



**AmericaView: A National Remote
Sensing Consortium
Grant Award Number 08HQGR0157**

Annual Progress Report for Grant Year FY2009

Work completed from September 30, 2009 through September 29, 2010 (with an extension through March 31, 2011)

**Submitted to the
USGS Project Officer and Grant Administrator
AmericaView Consortium Board of Directors**

**Prepared by Rick Landenberger, AV Executive Director
and Debbie Deagen, AV Program Manager**

April 8th, 2011

TABLE OF CONTENTS

	PAGE
1. Executive Summary	3
2. AmericaView Consortium Leadership and Membership	10
3. Financial Summary for Grant Year FY09	15
4. Highlights and Challenges	15
5. Consortium Activities	18
 Appendices	
Appendix 1: AmericaView Grant Year 2009 Activities	19
Appendix 2: Expended Funds by Category	78
Appendix 3: StateView Activity Emphasis	79

1. EXECUTIVE SUMMARY

As reported in the pages that follow, the AmericaView Consortium has had a successful grant year 2009, the third in our five year grant. Despite reduced funding per StateView and fewer projects relative to the previous reporting period, StateView consortia continue to **advance the availability and widespread use of remote sensing data and technology through education, research, outreach, and sustainable technology transfer to the public and private sectors** (AmericaView Charter, 2002).

In grant year 2009, the AmericaView (AV) Consortium's core mission remains unchanged. Now comprised of 37 members, the consortium is engaged in research and education in forest, range, and wildlife management, in land use – land cover monitoring, in drought, water resources and related agricultural assessment, in coastal zone management, and in natural hazard and risk assessment. At a time when the federal government is advancing the nation's land imaging goals, AmericaView is actively supporting and extending the use of existing data at the state and national levels, effectively leveraging previous federal investments to maximize the uses of public domain data. Through research, education and outreach, AV maintains a sharp focus on growing the number and diversity of technology-proficient students, professional technicians and analysts, and academic scientists *prepared to apply geospatial technology to the wide range of current challenges and opportunities.*

Consortium Development and Outreach Activities

Consortium development and outreach comprise a broad set of activities that occur both formally and informally, often as a component of related activities that involve communicating, demonstrating, and applying remote sensing technology. Both the national and state programs are increasingly well connected and take thorough advantage of their networks to strengthen and reinforce partnering, communicate current events, and share ideas (Figure 1).

During the reporting period, for example, StateViews offered 27 formal presentations to local, state, and federal agencies and other organizations, sharing information and otherwise supporting remote sensing applications as opportunities arose. These meetings continuously reinforce and diversify the educational, applied research, and data archiving and distribution capabilities of the StateViews, their partners, and the national program.



Figure 1. AmericaView now has a Blog established by MichiganView. The site supports national and state outreach and can be updated by any member.

In more formal settings, Principle Investigators (PIs), coordinators, and students provided 21 presentations of their StateView programs at state, regional, and national conferences. Presentations focused primarily on StateView activities while providing general information on AmericaView goals and objectives. Furthermore, many of the state conferences involve undergraduate student research funded in part by AmericaView through scholarships and mini-grants, thus helping StateViews to meet related outreach, education, and research objectives at the state level. Presentations at national conferences tend to involve StateView-sponsored graduate student

research, or research accomplished by the PIs and their graduate students. In both cases, benefits accrue to the StateView PI, their students, and the larger and more diverse national geospatial community in attendance.

Outreach is also accomplished by other mechanisms, many of which overlap with research and educational activities (Figure 2). For example, StateViews were involved in seven faculty exchange programs between partner universities, six faculty training projects, nine software license sharing activities, and six collaborative research projects. Related collaborative projects such as recruiting new partners (six activities) continue. Despite reduced funding in this reporting period relative to previous years, these activities persist at roughly the same level relative to the previous reporting period.



