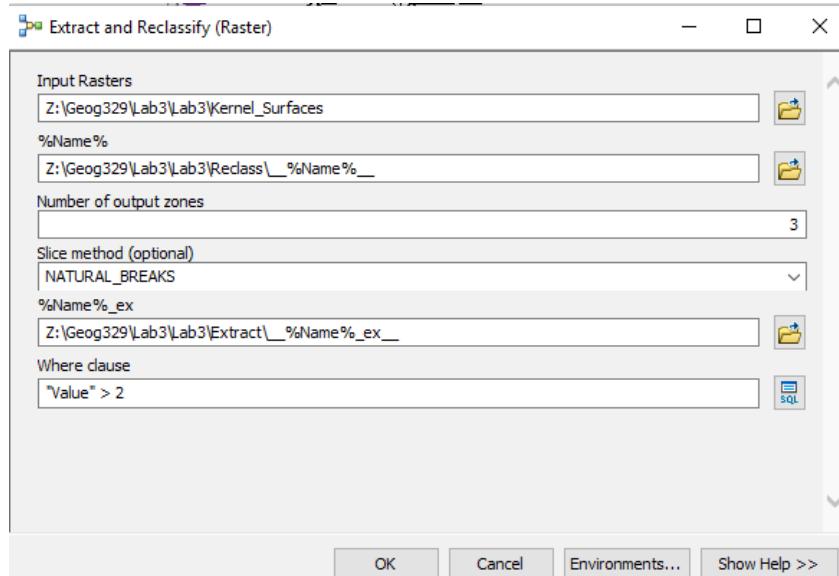


Figure 3: Iterate by Rasters Tool Screenshot

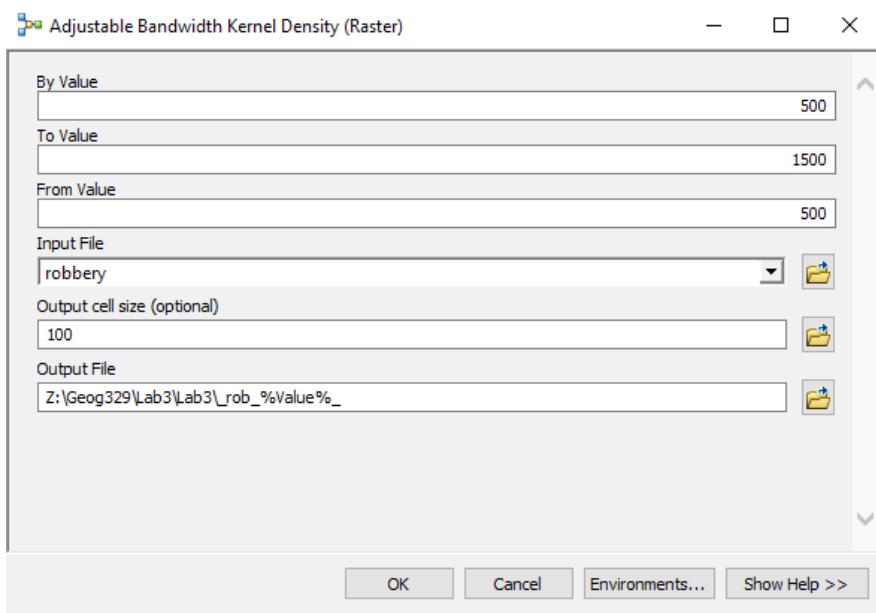


Figure 4: For Loop Tool Screenshot

2. Custom Geo-spatial tool screenshot and model diagram:

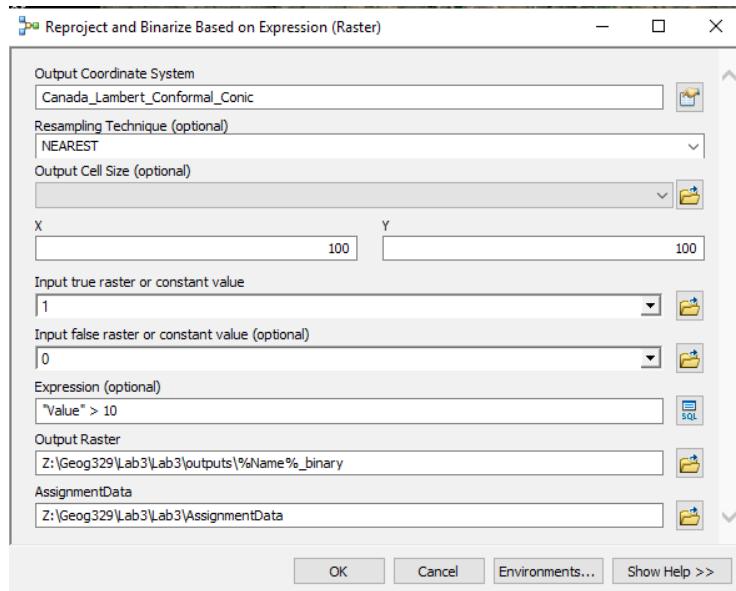


Figure 5: Re project and Binarize Raster based on Expression Tool Screenshot

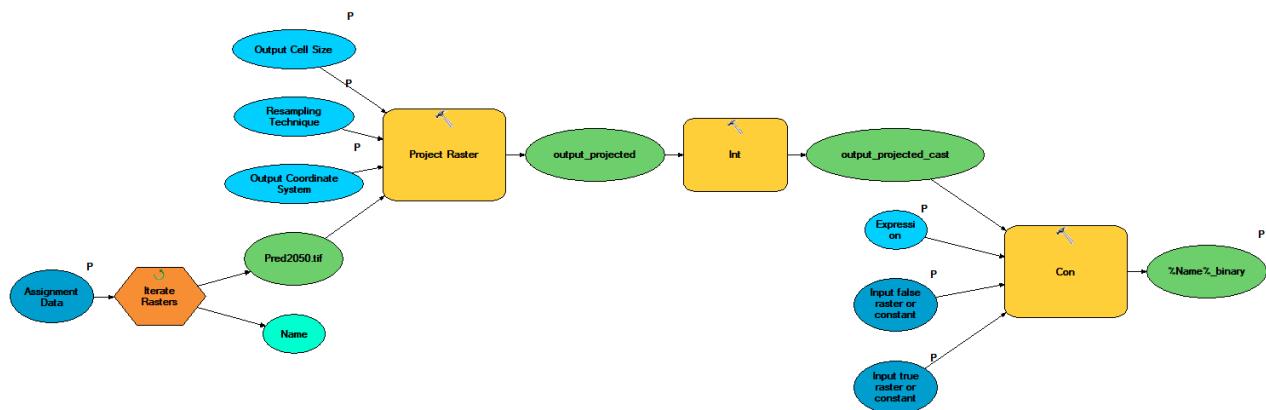


Figure 6: Re project and Binarize Raster based on Expression Model Diagram

3.

Int Tool:

The int tool accepts a raster as a parameter and converts the cells of the raster values to integer through truncation. The Tool then returns a raster with the truncated raster cell values. This reduces overall memory requirements by as an integer is stored in 2 bytes and a floating point value is stored in 4-8 bytes. In addition, in order for the output binary raster in the following Con Tool to have integer 0 and 1 values, both the expression result and the conditional raster need to be integer.

Con Tool:

The con tool accepts a conditional raster of values, an true constant, a false constant and an SQL expression. If both the result of the expression and the input conditional raster have integer values, the result will have integer values. The result of the expression is stored in the output raster, with the true constant in the cells that were selected by the query and the false constant stored in the cells that were not selected. This tool can be used to produce a binary output as it separates a raster into true or false values based upon an expression.

