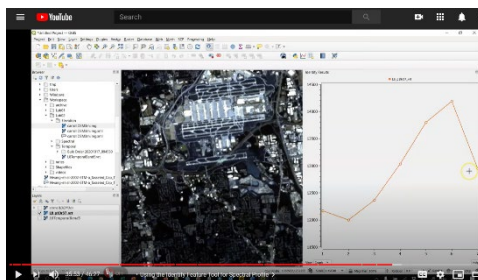## GEORGIAVIEW 2019 - 2020 MINIGRANT AVTIVITIES

GeorgiaView has offered an online remote sensing course to the public since 2009. In 2020, the course materials were revised to introduce recent technological developments. Twelve chapters were revised, and twelve exercise video materials (615 minutes) were also developed. One undergraduate student was trained with this project during the fall of 2020. The following shows the chapter topics and exercise video titles, and they are freely available at https://gaview.org.

eBook Chapters

1. Remote Sensing and Geospatial Technology
2. Energy and Radiation
3. Airphotos
4. Digital Imagery
5. Satellite, Landsat, and MODIS
6. Preparing Images for Analysis
7. Band Transformation
8. Visual Enhancement
9. Image Classification
10. Microwave Remote Sensing
11. Thermal Remote Sensing
12. Remote Sensing with Drones

An example of exercise videos that explains spectral profiles with a Landsat scene in QGIS. Atlanta Hartsfield International Airport &

Exercise Videos

Lab01: Downloading and Displaying Landsat Imagery
Lab02: Landsat Bulk Download, Virtual Raster, and Profiles
Lab03: Georeferencing and On-screen Digitizing with QGIS
Lab04: DEM and Airphoto, Pseudo-color, Hillshade, Color Composite, and Hypsometric Tinting
Lab05: Sentinel-2 Imagery, MODIS Imagery, and the SCP Application
Lab06: Reflectance, Radiance, SCP, and ARD
Lab07: NDVI, Tasseled Cap, Band Correlation, Principal Components Analysis
Lab08: Contrast Enhancement, Band Composites, Pan-sharpening, Spatial Filtering
Lab09: Unsupervised Classification, GEOBIA, and Supervised Classification with SAGA GIS
Lab10: Radar Image Processing with SNAP and Sentinel-1 Imagery
Lab11: Working with the Landsat Thermal Bands
Lab12: Drone Image Processing with Pix4D (DSM and Orthophoto)

"This project taught me new skills that I can apply in my future career and would recommend to any future student if offered again." Gyselli Hernandez, UWG undergraduate student.
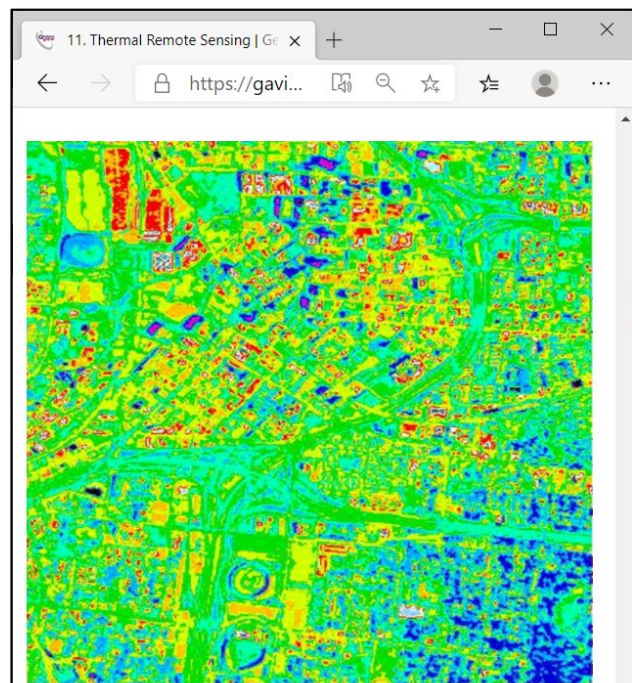

Figure 8. Landsat thermal image of Atlanta the downtown area.

Temperatures in an urban area are frequently compared with vegetation indices such as NDVI. Figure 9 shows a strong negative relationship between NDVI and land surface temperature measured from a Landsat 8 imagery taken on May 14, 2017, covering Atlanta and vicinity.
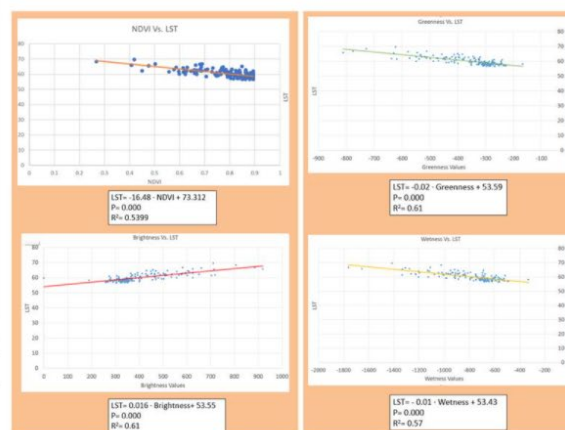

Figure 9. Land surface temperature vs. NDVI.

An example of eBook contents that shows land surface temperature and its relationship with vegetation and soil indices. Downtown Atlanta, Georgia.