Figure 2. MontanaView partner Van Shelhamer of GeoEssentials spoke on the benefits of remote sensing to farmers, ranchers, and public land managers at a lecture in Bozeman, MT.

Outreach activities with Kindergarten through 12th grade (K-12) and informal education partners provide another effective mechanism to support the AV mission, and AmericaView continues to make significant strides in this direction. Indeed, despite the time, effort, and resources associated with providing quality professional development and the required follow-up necessary to sustain implementation of geospatial science and technology, K-12 and informal educational outreach appears to be growing slowly. This is particularly true in states that have had a historical presence in formal and informal education when funding levels were higher.

To advance our K-12 education mission, a NOAA proposal involving fifteen states was planned, coordinated, and written in part during the planning period. Project partners would develop a new set of elementary level resources for AmericaView¹. From an outreach and consortium-building standpoint, the project included Kevin Gallo, a NOAA scientist stationed at EROS who continues to be involved in AmericaView activities through these types of activities. Most importantly, the outreach and consortium-building benefits that would result from such a project would be immense, and of significant benefit to AmericaView, NOAA, the USGS, GLOBE, and our other partners and potential partners nationwide.

In a similar vein, the NASA-sponsored and AV-supported OhioView SATELLITES proposal to host K-12 teacher's institutes in West Virginia, Pennsylvania and Maryland was granted an extension during the reporting period. As a result, the OhioView lead (Kevin Czajkowski), along with the AV Executive Director in a supporting role, trained 19 teachers in Maryland and an additional 21 teachers in Ohio during the reporting period. Outreach associated with SATELLITES has been far-reaching, and resulted in several Ohio students and teachers

¹ This project is also designed to be highly applicable in informal educational environments, such as in 4H, the Boy Scouts and Girl Scouts, and within similar informal educational institutions.

participating in the White House Science Fair, noted on a White House press release which subsequently garnered national recognition.

In an exciting and highly beneficial multi-state outreach effort, the ChesapeakeView web site (Figure 3) became operational during the reporting period. ChesapeakeView is a collaborative



Figure 3. ChesapeakeView is a multi-state collaboration to provide a searchable clearinghouse of digital public domain data of the Chesapeake Bay watershed.

effort between the StateViews of West Virginia, Virginia, Maryland, New York, and Pennsylvania. The vast majority of project funding came from PAView partners at Penn State University, but all participating Full Member states contributed funding². ChesapeakeView has been recognized by USGS and their partners as a highly effective tool for organizing and locating public domain digital data of the Chesapeake Bay watershed.

Finally, the national program staff and Board of Directors performed consortium development and outreach in a variety of venues. For example, the staff and Board support the entire consortium as coordinators of state and multi-state projects when they give presentations or otherwise attend meetings where networking occurs, or when they communicate to the membership during monthly teleconferences and annual meetings. Although technically informal, these 'activities' are critically important and help strengthen the organization.

Data Archive and Distribution Activities

The USGS Landsat data archive came on-line in December 2009, relieving the StateViews of their responsibility to provide free Landsat data within their states. Despite this important advance, 25 StateViews continue to address unique, state-specific needs in education, outreach, training, and applied research through ongoing maintenance of their data archive and distribution system activities. Nineteen of the 25 states track data downloads, providing an estimate of the breadth of data applications in their states. Perhaps more importantly, eight

² PAView provided a mini-grant to fund New York View's share.

StateViews generate user-friendly formats to accommodate the widest range of users, including K-12 teachers that either do not have access to or knowledge of the software necessary to utilize multi-band files. Thus archive maintenance and growth continues, building on the momentum of previous years by offering an increasingly diverse set of public domain data.

Additionally, after years of maintenance, eight StateViews have grown their archives, adding Landsat, ASTER, MODIS, and various aerial datasets. Despite limited funding and in a relatively reduced capacity compared to the previous reporting period, four StateViews strengthened their outreach and research programs through various data sharing arrangements. Four StateViews continue to be involved in activities that leverage other projects to purchase data for their archives, and eight collect and serve free imagery from existing internet sources. In a recent trend that leverages the software programming knowledge and ability to develop mash-ups from programs such as Google Maps and MapServer, three StateViews developed new methods for searching and browsing images before download, supporting distribution of a wider variety of data for education and applied research of various types.

