



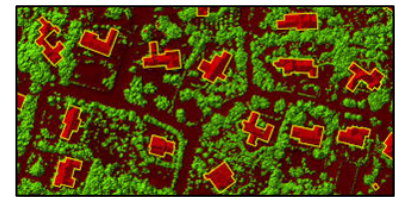
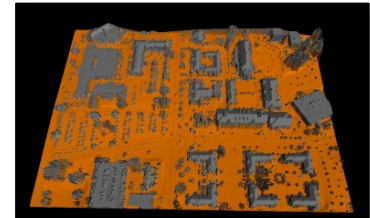
ALABAMAVIEW 2018 - 2019



ALABAMAVIEW HISTORY AND SUCCESSES

Alabama has been involved in AmericaView since it attended its first meeting in Fairbanks, Alaska 16 years ago. Over the years we have developed research methods that uses thermal imagery to assess drought conditions which has been a serious problem in Alabama. From training we received at the FTM, we developed methods using Object Based Image Analysis to map isolated wetlands for the entire state of Alabama. In terms of outreach, we developed a module for high school students using Google Earth to look at NDVI and the carbon cycle. This module was shared with the Alabama Science in Motion program that utilizes 11 mobile labs to deliver the materials to thousands of high school students every year.

One of our important activities involved the processing of statewide airborne LiDAR products for use in environmental applications. We have established a strategic partnership (USGS program objective #2) with the Southern Research Station of the US Forest Service to map urban tree canopy and produce a product that Forest Service employees can utilize and share to promote and maintain urban forests. This is important to the state of Alabama as urban trees and forests provide essential ecological, economic, and social benefits to a large part of the population. LiDAR data and Color Infrared NAIP imagery was used to map urban tree cover using GeOBIA methods in combination with Landsat 8 Leaf-off imagery to help us separate deciduous and coniferous tree cover.



LiDAR 1st return and last return data along with Color Infrared imagery help produce accurate urban tree cover maps.



A module developed for the Alabama Math, Science, and Technology Initiative (AMSTI) engages Alabama middle school students in an activity illustrating the principles of thermal remote sensing and how it relates to Urban Heat Islands.

Another important activity involves investigating urban heat island (UHI) intensity using remote sensing and GIS techniques. Landsat 8 imagery (thermal bands) was used to measure UHI magnitude of urban areas in Alabama. Reasons behind specific location based UHI intensities are measured and analyzed. Thermal IR heat guns and temperature data sensors are then used to measure and monitor changes in temperature patterns. All of these data help to educate the state and local governments and other related organizations (USGS program objective # 2) to ameliorate the impacts of UHI. To further extend education and outreach activities AlabamaView has prepared modules on UHI intensity and impacts using Landsat images to train AMSTI (Alabama Math, Science, and Technology Initiative) teachers. The teachers will use the modules to teach students the benefits of remotely sensed images and its various uses (USGS program objective # 2).

AlabamaView is a member of the AmericaView Consortium, a nationally coordinated network of academic, agency, non-profit, and industry partners and cooperators that share the vision of promoting and supporting the use of remote sensing data and technology within each state. AmericaView is funded by USGS grant agreement G18AP00077.



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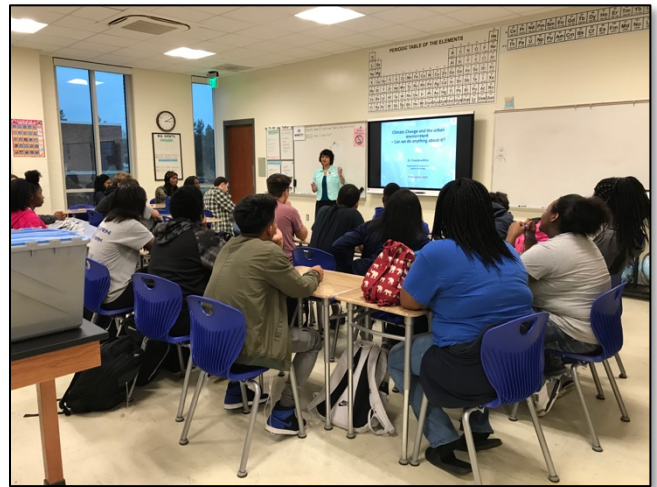
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ALABAMAVIEW 2018 - 2019 ACTIVITIES

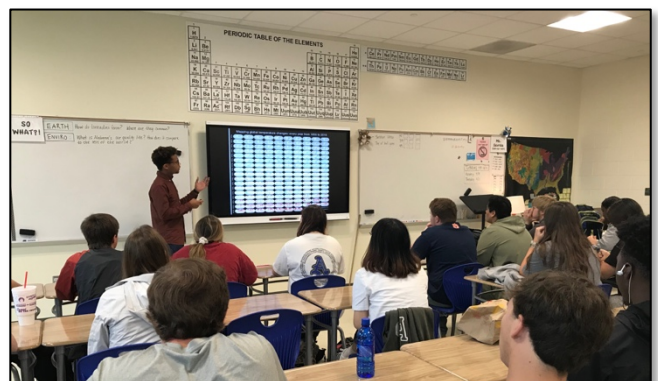
AlabamaView held several education and outreach activities during 2018-2019 funding year. The 'Geography Awareness Week' event on Wednesday November 14th, 2018 was held at Cater Lawn on Auburn's campus. AlabamaView had a table where we promoted AmericaView and Remote Sensing through activities including online puzzles, a thermal remote sensing activity using infrared thermometers measuring the temperatures of different earth surfaces to explain urban heat issues, and we flew a small UAS to demonstrate the benefits of local high-resolution image data collection. We recorded approximately 70 Auburn University students in attendance.

AlabamaView Co-I Mitra and several graduate students held several outreach activities at Auburn High School on November 6th, 2018 and April 4th, 2019 where 4 presentations were given in total during several sections of the Environmental Science course. The presentations covered air pollution, urban heat, satellites and remotely sensed images, and sustainability measures. Discussions were related to real-world applications of the topics the high school students were studying. Job opportunities related to geography and geospatial sciences were discussed as well. This activity involved 98 high school students and 6 teachers.

The final activity held on April 22nd, 2019 was called the "Earth Day Extravaganza." It was a large event, attended by approximately 400 university students. AlabamaView had on display puzzles (both hard board and online), USGS Earth Shots, and the Earth Day poster. In addition, the 2nd Annual Earth Day Research Symposium was organized where posters were presented by students highlighting earth sciences and remote sensing applications. This event drew students from many disciplines, and many did not have familiarity with remote sensing and how satellites can help society understand and monitor the earth's environmental changes. There were interactions and discussions between various other groups on the value of sustainability and reversing some of the processes that have changed the face of earth. This event was successful in teaching younger college students the value of remote sensing and how AlabamaView is a flagship organization within the state to promote remote sensing education and benefits.



Dr. Chandana Mitra (at the center in above image) from the Department of Geosciences, Auburn University, explaining the importance of climate change and its influence on urban environments to Auburn High School Students as a part of a semesterly environmental awareness program tailored to youths. Graduate student Elijah Johnson (first image below) teaches high school students about geospatial science and climate change while Mitra (second image below) hosts the Earth Day Extravaganza.



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