



IowaView

IowaView Remote Sensing Activities

2013 - 2014

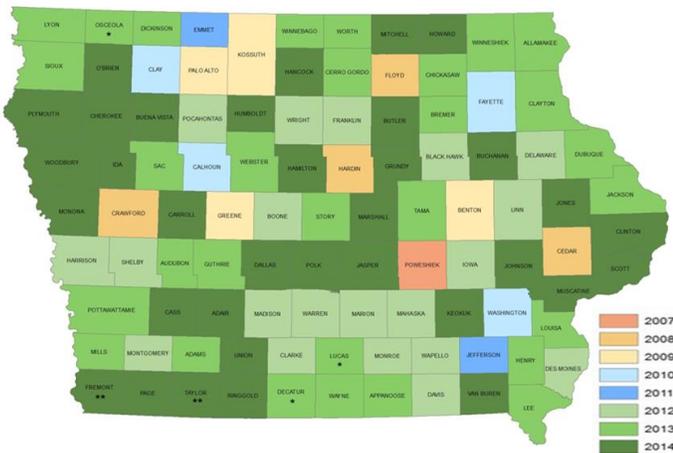


Improving Utilization of Remote Sensing Resources

Remote Sensing Business Plan

In 2014, a new geospatial business plan was completed for three statewide GIS data layers, including high-resolution remote sensing imagery. These layers, plus six existing datasets, make up the Iowa Geospatial Infrastructure or IGI. Business plan development was led by IowaView staff. Previously, local governments and state agencies completed their own planning and implementation of imagery projects with little coordination or sharing of resources between sectors. The new business plan compares the cost of each sector doing their own projects, with new options for state agencies supporting local government projects and the federal NAIP imagery program.

Recent County Aerial Photography Projects



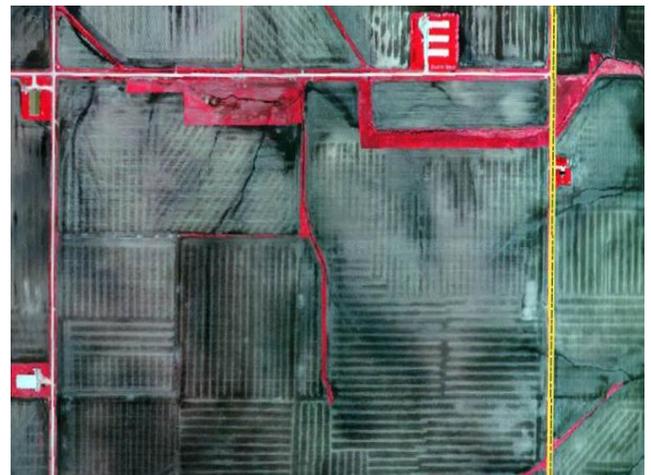
Map showing the status of county orthoimagery programs. Currently, counties receive little support from the state, nor do they coordinate among themselves to reduce costs. The last state-led program was in 2007-2010.

Providing Remote Sensing Research

Agricultural Tile Mapping Project

In collaboration with the Iowa Department of Natural Resources and US EPA Region 7, new methods for mapping agricultural drainage tiles with remote sensing imagery were developed by IowaView. This research will lead to a business plan for mapping the extensively tiled areas of central Iowa.

The purpose of the tiles is to remove excess water from the soil profile so that farmers can efficiently plant their corn and soybean fields in the spring. The location of the tiles becomes apparent after a soaking rain. The surface dries more quickly over the tiles, especially a few days after a one-inch or greater rainfall. Research into timing of aerial photography flights and interpretation of imagery and GIS mapping of features have shown that a large-scale program to map tiles over a wide area is possible, but requires more resources than a standard aerial photo campaign due to timing of flights to insure all areas have the desired visual characteristics.



Drainage tiles are visible on this CIR photo of central Iowa from 2014. The soil profile dries more quickly directly over the tiles, creating the lighter, linear patterns. Criss-crossing patterns indicate that more than one set of tiles was installed in the same field.

Benefits to Iowa

The remote sensing business plan led by IowaView staff identified a different kind of collaboration where state agencies financially assist local governments as they collect new imagery over the next five years. While this option will cost about the same as a single statewide one foot resolution orthoimagery collection, by supporting local higher resolution projects and the USDA NAIP program, four separate acquisitions of statewide imagery can be collected and made available to all users. All sectors will save money, and users will have more and better imagery from which to choose.

IowaView 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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Other IowaView Projects

Remote Sensing Education

Several remote sensing education activities were supported by IowaView in the past year. Two undergraduate technical assistants were trained to search, download and process Landsat imagery for our clients to use in various classroom and research projects. A GIS Day event was hosted on the ISU campus and the Remote Sensing Business Plan was presented to stakeholder groups.

Using Mappgive training materials made available by other states, IowaView developed a program for training youth and university students to use Open Street Map for service projects. Mapping events are planned for MLK Day, Earth Observation Day and a 4H Leadership Camp in 2015.



OpenStreetMap
The Free Wiki World Map

Remote Sensing Archives

Since 1998, the Iowa Geographic Map Server (aka the Ortho Server) has provided a public viewer for many statewide collections of Iowa imagery, including 2004-2013 NAIP; historical imagery from the 1930s, 50s, 60s, 70s, 80s, and 90s; and two recent color infrared (CIR) projects. In addition to the viewer, the data sets are available as web services.

Using AmericaView funding, Landsat imagery was downloaded and added to the archive. Several new web services are being made available, including derivative products for monitoring crops, crop residues and cover crops. This will support the development of yearly land cover time series on a field-by field basis.



New collections of Landsat imagery are being added to the Iowa Ortho Server.

Mapping Conservation Practices

In partnership with the Iowa Nutrient Reduction Center, new methods were assessed to map the use of conservation practices that reduce soils erosion and nutrient loss from farm fields. These practices include installing permanent vegetative buffers and grassed waterways, leaving crop residues on fields, and planting cover crops in the fall. Remote sensing from a variety of platforms such as Landsat is well suited to monitoring these practices and will be critical for state programs to reduce the amount of nutrients entering streams and reaching the Gulf of Mexico. Leadership is being provided by IowaView to build data archives, conduct research and educate stakeholders about the utility of remote sensing technology.



February satellite photo showing cover crops in red. Imagery in other seasons is needed to distinguish these fields from pasture or hay.

IowaView Consortium Membership

The mission of the IowaView consortium is to increase the knowledge and use of remote sensing and other geospatial technologies for the benefit of the citizens of Iowa, through education, research and service. IowaView supports the collection and management of publicly accessible remote sensing data archives, including the Iowa Geospatial Infrastructure (IGI), Iowa's contribution to the National Spatial Data Infrastructure (NSDI).



US Geological Survey

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