Finally, four StateViews received, processed, and distributed satellite imagery. MODIS and Landsat imagery tended to dominate, but other data sets continued to become more widely available as partner-operated reception and processing infrastructure are increasing in demand. Along these same lines, six StateViews were involved in near real-time collections of data in collaboration with emergency responders and field operations. These important activities support state and federal agencies in fire management and other natural disasters such as flooding and hurricanes.

Education Activities

AmericaView's educational activities have always been central to the organization's mission, but are becoming more diversified over time. All StateViews continue to support education activities of various types, including K-12, higher education, and professional development. In part due to consistent efforts of the Education Committee, K-12 activities are an ongoing strength involving 23 projects during the reporting period. In the classroom, for example, five StateViews prepared and delivered remote sensing lectures and demonstrations, and one developed remote sensing lesson plans for their own as well as to share with other StateViews. Outside the classroom, three states provided training workshops for teachers during the summer, and two provide pre-service training in geospatial science and technology to education majors. In informal settings, three StateViews organized and offered activities for youth organizations such as the Boy and Girl Scout and 4H clubs (Figure 4).



Figure 4. A group of California Cub Scouts received their GPS merit badges through a CaliforniaView-supported project.

K-12 education activities are growing across the consortium, reaching over 300 teachers across the country. These activities range from single presentations offered at teacher science and technology conferences to week-long intensive professional development opportunities and follow-up field campaigns aimed at coordinating the collection of field data to support scientific research, such as occurs in the SATELLITES program. All such activities focus on using remote sensing as a tool to support STEM education, an increasingly important emphasis in K-12 education. Depending on the type and

intensity of the training involved, these activities can be expensive and time consuming, and thus may require a significant commitment of funds. Considering the noted importance on follow-up support for teachers, these activities tend to require supplemental funding from external sources in order to implement successfully.

In higher education, three StateViews shared software licenses (Figure 5), five shared course materials, and twelve encouraged the use of their data archives in course and lab exercises. Two StateViews offered applied training for students in government agencies, and three funded stipends to encourage students to pursue careers in remote sensing.

"We greatly appreciate KyView for the purchase of the Idrisi Taiga software, which is essential to our research project in which we are using the software to analyze Landsat images of our prescribed burn study sites in the Daniel Boone National Forest. More specifically, we are using it to calculate the vegetation indices of brightness, greenness, wetness (Tasseled Cap transformation) and the normalized difference vegetation index (NDVI) and the normalized burn ratio (NBR) to determine the impact our prescribed fires, conducted over a period of eight years, are having on the landscape and how closely this data correlates to our field-collected data."

--Dr. Mary Arthur, Professor of Forestry, University of Kentucky

Figure 5. Testimony from an academic partner on the value of software sharing to leverage remote sensing instruction in Kentucky.

Training for the current workforce continued (Figure 6), offering excellent opportunities for StateViews to strengthen their partnerships and add new partners. Ten StateViews are involved in short courses for local, state, and federal government agencies, either as stand-alone training or tied to a state or regional conference or meeting. One important aspect of professional development and training that is often lacking in other venues but a recognized strength of StateView training involves follow-up support after the training is completed. Because of their academic positions, StateView PI's and coordinators are generally available to answer questions, provide feedback, and otherwise provide follow-up support to those that they've already trained (eight activities). The willingness to sustain contact with participants results in added effectiveness, and strengthens the partnerships that are the basis of successful professional development and training.



Figure 6. TexasView PI, PR Blackwell, delivers a geospatial science and technology workshop to Texas National Guard personnel through a partnership with the Columbia Regional Geospatial Science Center.

