



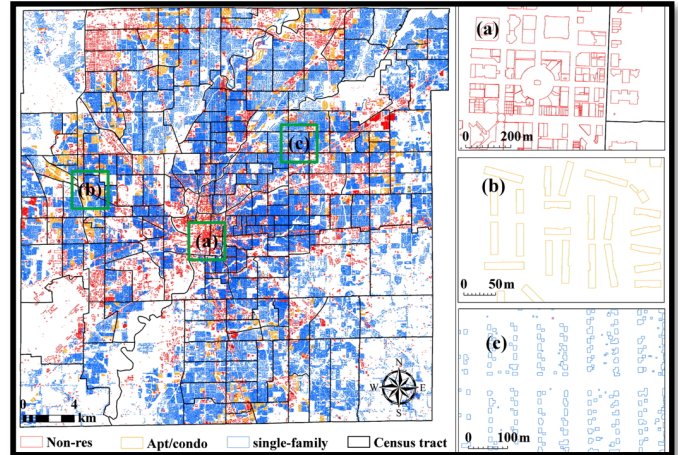
INDIANAVIEW REMOTE SENSING ACTIVITIES 2015 - 2016



MINI-GRANTS: MARION COUNTY BUILDING TYPE & ARCGIS ONLINE COUNTY TIME LINE STORY MAP

Mini-grants have been used to fund projects conducted by the consortium partners to promote the use of remotely sensed imagery. One mini-grant funded a project to develop a methodology for obtaining building usage information for Marion County using remotely sensed imagery and LiDAR point cloud data. This information will provide state and local stakeholders with building type information, which is related to issues of real estate, building energy consumption, and urban land use planning. A fact sheet about the project is available at: www.indianaview.org/pdf/IndianaView_FS_Building_Type_Identification_16.pdf.

With another mini-grant, an ArcGIS Online Story Map template was created to publish the county maps and history being developed by the Geography Educators' Network of Indiana as part of Indiana's Bicentennial celebration. A fact sheet detailing this project is available at: www.indianaview.org/pdf/IndianaView_FS_GIC_County_Timeline_Story_Map_16.pdf.



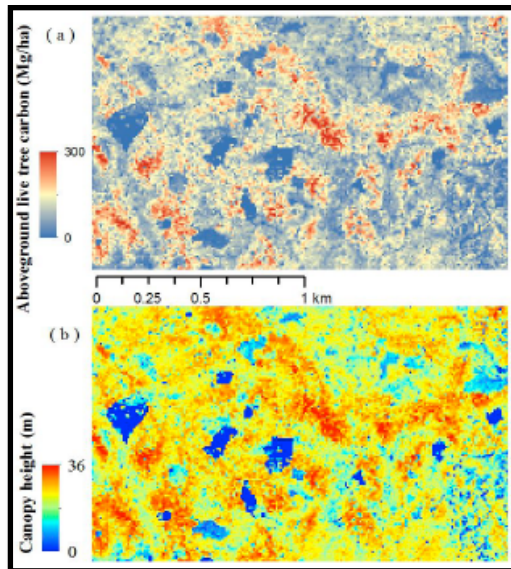
Building type classification result. Buildings were classified as: (a) non-residential, (b) apartment or condominium, or (c) single-family residential.

GEOSPATIAL SCHOLARSHIPS FOR STUDENTS

The scholarship program has provided undergraduate and graduate students with opportunities to participate in remote sensing projects that are relevant to the state and/or their community. Six scholarships were awarded to students representing five of the educational institutions in the IndianaView consortium.

Each of the students provided a testimonial about how the scholarship assisted them. Examples of activities that the students completed include: Google Street View as a remote sensing tool for urban street tree data collection and benefits analysis; high-resolution carbon modeling and monitoring using remote sensing technologies in Indiana state forests; calibration of a mobile LiDAR system; use of local and global classification algorithms for urban land cover detection using Google Earth; using

Google Earth Engine; estimating surface moisture in urban areas; and using drones for documenting urban green space.



