



UtahView Consortium Overview 2013 - 2014



Improving Utilization of Remote Sensing Resources in Utah

General Overview of the UtahView Consortium



UtahView researchers and instructors working with students at Edith Bowen Laboratory School in Logan, Utah, 2014.

UtahView 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 receives its primary funding from the U.S. Geological Survey, which in turn supports the AmericaView mission of advancement, availability, distribution, and use of remotely sensed data and technology through education, research, outreach and technology transfer.

The UtahView consortium includes researchers and instructors from Utah State University, Utah Valley University, and the University of Utah.

The 2013-2014 year was a successful and busy year for the UtahView consortium. Projects completed by consortium members included 1) working with elementary students to explore their local environment using Google Earth and basic GIS data; 2) development of tools to process and add value to remotely sensed Landsat imagery; and, 3) a trip to the annual *Maps on the Hill* (MOTH) event at the Utah Capitol Building in Salt Lake City to present work completed by students and researchers to Utah State Legislators. UtahView also announced the release of three new sites that will be used for project and data sharing and social media interaction. The new UtahView websites now available at <http://utahview.usu.edu>. The new site features completed and ongoing projects, project report and data downloads, and links to contact UtahView consortium members. UtahView has also established a Facebook account (<http://www.facebook.com/utahview>) and a Twitter account (<http://twitter.com/utview>) to better support public interaction. The sites are regularly maintained and updated with UtahView and AmericaView related information as well as data and tools for

UtahView Consortium Membership



[Dr. R. Douglas Ramsey](#), Professor and Director of the Utah State University Remote Sensing/GIS Laboratory, [Dr. Phoebe McNeally](#), Research Associate Professor and Director of the University of Utah DIGIT Laboratory, and [Dr. Sowmya Selvarajan](#), Assistant Professor of Geomatics and ASPRS Intermountain Region President, are the primary UtahView research investigators. The goals and missions of all three institutions are unique and bring a wealth of scientific, outreach, and technical experience to urban, rural and wildland regions of the state.

UtahView Principal Investigator:

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UtahView

Remote Sensing Activities

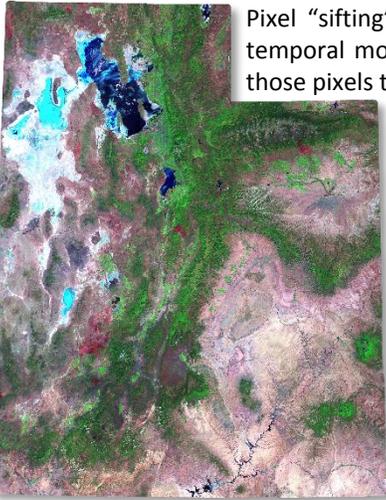
2013 - 2014



Improving Utilization of Remotely Sensed Data

Landsat Data Development and Distribution

Over the past year, UtahView developed a software program to analyze historic Landsat 5 and current Landsat 8 data that covers Utah. These data include 15 separate scenes captured over the regional growing season. Images are converted to percent reflectance using the gain/bias values and solar elevation parameters contained within the metadata files of each image. The results consist of temporal paths generated by selecting the pixel with the highest index value across time. Spectral indices, such as NDVI, can be used to generate temporal mosaics. The output of this



Pixel "sifting" process consists of a yearly temporal mosaic of Utah made up of only those pixels that meet the specified criteria

These tools will benefit resource managers within the state of Utah by providing data on historic and current landscape disturbances. It will further benefit students by allowing them to better visualize landscape-level changes and impacts from wildfire.
– Dr. Douglas Ramsey, USU

Undergraduate Research Projects

Undergraduate research is a high-impact activity supported by the UtahView consortium. Students work with advisors to submit a fully developed research proposal that is aligned with key goals of the UtahView program. Proposals are reviewed by UtahView researchers and funded based on quality and potential.

Decadal analysis of aspen-conifer succession using remote sensing and GIS

Quaking aspen (*Populus tremuloides*) is considered a keystone species in many higher-elevation western ecosystems. Stands of aspen provide habitat and forage for wildlife and livestock, as well as providing a unique indicator of local forest ecosystem health. Research has shown that aspen populations may be in a state of decline due to management challenges, conifer encroachment, grazing, and climate change.