Included in the course work and related data that PI's offer, five StateView PI's and coordinators offer lectures on remote sensing technology and applications to non-remote sensing and non-natural resources management personnel, expanding the potential uses of remote sensing across disciplines. In the K-12 environment, five StateViews offered lectures to science teachers to support use of geospatial science and technology in elementary, middle, and high school, six developed educational workshops during the school year, and three provided

training for teachers during the summer. Six states continued to offer web-based remote sensing tutorials, FAQs, and related instructional manuals.

The multi-state sponsored 'AmericaView University' on-line educational project continues to develop, offering a model for multi-state on-line education. Currently offering 16 modules, the resource has the potential to include new content if funding were available or could be diverted from other projects. Twelve StateViews that maintain an archive continue to encourage and enable the use of their data for teaching purposes. Students at the PI's institution and at partner institutions access imagery from StateView archives regularly as part of remote sensing courses taught by consortium member institutions. The data have been used in a wide range of student-developed project applications across the country, focused mostly on natural resources management issues such as forest and range management, agricultural health and productivity assessment, drought monitoring, land use – land cover change analysis, and coastal zone monitoring.

Three StateViews are involved in activities that fund stipends and scholarships to encourage students to pursue remote sensing components of education. Grants were given to students to enhance their research by providing field or other supplies (Figure 7), and students received travel grants to present their research at professional meetings.

Kelsey Watkins, UND Atmospheric Sciences Department, Undergraduate Student
"The NDView Scholarship was a great honor to receive. It enabled me to conduct research throughout the past six months, which will benefit the forecasting winter storms. Through this scholarship, I had the funds and opportunity to attend the Northern Plains Convective Workshop held in Sioux Falls, SD on April 21st-22nd, which was a wonderful and exciting learning experience!"

Figure 7. Testimony from a University of North Dakota undergraduate student noting the value of a scholarship used to fund her research and a related presentation to a regional audience.

In addition, nineteen students received support for professional development, in joining a professional remote sensing organization and to start a student remote sensing club, partly supported by the Potomac Region of the American Society of Photogrammetry and Remote Sensing.

Research

Like education projects, research projects can be expensive relative to available funding, and projects that depend solely on AmericaView funding are non-existent due to costs. Thus, partnership-based research activities tend to focus on supporting the goals of academic and government agency partners. Twelve StateView collaborate with agency partners or private industry to assess the utility of remote sensing for monitoring and mapping activities. Four StateViews have designed or otherwise contributed to pilot projects that develop new or innovative applications for remotely sensed data; supporting innovation and unique applications continued to be the primary focus and is closely aligned with the AmericaView mission. Natural resource management activities that utilize moderate resolution data dominate research activities, but an increasing number of states are involved with partners in natural disaster projects that have an applied research emphasis. Additionally, several StateView PIs contribute to sensor design research.

Four StateViews are involved in research activities that develop software to support distribution of satellite airborne, and geospatial data, effectively linking research with the AmericaView data archive and distribution mission. Five PIs collaborate with other StateView scientists, and four post methodologies or tools for use by other StateView members.

Research opportunities for students continued, either through student mini-grants (as described



previously) or through support of the PI via leveraged projects with partners. Four StateViews offered scholarships for women and minorities. In addition, Eight PI's supported graduate student use of StateView data in classroom research projects, and eight supported student publications or presentation in university forums (Figure 8). Seven StateView faculty served on M.S. and Ph.D. committees, often taking advantage of the research opportunities that arise from membership in the state consortia via internships and summer employment in natural resources management agencies.

Figure 8. WyomingView student Karley Shepperson received a certificate after presenting her research at an undergraduate research symposium.

