An app for modeling sea level rise in Nova Scotia

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Data source (DEM): <http://novascotia.ca/natr/meb/download/dp055.asp#format>

The license agreement is included in this folder. Before running our model, we decreased the resolution of the DEM by a factor of 6.

Link to app: <http://dalspatial.maps.arcgis.com/apps/webappviewer/index.html?id=7687d75e2c8c4f3eadb366638cc1ad02>

Mission Statement:

To predict and plan for the possible outcomes of climate change, this user-enabled map of sea level rise will help raise awareness of its negative impacts in Nova Scotia, Canada.

Statement of App Characteristics:

Our app contains four layers showing projected flooded areas in Nova Scotia with sea level rises of 1, 2, 5 and 10 metres. These layers were generated using our model, as described below.

We also created a tool to allow users to input a value and generate output for their own prediction of sea level rise. The user would input a value (metres) of sea level rise to observe the adverse effects of climate change in Nova Scotia, Canada. We attempted to upload our model as a geoprocessing widget but were unsuccessful.

This app will educate the public and raise awareness of climate change and how sea level rise effects the province. There are many projections for sea level rise; and as there is no definitive answer, we decided to try to allow the user to input the amount (metres) instead. This would allow the user to see at what level their property would be affected by the sea level rise, instead of a time frame.

ReadMe.md:

#This app will show the effects of sea level rise in Nova Scotia, Canada

#Select amount of sea level rise (metres) in input bar (must be an integer)

#How much of Nova Scotia is under water with specific sea level rise will be mapped

#Script for changing sea level rise values:

# -\*- coding: utf-8 -\*-  
# ---------------------------------------------------------------------------  
# ModelScript.py  
# Created on: 2016-03-23 18:01:51.00000  
# (generated by ArcGIS/ModelBuilder)  
# Usage: ModelScript <output4\_shp> <SeaLevel>   
# Description:   
# ---------------------------------------------------------------------------  
  
# Import arcpy module  
import arcpy  
  
# Check out any necessary licenses  
arcpy.CheckOutExtension("spatial")  
  
# Script arguments  
output4\_shp = arcpy.GetParameterAsText(0)  
if output4\_shp == '#' or not output4\_shp:  
 output4\_shp = "F:\\Liz2\\Liz2\\Data\\output4.shp" # provide a default value if unspecified  
  
SeaLevel = arcpy.GetParameterAsText(1)  
if SeaLevel == '#' or not SeaLevel:  
 SeaLevel = "2" # provide a default value if unspecified #must be an integer  
  
# Local variables:  
dem\_coarse = "F:\\Liz2\\Liz2\\Data\\dem\_coarse"  
output1 = SeaLevel  
output2 = output1  
output3 = output2  
DEMint = "F:\\Liz2\\Liz2\\Data\\demint"  
  
# Process: Raster Calculator (2)  
arcpy.gp.RasterCalculator\_sa("Int(\"%dem\_coarse%\")", DEMint)  
  
# Process: Raster Calculator  
arcpy.gp.RasterCalculator\_sa("\"%DEMint%\" - (%SeaLevel%)", output1)  
  
# Process: Set Null  
arcpy.gp.SetNull\_sa(output1, output1, output2, "\"VALUE\" >0")  
  
# Process: Reclassify  
arcpy.gp.Reclassify\_sa(output2, "VALUE", "-999 0 1", output3, "NODATA")  
  
# Process: Raster to Polygon  
arcpy.RasterToPolygon\_conversion(output3, output4\_shp, "SIMPLIFY", "VALUE")