



CE 547 -GIS in Water Resources Engineering

University of New Mexico – Spring 2016

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Assignment 5: Watershed Discharge

Part 1: Working with large datasets

I downloaded the data available in UNM learn. I changed the default geodata base and mapped all the sub basins for the contiguous US. Then I selected HUC 13 to focus on the Rio Grande basin then, I added the Streams and Reservoirs layers to the map.

After only focusing on the Rio Grande basin I used the selection tab (select by attributes) to only select the Pecos River basin using the statement “Cat”= ‘13060001’ OR “Cat”= ‘13060002’. Moreover, I selected all the streams, reservoirs and boundaries of that section and exported the selected data to a new layer. In the beginning it was challenging to include all the features in the selection, but using the selection tool a couple of times gave me the right configuration to export.

Part 2: Adding stream gage data

I visited the USGS website and downloaded the sites (location, names) contained in the watershed under study and the annual stream gage data available to each site over the years. I modified the downloaded files to make them a readable excel workbook in ArcGIS.

Moreover, I imported the data into ArcGIS (File > Add data> add xy data). Selected the PecosHWSites.xlsx file and added dec_long_va (x field) dec_lat_va (y field) and alt_va (z field) and I also changed the projections to NAD_1983.

Part 3: Adding temporal data to the map

I right clicked on my geodatabase and selected Import > Table (Single)...I selected the proper PecosHWDData.xlsx sheet and an Output Table name. Then I joined the new layer, by right clicking on the layer and going to joins and relations > join > join the Pecos gage shapefile. Right click data layer and select display XY data. To save the data to the gdb, export the newly added layer in the layers palette as PecosHWDDischarge