Closing Observations –

On September 21st, 1966, the United States committed to launch a civilian Earth Resources Technology Satellite, later to become the Landsat series. With this commitment, the Earth observations community prepared to use satellite-based remote sensed imagery in service to society. As the United States enters the fifth decade of applied remote sensing, the AmericaView Consortium, supported by the U.S. Geological Survey Land Remote Sensing Program, is committed to strengthening, diversifying, and expanding remote sensing educational and applied research with local, state, and national partners. Working at the K-12, undergraduate and graduate levels, AmericaView and its partners continue to prepare students, train faculty, industry, and government professionals in applied remote sensing, thus raising awareness of the utility of moderate resolution remote sensing.

As a direct result of the U.S. Geological Survey's decision to accept an internally non-competitive consortium funding model, AmericaView continues to be an effective cooperative network. Cooperation fosters and enables sharing of resources, encourages growth and diversity, and recognizes the increasingly complex challenges of meeting state needs with restricted funding. With the current emphasis on education and applied research in partnership with governmental, educational, and non-profit organizations already active within each state, and given the realities associated with severely limited funding, AmericaView continues to capitalize on the knowledge, effectiveness, and flexibility of the StateViews to meet local and regional needs, and to embark on a new, exciting, and increasingly challenging program of state, regional, and national-scale remote sensing education and applied research.

2. AMERICAVIEW CONSORTIUM LEADERSHIP AND MEMBERSHIP

The AmericaView Consortium consists of a part-time Executive Director (70% FTE), a part-time Program Manager (75% FTE), a seven-member Board of Directors, and PI's at academic lead institutions in each participating state. The Executive Director and Program Manager administer the program on a daily basis, and answer directly to the Board of Directors in all matters. Both the Executive Director and Program Manager are employees of their respective Universities; AmericaView has no employees.

The AV Board met monthly via teleconference or in person to provide consortium leadership. In grant year 2009, the AV Board of Directors devoted more than 700 hours in Board service to AmericaView.

Board of Directors

Mr. Larry Biehl
Chair, Purdue University

Ms. Milda Vaitkus
Secretary, University Nebraska – Lincoln

Dr. Ramesh Sivanpillai
Vice Chair, University of Wyoming

Ms. Mary O'Neill
Treasurer, South Dakota State University

Dr. James Campbell
Virginia Tech

Dr. Rick Lawrence
Montana State University

Dr. Sam Batzli
University of Wisconsin

Advisors

Dr. Rebecca L. Dodge
Midwestern State University

Staff

Dr. Rick Landenberger, Executive Director
University of West Virginia

Ms. Debbie Deagen, Program Manager
Montana State University

StateView Membership

As of September 29, 2010, AmericaView had 37 StateView members: 31 Full Members, one Associate Member and five Affiliate Members. AV's current StateView members are:

Full (funded) Members for FY09 grant

AlaskaView

<http://www.gina.alaska.edu/projects/alaskaview>

Dr. Buck Sharpton
International Observatory of the North
University of Alaska Fairbanks

Dr. Tom Heinrichs
Geographic Information Network of Alaska
University of Alaska Fairbanks

AlabamaView

<http://www.alabamaview.org/>

Dr. Luke Marzen
Department of Geography
Auburn University

ArkansasView

http://www.cast.uark.edu/cast/arkansas_view/

Dr. Jason Tullis
Center for Advanced Spatial Technologies
(CAST)
University of Arkansas

Mr. Bruce Gorham
Center for Advanced Spatial Technologies
(CAST)
University of Arkansas

CaliforniaView

Dr. Susan Ustin
Center for Spatial Technologies and Remote
Sensing (CSTARS)
University of California at Davis

Pia van Benthem
Outreach Program Coordinator
Department of Land, Air and Water Resources
University of California at Davis

ColoradoView

<http://coloradoview.org/>

Dr. Wei Gao
USDA UV-B Monitoring and Research Program
Colorado State University

Roger Tree
USDA UV-B Monitoring and Research Program
Colorado State University

GeorgiaView

<http://gis.westga.edu/gaview/>

Dr. J.C. Seong
Department of Geosciences University of West
Georgia

Dr. Mark Patterson
Geographic Information Science Service Center
Kennesaw State University

