MICHIGANVIEW
REMOTE SENSING ACTIVITIES
2014 - 2015

## PROVIDING REMOTE SENSING EDUCATION TO K-12 CLASSROOMS

One of MichiganView's primary goals is to promote the use of remote sensing technology. Remote sensing education is well established in colleges and universities, but it is often absent from K-12 curriculum. MichiganView has worked to develop an outreach program that serves to introduce young students to basic remote sensing principles, focusing on ways to engage elementary school students with hands-on remote sensing related projects.

MichiganView recently formed a partnership with the Ann Arbor Public School's Science, Technology, Engineering, Art, and Math (A2STEAM) program. A2STEAM, located in the Northside School in Ann Arbor, employs project-based learning techniques to provide students with the skills necessary for succeeding in the science fields. This project-based approach has proven to be an exceptional environment for incorporating remote sensing education.

MichiganView's first project with A2STEAM was a 3rd grade project focused on Michigan's grey wolf population. Students were taught how to identify various types of habitat using remote sensing imagery and learned how that information could be used to identify potential areas of conflict with farmers and livestock. They were provided with an interactive map accessed through tablet computers which they used as a tool to develop a plan for peaceful human and wolf coexistence, which they presented at a community expo to their parents, teachers, and other community members.

MichiganView Co-I Mike Battaglia speaks to a 3rd grade class about how to identify wolf habitat using remote sensing imagery
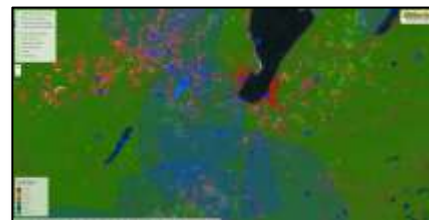
Screenshot of the interactive map developed for A2STEAM 3rd graders for their wolf habitat project

SUPPORTING THE EARTH OBSERVATION DEPOT NETWORK

MichiganView has partnered with TexasView and WisconsinView 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. Michigan Tech Research Institute's 1TB servers act as one of many data depots located throughout the country. The goal of the EODN project is to leverage the power of the Data Logistics Toolbox to achieve a pair of breakthrough objectives:

Dr. Nancy French (PI, MIView; left) with Dr. Sam Batzli (PI, WIView; center) and Dr. Martin Swany (U Indiana; right), at EODN facilities at UI.

- *To empower EODN as a scalable and automated content distribution network that offers high performance access to high value remote sensing data to a larger user community, and*
- *To dramatically accelerate remote sensing workflows by putting this unique software infrastructure underneath the computing tools already used by a diverse collection of users.*

BENEFITS TO MICHIGAN

- Collaborative opportunities for remote sensing students and professionals
- Access to Michigan satellite imagery and derived data from a newly revised web portal
- 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

ADDITIONAL MICHIGANVIEW ACTIVITIES

Data Archives

MichiganView maintains a large archive of imagery available for download. Current archived data holdings include:

- USGS Landsat 5, 7, and 8 data with links to select cloud-free images
- Statewide NAIP imagery for 2005, 2006, 2009, 2010, 2012, and 2014
- MODIS Clear Sky Archive - cloud free MODIS images of the entire state
- Great Lakes Border Flight imagery – high-resolution airphotos of Michigan's coastal areas

MichiganView also maintains a page of interactive web maps developed through several research projects focused on the Great Lakes, including a Lake Michigan Cladaphora map, Great Lakes Coastal Wetland map, *Phragmites Australis* map, and Great Lakes Water Quality maps.

MODIS, Michigan, Mar. 27, 2011

Landsat 7, SE Michigan, Nov. 2007

*Great Lakes Border Flight Imagery
Downtown Detroit, MI, July 2009*

Geospatial Tools and Software

MichiganView develops and distributes useful geospatial tools based on free and open-source software. Recently developed tools include a variety of web-based maps, code for geospatial image format conversion and manipulation, and a tool built to extract the sun angle from USGS Landsat imagery.

Consortium Building

MichiganView has been working to build its membership by reaching out to researchers and other potential partners at colleges and universities around the state. A redesign of the MichiganView website was recently undertaken to better serve consortium members and public users.

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.

MichiganView Principal Investigator:

Dr. Nancy French

Michigan Tech Research Institute

734-913-6844

nhfrench@mtu.edu

http://www.michiganview.org