10 ITWCVP

GIS Training

Day 2

More Geoprocessing

1. OBJECTIVE 1: Create a buffer along the Rio Chambo, Ecuador
	1. Add data
		1. Add *Ecuador* shapefile. Load in *urban\_areas*. Load in *rivers\_lake\_centerlines* shapefile.
		2. Reproject rivers\_lake\_centerlines under *Pseudo* *Mercator* projection. Save as *riversLakeReproj*
		3. Right click on *riversLakeReproj* and *Set Project CRS from Layer*.
	2. Run buffer
		1. Select *Vector*>> *GeoProcessing* *Tools* >> *Fixed Distance Buffer*
		2. Make sure the *riversLakeReproj* is selected for Input Layer
		3. For distance, enter 5000(m).
		4. Give the buffer a save name and space.
		5. Run
		6. Change properties of the buffer: set transparency to 30%
2. OBJECTIVE 2: Create Geoprocessing model
3. TASK:
	1. Add input layers
		* 1. Navigate to *Model Data* folder.
			2. Add the 2 csv files and the countries layer to the map.
	2. Create model
		1. Navigate to *Graphical Modeler*. Click *Processing* at top menu (Next to help) > Select *Graphical Modeler*.
		2. Use *Parameters* toolbox on left to add file by clicking the *+Table button*.
			1. Give this Parameter a valid name. (csvfile1). This will be a table file used as input for a tool.
		3. Next select the Algorithms tab at the bottom left corner *>>> QGIS geoalgorithms>>>Vector creation tools>>>Points layer from table*.
			1. The input table will be csvfile1. For x field type in *lon* and for y field type in *lat*. These are the fields that will be utilized in the table once we define it. (This may require you to look up fields in tables prior to creating.) Also give the output layer a proper name. We will call this *WesternH*. (Short for Western Hemisphere)
		4. Repeat steps 2 and 3.
			1. This time name the table *csvfile2*, and use it as input for the points layer from table tool. We will name the output layer Eas*t*ernH.
		5. Next Select Algorithms tab *>>> SAGA >>>Vector general tools>>Merge vector layers*.
			1. For input layers select the two ‘Points from table’ from algorithm ‘Points layer from table’ layers and click ok.
			2. Name the layer *PointMerge*
		6. Select Algorithms tab *>> SAGA >> Raster Creation Tools >>> Nearest Neighbour* (Interpolation).
			1. *PointMerge* layer should be selected as Points.
			2. For “Attribute” enter *HighTemp*.
			3. Change Cellsize to 1.
			4. Give the raster a name.
		7. Select Inputs tab *>> +Vector layer*. Name the layer *WorldPolygon* layer and select polygon as shape type. Leave yes for “Required”.
		8. Select Algorithms tab *>> SAGA >>> Vector<->raster >>> Clip raster with polygon*.
			1. For Polygons field use drop down to select *WorldPolygon* layer.
			2. Enter a good name for the resulting layer.
		9. Select Algortihms tab>>SAGA>>Raster filter>>Simple filter. Make sure Grid from Nearest Neighbor is selected in Grid. Call Output Raster as *FinalResult*.
		10. Select save button, enter *myModel* as model name and *Raster* in *group name*.
	3. Run Model
		1. Execution
			1. Run the model.
			2. Set *csvFile1* to *WesternHemisphere* file and *csvFile2* to *EasternHemisphere*.
			3. Set the Countries layer as the *WorldPolygon*.
			4. You can elect to save all to temporary files or save some to your hard drive.
			5. Make sure open output file after running algorithm is checked for all outputs.
			6. Select Run and style *FinalResult* layer
	4. Smooth Interpolated Layer
		1. Navigate to processing toolbox
		2. Type *filter* in search
		3. Select *Simple filter* from *SAGA >> Raster filter*
		4. Select *FinalResult* layer as in *Grid*.
		5. Save output file as *smoothedTmax* and Select Run.
		6. Style *Filtered Grid* output layer
		7. Save project as *modeling*