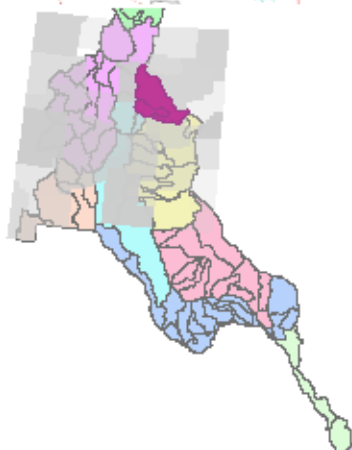
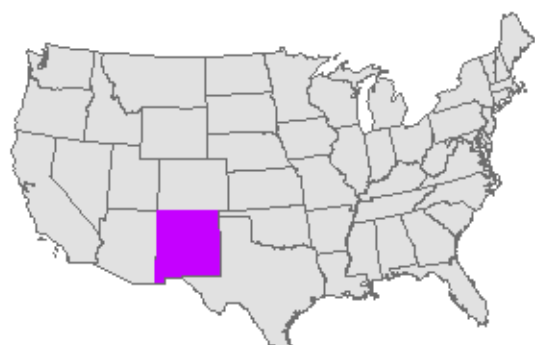
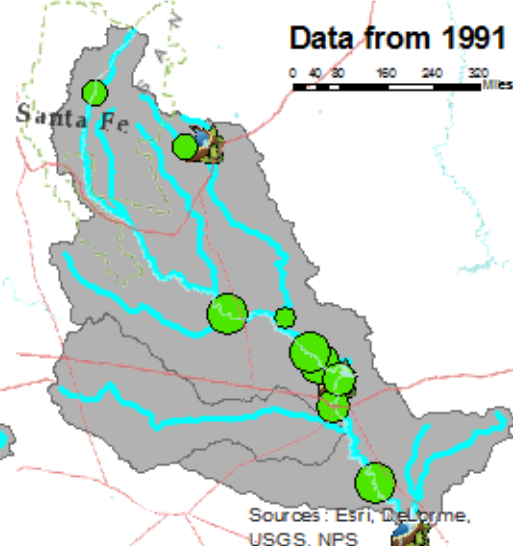
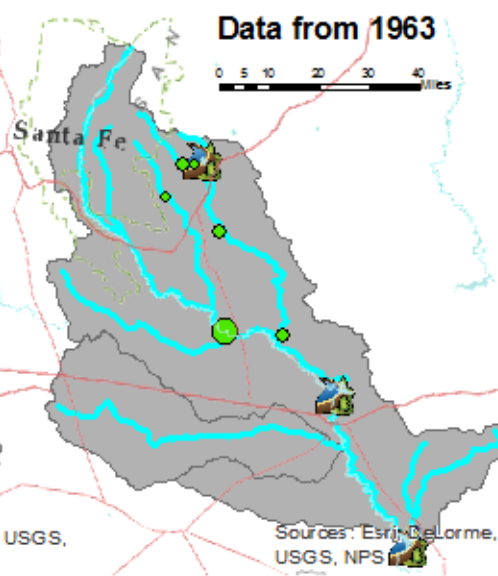
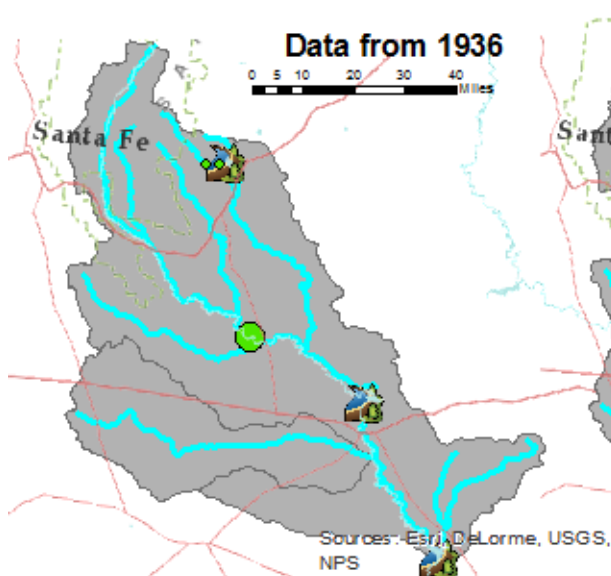
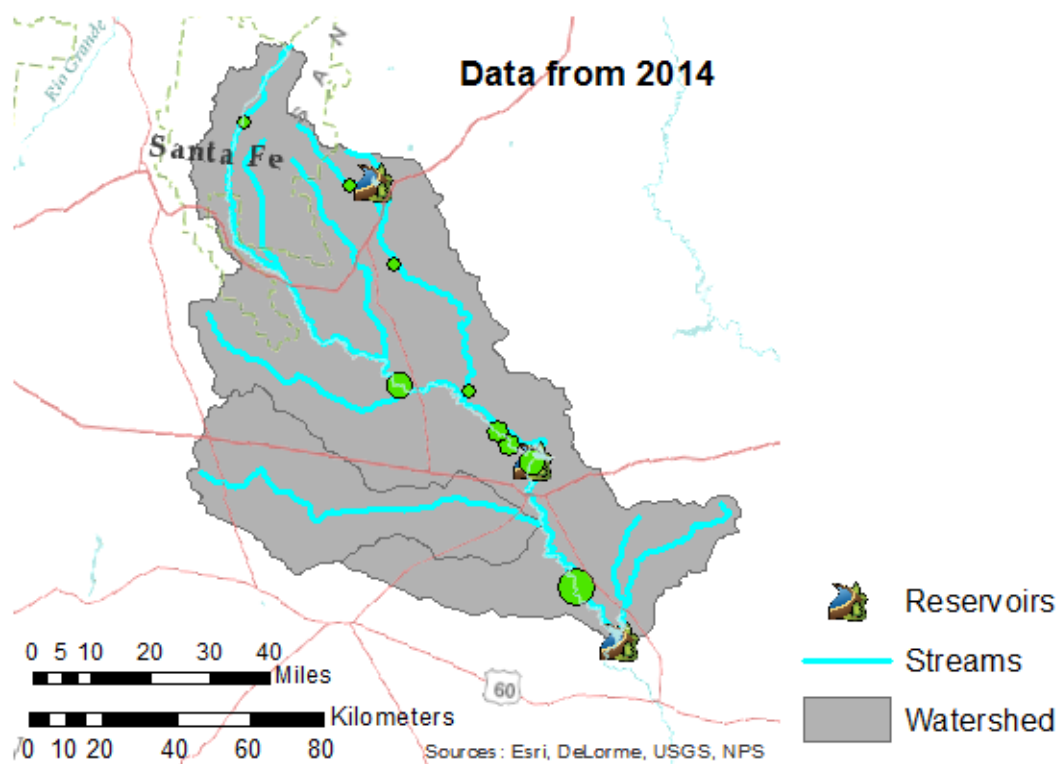
Finally, I activated the time viewing by clicking on the time slider button and saw the progression over the years.

Rio Pecos's Watershed Gage Sites Historical Data

Pecos River

Discharge (cfs)

- 0.001 - 8.5
- 8.5 - 19.1
- 19.1 - 31.4
- 31.4 - 50.3
- 50.3 - 81.2
- 81.2 - 117.3
- 117.3 - 159.0
- 159.0 - 209.4
- 209.4 - 274.9
- 274.9 - 489.5



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Data sources: USGS HUC Maps.
National Hydrography Data Sets.

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