# MichiganView
## Remote Sensing Activities
## 2013 - 2014

## Improving Utilization of Remote Sensing Resources

### Geospatial Software Tools to Enable Remote Sensing Scientists and Educators



*A Michigan Tech Research Institute intern works with the ImageSwipe tool*
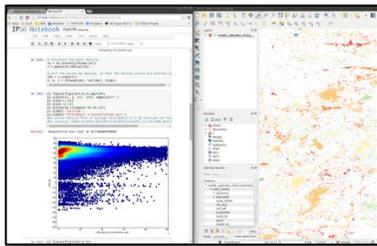


*pyGTiff tools allow for advanced geospatial processing within both Linux and Windows environments*

MichiganView has worked to develop innovative, user-friendly, and open-source remote sensing software tools that are useful to the remote sensing community. In the past year, two such tools have been made available via the MichiganView website. ImageSwipe is a tool that enables a pair of remotely sensed images with the same geographic extent to be visually compared at the same time. It can be embedded in web pages and used to show, for example, land cover change over time. pyGTiff is a software program that enables robust geospatial analysis tools to be applied within the simple and widely used Python programming language.

## Benefits to Michigan

MichiganView provides:

- Collaborative opportunities for remote sensing students and professionals

- Access to Michigan satellite imagery and derived data

- Development of educational remote sensing materials for K-12 students

- Remote sensing software tools and training to students and non-expert professionals

- A conduit between Michigan's government representatives and the remote sensing community

## Providing Remote Sensing Education

### Exposing K-12 Classrooms to Environmental Remote Sensing Field Validation

For the past several years MichiganView has worked with a local Michigan elementary school to develop an educational program that introduces young students to remote sensing and ecological research. The program, which so far has focused on fifth-grade students, starts with in-class lessons where students are taught the basics of remote sensing and wetland ecology. The classroom-based lessons include learning how to identify common wetland plants, how aerial imagery is collected, and the effects of invasive plants.



A field trip to a local wetland allows students to put their newly acquired knowledge to use. Students use GPS units and cameras to record information about their study sites and, upon returning to the classroom, are able to upload their data to an online database where it can be viewed in conjunction with satellite imagery. This year's program took place in late October and included almost 100 participants.



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MichiganView 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.

### Remote Sensing Outreach and Education

MichiganView hosts workshops to promote new technology and foster collaboration between researchers.

In June 2014, MichiganView co-hosted a meeting at the University of Michigan to discuss the forthcoming ICESat-2 satellite for land and vegetation applications. The meeting was attended by leaders of the satellite project team and dozens of researchers from around the country.



*Dr. Laura Bourgeau-Chavez gives a presentation at the ICESat-2/Landsat Vegetation workshop at the University of Michigan*

### Data Holdings

MichiganView maintains a large archive of imagery that is available for download from michiganview.org.

In the past year, archive additions included:



A selection of Landsat 5 and 7 covering the state from 1987-present



Updated MODIS Clear Sky Archive



2012 National Agriculture Imagery Program Data

### Data Distribution

MichiganView has partnered with other AmericaView members to spearhead the implementation of the Earth Observation Depot Network (EODN). The EODN is a nationwide remote sensing data distribution system that employs cutting edge technology in data logistics to deliver imagery to end users. In 2014, the Michigan Tech Research Institute became one of many data depots located around the country.
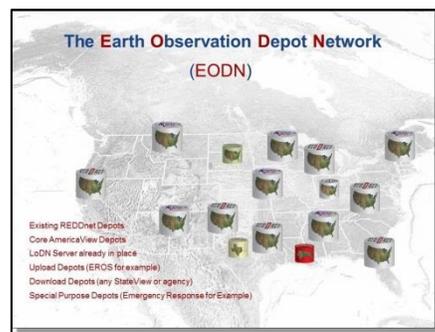


# MichiganView Consortium Membership

**MichiganView is a statewide consortium of academic member institutions. As a state member of the USGS sponsored AmericaView program, its mission is to promote the use and further the science of remote sensing technologies in Michigan schools, governments, and industries.**



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