4. Output attribute tables from assignment:

Present.tif			
	OID	Value	Count
▶	0	0	1864375
	1	1	19434541

Pred2050.tif			
	OID	Value	Count
▶	0	0	270142
	1	1	21028774

Pred2080.tif			
	OID	Value	Count
▶	0	0	35051
	1	1	21263865

Table 1: Binary output of cells from the present decade, predicted 2050 and predicted 2080 mean annual temperature rasters with a threshold of 10 degrees celsius

Raster	False Count	True Count	Total Count
Present Decade	1864375	19434541	21298916
Predicted 2050	270142	21028774	21298916
Predicted 2080	35051	21263865	21298916

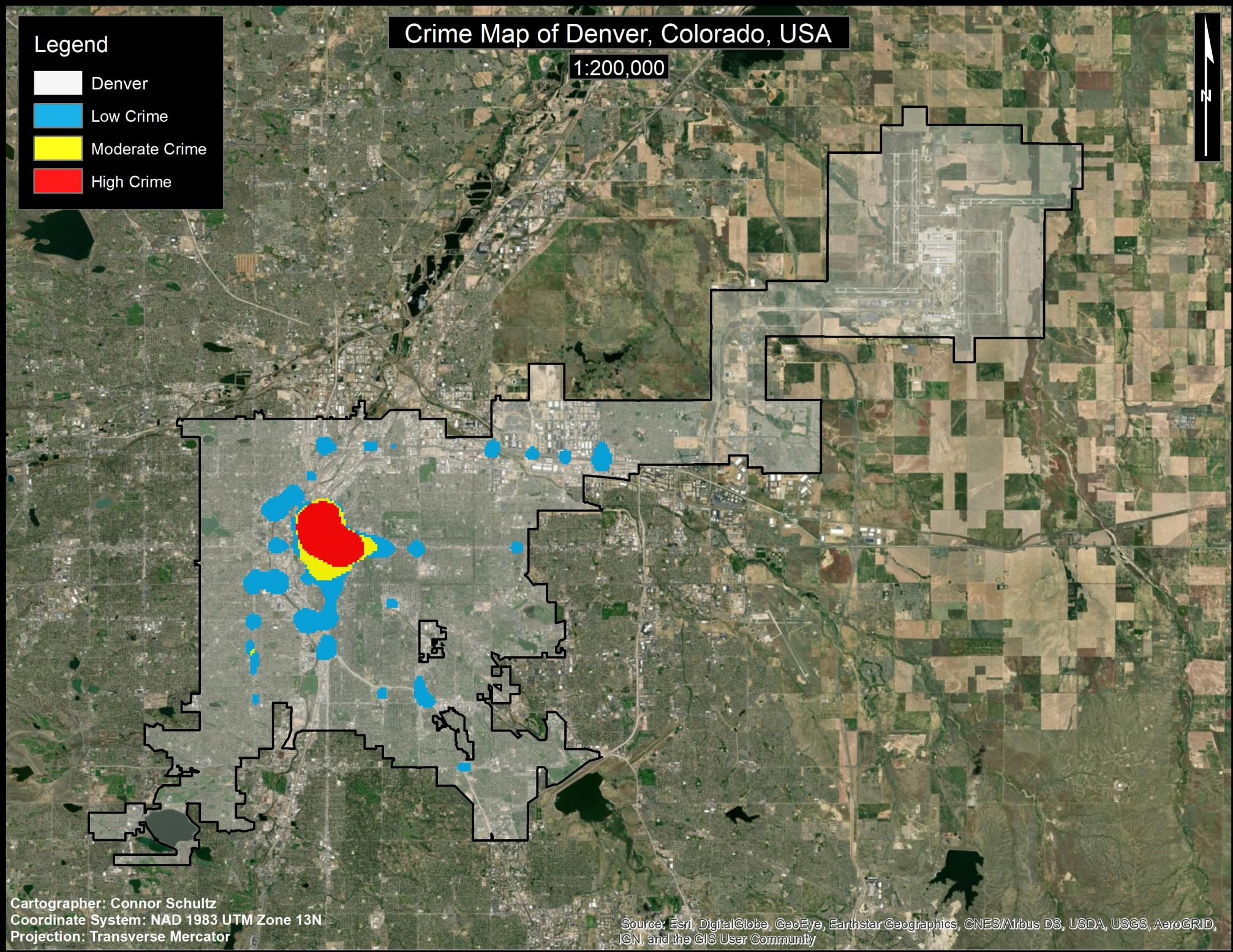
5. The crime map of Denver and the 3 binary mean annual temperature raster output maps can be found on the following pages.