HawaiiView

<http://hawaiiiview.higp.hawaii.edu/>

Dr. Robert Wright
School of Ocean and Earth Science and
Technology
University of Hawaii

Dr. Peter Mougini-Mark
School of Ocean and Earth Science and
Technology
University of Hawaii

IdahoView

<http://www.idahoview.org/>

Dr. Paul Gessler
Department of Forest Resources
University of Idaho

IndianaView

<http://www.indianaview.org/>

Dr. Gilbert Rochon
Assoc. VP, Collaborative Research
Purdue University

Mr. Larry Biehl
Purdue Terrestrial Observatory,
Purdue University

IowaView

<http://www.iowaview.org/>

Dr. Ramanathan Sugumaran
Department of Geography
University of Northern Iowa

KansasView

<http://www.ksview.org/>

Dr. Steve Egbert
Kansas Applied Remote Sensing Program
(KARS)
University of Kansas

Kevin Dobbs
Kansas Applied Remote Sensing Program
(KARS)
University of Kansas

KentuckyView

<http://www.kentuckyview.org/>

Dr. Christine McMichael
Inst. for Regional Analysis and Public Policy
Morehead State University

LouisianaView

<http://www.rac.louisiana.edu/>

Mr. Brent Yantis
Regional Application Center
University of Louisiana

MarylandView

<http://marylandview.towson.edu/>

Dr. John (Jay) Morgan
Dept. of Geography and Environmental Planning
Towson University

MichiganView

<http://wiki.americaview.org/display/miview/Home>

Dr. Tyler Erickson
Michigan Tech Research Institute (MTRI)
Michigan Technological University

MinnesotaView

<http://minnesotaview.gis.umn.edu/>

Dr. Marvin Bauer
Department of Forest Resources
University of Minnesota

Dr. Joseph Knight
Department of Forest Resources
University of Minnesota

MississippiView

<http://www.msview.olemiss.edu/>

Dr. Greg Easson
Enterprise for Innovative Geospatial Solutions
University of Mississippi

Mr. Hal Robinson
Geoinformatics Center
University of Mississippi

MontanaView

<http://www.montanaview.org/>

Dr. Rick Lawrence
Land Resources/Environmental Science Dept.
Montana State University

Ms. Christine M. Sommers-Austin
Land Resources/Environmental Science Dept.
Montana State University

NebraskaView

<http://nebraskaview.unl.edu/>

Dr. James Merchant
Center for Advanced Land Management
Information Technologies (CALMIT)
University of Nebraska-Lincoln

Ms. Milda Vaitkus
Center for Advanced Land Management
Information Technologies (CALMIT)
University of Nebraska-Lincoln

New Hampshire View

<http://www.nhview.unh.edu/>

Dr. Russ Congalton
Department of Natural Resources and the Environment
University of New Hampshire

New Mexico View

Dr. Patricia Hynes
Director, New Mexico Space Grant
New Mexico State University

Scott Schrader
USDA ARS, Jornada Experimental Range
Las Cruces, NM

North Carolina View

<http://www.ecu.edu/cs-cas/geog/ncview/>

Dr. Yong Wang
Department of Geography
East Carolina University

North Dakota View

<http://www.und.nodak.edu/org/ndview/>

Dr. Brad Rundquist
Department of Geography
University of North Dakota

OhioView

<http://www.ohioview.org/>

Dr. Pete Clapham
Cleveland State University

Dr. Kevin Czajkowski
Director of the Geographic Information Science
and Applied Geomatics Lab
The University of Toledo

PennsylvaniaView

<http://www.paview.psu.edu/>

Dr. Tom Mueller
California University of Pennsylvania

South Dakota View

<http://sdview.sdstate.edu/>

Ms. Mary O'Neill
Engineering Resource Center
South Dakota State University

Kevin Dalsted
Engineering Resource Center
South Dakota State University

TexasView

<http://www.texasview.org/>

Dr. P.R. Blackwell
Columbia Regional Geospatial Service Center
Stephen F. Austin University

