Assessment of Risks Faced by the Austin-Travis Lakes Watershed due to Land Cover Changes

Mengjia Tang
mt33793

Goals of the Project:

1. Get an insight into the general status of the Austin-Travis Lakes Watershed by analyzing current characteristics of watershed, such as the water body area, streamflow, stream slope, soil moisture, the concentration of bacteria and nitrite, land cover.
2. Get an idea of conditions of water supply and demand in the Austin-Travis Lakes Watershed by analyzing amount of water supply and water use in different ways, such as industrial water use and agricultural water use.
3. Analyze changes of land cover in the Austin-Travis Lakes Watershed from 2001 to 2006 to 2011.
4. Find data about runoff, evapotranspiration and soil moisture of the Austin-Travis Lakes Watershed from 2001 to 2006 to 2011 from either GIS datasets directly or related models.
5. Find out the relationship between land cover changes and water resources changes (runoff, evapotranspiration and soil moisture).
6. Make a prediction about what the Austin-Travis Lakes Watershed will be like in the future 5 years due to ongoing land cover changes.

GIS datasets:

1. National Flood Interoperability Experiment: NFIE-Geo in Hydroshare https://www.hydroshare.org/my-resources/?&author=Cassandra%20Fagan&text=
2. NHDPlus http://www.horizon-systems.com/nhdplus/
3. Web Soil Survey http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx
4. EnviroAtlas: http://enviroatlas.epa.gov/enviroatlas/
5. Land Cover Change 2001 to 2006 to 2011http://www.mrlc.gov/nlcd11_data.php
6. NASA Worldview (includes MODIS) https://worldview.earthdata.nasa.gov/
7. Texas Natural Resource Information System http://www.tnris.org/
8. Texas Water Development Board GIS Data http://www.twdb.texas.gov/mapping/gisdata.asp