This study used remotely sensed imagery and GIS analysis to determine successional pathways in aspen and conifer stands on a decadal scale. Historic imagery, provided by the U.S. Department of Agriculture Aerial Photography Field Office (USDA APFO) was digitized and analyzed to evaluate patterns of growth or loss of large aspen stands in northern and central Utah. – Thomas Thompson, USU

The effects of cheatgrass on black-tailed jackrabbit relative abundance at Dugway Proving Ground, UT

Cheatgrass (*Bromus tectorum*) is an invasive species known to compete with and displace native species in lower-elevation, dry western ecosystems. This project evaluated the effects of cheatgrass on black-tailed jackrabbits, a habitat generalist that prefers succulent vegetation as forage. It was hypothesized that the increase in the occurrence of cheatgrass would negatively influence black-tailed jackrabbit abundance.

Using cheatgrass occurrence and GIS data developed through remotely sensed methods, ground surveys of existing vegetation and jackrabbit populations were conducted. Using generalized linear mixed models, data were analyzed. The findings did not support the initial hypothesis that increased cheatgrass cover would negatively impacted black-tailed jackrabbit populations.
– Victoria Holman, USU

Providing Remote Sensing Education

Geospatial Curricula Development

UtahView is dedicated to improving the use of geospatial curricula in K-12 schools throughout Utah. UtahView, in cooperation with the Utah State University Remote Sensing/GIS Laboratory and the Edith Bowen Laboratory School, developed introductory curriculum that supports newly adopted Common Core teaching standards. Initial work focused on the use of Google Earth and basic GIS data to provide students with a way of enhancing and exploring topics being taught. Using newly developed curricula, lessons were taught at the Edith Bowen Laboratory School in Logan, Utah. – Lisa Langs Stoner, USU



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Other UtahView Projects

National Legislative Outreach

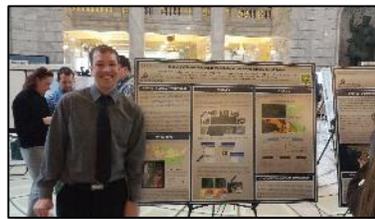
The AmericaView winter business meeting held in Washington D.C. provides time for state members to come together and discuss ongoing AmericaView projects, new and potential efforts, and provides an opportunity to present accomplishments to the U.S. Geologic Survey staff in Reston, VA as well as visits to state legislators on Capitol Hill. On February 25th, Dr. R. Douglas Ramsey and UtahView State Coordinator, Christopher McGinty, presented UtahView projects to Representative staffers for Rob Bishop (Utah 1st District) and Chris Stewart (Utah 2nd District).



UtahView Principal Investigator and State Coordinator visit Washington D.C. to present ongoing work.

State Legislative Outreach

The Utah Automated Geographic Reference Center (AGRC) sponsored the yearly *Maps on the Hill* (MOTH) event at the Utah State Capitol building in Salt Lake City on January 29th, 2014. The event showcases mapping and research projects from educational, private, and government agencies working in and around Utah. Held on the opening day of the 2014 legislative season, maps and posters were presented to state legislators and staff members. UtahView supported 5 student and researcher poster presentations at the 2014 MOTH.



Utah State University undergraduate Thomas Thompson presents mapping work at the 2014 MOTH event.

Website & Social Media

UtahView announced the development and release of the new UtahView website (<http://utahview.usu.edu>) as well as social media outlets through Facebook @utahview (www.facebook.com/utahview) and Twitter @UTView (<http://twitter.com/utview>). The UtahView website will host links to completed and ongoing projects as well as provide project data access and download.



UtahView Vision and Goals

UtahView Vision: The primary mission of the UtahView consortium is to facilitate and promote the availability, distribution, and use of geospatial technology and data in the public and private arenas; encourage use of geospatial data in higher education and among K-12 schools and educators; and to facilitate advanced geospatial research and understanding at all levels.

UtahView Long-Term Goals:

1. To foster a growing and dynamic consortium of statewide partners that includes educational institutions, state and local governments, and the general public in order to support and promote the AmericaView and UtahView mission and goals
2. To establish remote sensing and geospatial curricula that are available for use by K-12 schools throughout Utah as well as templates that are publicly available to any educator
3. To facilitate the distribution, use, and understanding of remote sensing data in Utah
4. To provide opportunities for undergraduate students to conduct research using geospatial tools
5. To continue to enable free, simple, useful, and value-added access to remotely sensed data and information

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