(a) High-resolution forest carbon map in Yellowwood State Forest, Indiana; (b) LiDAR-based canopy height metric.

BENEFITS TO INDIANA

The building usage type maps are one of the essential variables for demographic, socioeconomic, and microclimate models. The maps will be used for studies of fine-scale population estimation and energy consumption.

The scholarship programs provided several students with educational and practical experiences using remote sensing, such as conducting research, developing contacts with professionals, and presenting research results at conferences.

The MultiSpec remote sensing desktop software application, online version, and tutorials benefit students within and outside of Indiana. There were several thousand downloads of the application and tutorials in 2015-2016 from people throughout the world.

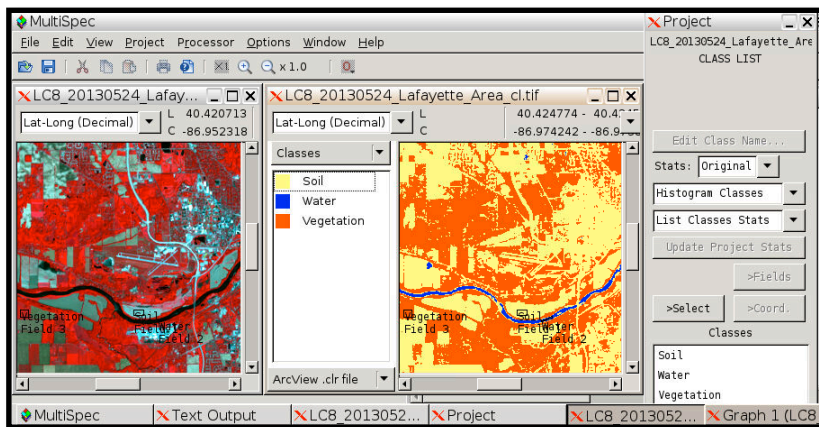
IndianaView is a member of the AmericaView Consortium, a nationally coordinated network of academic, agency, non-profit, and industry partners and cooperators that share the vision of promoting and supporting the use of remote sensing data and technology within each state.



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ADDITIONAL INDIANAVIEW ACTIVITIES

MultiSpec (engineering.purdue.edu/~biehl/MultiSpec) is a free remote sensing software application that is used for education and research. New features include the ability to handle NASA's Planetary Data Systems (PDS) formatted data, such as that from the MARS rovers and the Mahalanobis classifier. Significant additions (with additional support from the NSF-funded project Geospatial Data Analysis Building Blocks) have been made in MultiSpec Online (mygeohub.org/resources/multispec). The current version includes nearly all of the features available in the desktop version, including unsupervised and supervised classification and reformatting processors. The online version has been used for remote sensing training. For example, it has been used at a summer camp for middle school students and for a K-12 teacher GLOBE training session.



MultiSpec session from within a web browser illustrating a color infrared Landsat 8 image and a supervised classification map of the 10-channel dataset to the right.



Middle school students work on a flood activity using MultiSpec Online during a geospatial session for Purdue's TOTAL Camp during June 2016.



High School students use IndianaMap to work on 'Zombie Apocalypse' activity during Purdue's 2015 GIS Day.

INDIANAVIEW CONSORTIUM MEMBERSHIP

The IndianaView Consortium is composed of researchers and educators from Ball State University, Indiana State University, Indiana University, Indiana University – Purdue University at Indianapolis, Indiana University – South Bend, Martin University, University of Notre Dame, Geography Educators' Network of Indiana, Indiana Geographic Information Council, and the Indiana Space Grant Program. Consortium members have participated in the IndianaView mini-grant and scholarship programs with projects involving K-12 education, general public outreach, research studies and educational lab development. Fact sheets are available at: www.indianaview.org/fact_sheets.html.

Partners have used and provided the Landsat data available on the IndianaView GloVis portal.



Others:

- Indiana University – South Bend
- Consortium of Universities for Spatial Information Science
- Indiana Space Grant Consortium

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Major funding for the AmericaView Consortium is provided by the U.S. Geological Survey through Grant Number G14AP00002.