Dr. Rebecca Dodge
The Department of Geosciences
Midwestern State University

VirginiaView

<http://www.virginiaview.net/>

Dr. James Campbell
Department of Geography
Virginia Tech

Dr. John McGee
Virginia Geospatial Extension Specialist
Department of Forest Resources and
Environmental Conservation
Virginia Tech

West Virginia View

<http://www.wvview.org/>

Dr. Tim Warner
Department of Geology and Geography
West Virginia University

WisconsinView

<http://www.wisconsinview.org/>

Dr. Sam Batzli
Environmental Remote Sensing Center (ERSC)
University of Wisconsin

WyomingView

<http://www.wygisc.uwyo.edu/wyview/>

Dr. Ramesh Sivanpillai
Wyoming Geographic Information Science Center (WYGISC)
University of Wyoming

ASSOCIATE MEMBER**UtahView**

<http://earth.gis.usu.edu/>

Dr. Douglas Ramsey
Department of Wildland Resources
Utah State University

AFFILIATE MEMBERS**ConnecticutView**

<http://ctview.org/>

Mr. James Hurd
Center for Land use Education and Research (CLEAR)
University of Connecticut

NevadaView

Mr. Ronald H. Hess
Nevada Bureau of Mines and Geology
University of Nevada at Reno

New York View

Dr. Jungho Im
Department of Environmental Resources and Forest Engineering
State University of New York

VermontView

Mr. Jarlath O'Neil-Dunne
Spatial Analysis Laboratory
University of Vermont

WashingtonView

Dr. Mark Swanson
Department of Natural Resources
Washington State University

3. FINANCIAL SUMMARY FOR GRANT YEAR FY09

Grant funding for FY 2009 was \$967,400.00. More than 74% of the grant went directly to support StateView Full Member sub-awards, mini-grants to Full Members and Affiliates, and Affiliate travel. Sub-Awards for each of the 31 fully funded members for FY09 was \$23,152.00. Per state awards were reduced from the grant year FY08 award of \$23,989.00 because two additional states were funded.

A SF 425 will be forwarded prior to June 30, 2011 as required by the Assistance Award. Appendix 2 shows the preliminary expenditures by category for the FY09 grant. These numbers might change slightly as final invoices arrive from the sub-awardees after the close of the extension period of March 31, 2011. All \$967,400.00 that was awarded for Grant Year FY 2009 has been expended.

4. HIGHLIGHTS AND CHALLENGES***Highlight: Funded StateViews***

Two new StateViews, North Carolina and Colorado, were welcomed as Full (funded) Members to AmericaView, and ConnecticutView was added as an Affiliate during FY 09. These additions increased the energy, knowledge base, and collaborative potential of the AV Consortium.

Highlight: Second Earth Observation Day

Earth Observation Day (EOD) is a consortium-wide event that is designed to highlight the use of remote sensing as an effective, exciting, and powerful educational tool in K-16 educational and informal environments. Originally identified as a national project in 2007, the project fell by the wayside as other tasks were addressed, however the event was resurrected in FY 2008 by the Education Committee, and significant progress was made during the FY 09 planning phase. A cooperative project involving the USGS and participating StateViews, EOD planning sessions coordinated through the Education Committee took place in which several activities were identified. These included initial design of several lessons for K-12 science teachers, a series of

posters to distribute to schools in support of the project, and ideas for implementation in March 2010.

Highlight: Winter Business Meeting

The AmericaView Winter Business Meeting, held on March 1-2, 2010, was attended by 45 members and guests in Washington, DC. 29 of 31 Full Members, and two Affiliates attended. At the end of the Meeting, many states visited their elected officials to update them on the important Remote Sensing related activities that took place in their state during the year. During the entire year, 281 visits were made by AmericaView members to federal elected officials and their staff.