Legend

- Denver
- Low Crime
- Moderate Crime
- High Crime

Crime Map of Denver, Colorado, USA

1:200,000



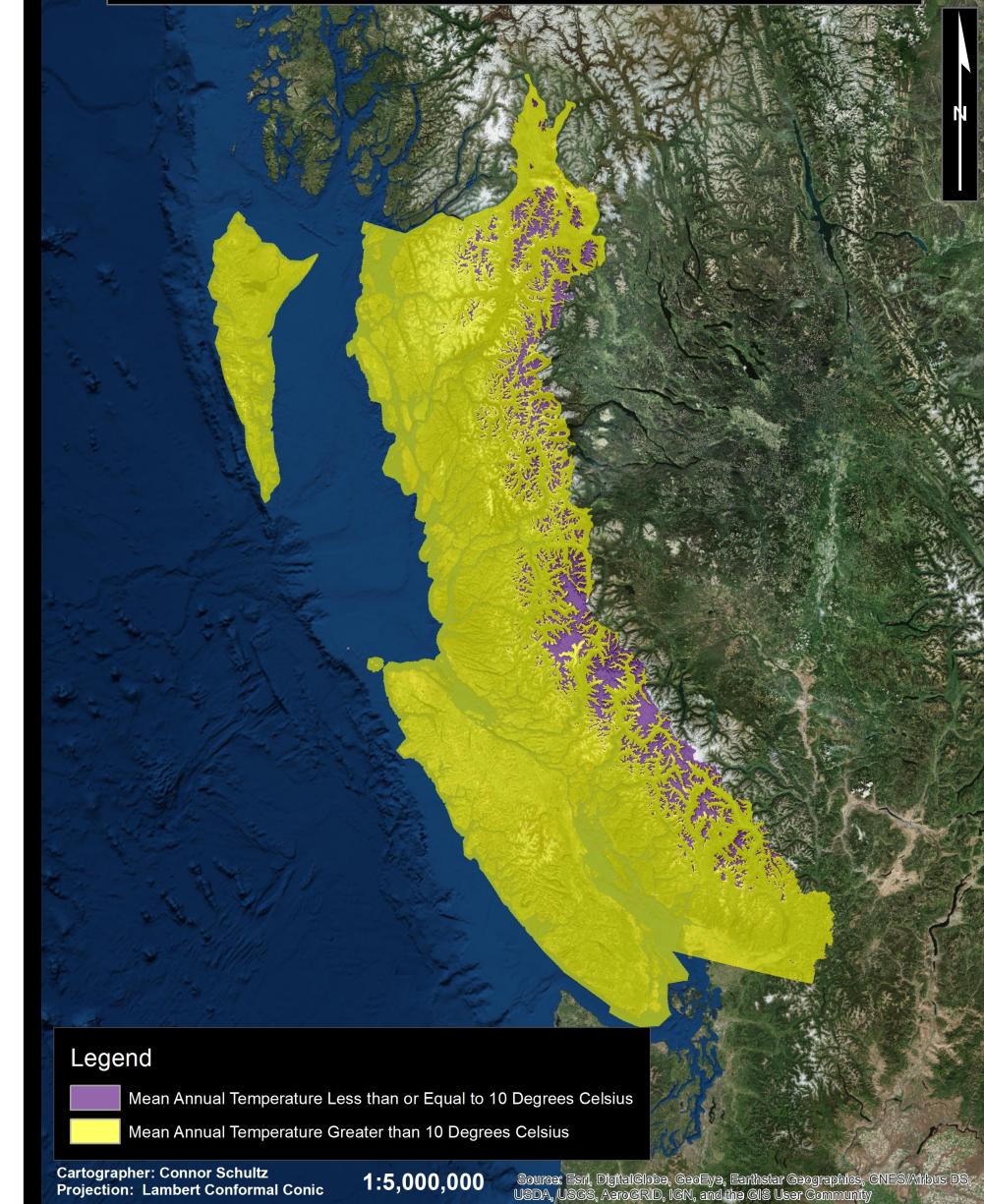
Cartographer: Connor Schultz

Coordinate System: NAD 1983 UTM Zone 13N

Projection: Transverse Mercator

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Present Day Binary Temperature Map of Western British Columbia



Predicted 2050 Binary Temperature Map of Western British Columbia