Highlight: Fall Technical Meeting

The AmericaView Fall Technical Meeting, held on October 11-13, 2009, was attended by 67 members and guests in Madison, Wisconsin. The FTM was hosted by WisconsinView and the [Space Science and Engineering Center at the University of Wisconsin-Madison](#). Powerpoints of presentations, photos, and poster abstracts can be viewed at the [WisconsinView](#) website.

Highlight: Free Landsat Data

The opening of the archive vastly increased our state resident's access to Landsat imagery. About six proposed activities in FY09 were not necessary since the provision of free data that the states had planned to assist with allowed the StateViews to focus on other data delivery needs within their states.

Highlight: AmericaView Committees

AmericaView has seen significant progress in the development of functional committees. During FY 2009, the Education Committee, the Outreach Committee, the Technology Committee, and the Research Committee were all strengthened significantly, and now operate effectively to identify, coordinate, and share ideas that support new and innovative state and multi-state programs and projects. It is within these committees that much of the proactive, multi-state projects originate and see fruition.

During the grant year, more than 1,591 hours were devoted to committee work by AV members. The Technology Committee coordinated ten StateViews' efforts to plan a collaborative FY10 activity: building an imagery web server that will serve multiple states. This collaborative pooling of skills and hardware funds will allow many states to provide services that they could not on their own.

Highlight: AmericaView On-Line Database

Dr. Seong at West Georgia University continued to improve AV's on-line reporting database. This saved staff time in report generation, created a metrics section for important activities, and saved member's time in submitting Requests for Continued Assistance.

Highlight: Updating AV website

An updated AV website was created by a newly formed Website Subcommittee working with students at the Blacksburg Electronic Village at Virginia Tech. The new website reflects the growth and evolution of AV since its first website was created in 2003, is based on open source

code that will allow for future plug-ins of free modules, and allows committee representatives and other AV members to post information after minimal training.

Highlight: Landsat fact sheets

Highlight: MontanaView disaster response data base

MontanaView continued to lead the next development and implementation phases of the state/national online Emergency Response Database of remote sensing professionals who are willing to serve with remote sensing image analysis in times of disasters. A questionnaire, data base, and tutorial were created, and the Database was launched in August, 2010. This database of R.S. expertise may be queried by authorized individuals (e.g., StateView coordinators, AV National staff, USGS personnel).

Highlight: Data Delivery

The 17 states reporting had 177,091 visitors and 555,080 page views. 13,909 GB of new data was archived (by 10 states) adding to a total of 62,548 GB archived (by 14 states). Of the total of 15,387 GB of data that was downloaded, 1,021 GB of Landsat data was downloaded by 6 states.

Excerpted from following which can be deleted:

- SV Web visitors: 177,091 visitors (17 states reporting, two states for 6 months, one site for several months d/t technical difficulties)
- SV Web page views: 555,080 page views (16 states reporting)
- Remote sensing data archived: 62,548 GB (14 states reporting)
- Remote sensing data newly added: 13,909 GB (10 states reporting)
- Remote sensing data downloaded: 15,387 GB
 - Landsat data downloaded: 1,021 GB (6 states reporting)
 - MODIS data downloaded: 1,231 GB (5 states reporting)
 - Orthophotos downloaded: 9,380 GB (3 states reporting)
 - Other remote sensing data downloaded: 3,755 GB (incl. ASTER, JERS-1, LIDAR, PALSAR, NAIP) (4 states reporting)

Challenge: Budget Cuts

Budget cuts for our partners and remote sensing centers and defunding of State programs resulted in the elimination of about 6 activities that were proposed for FY09 but were not able to be completed because partners' funding did not materialize. This trend is expected to continue next year. Our members needed to make adjustments in their activities mid-year because of changing fiscal realities in their respective states. From a more global view, this weakening of our partner centers and remote sensing consortiums may have an increasing negative impact on AV's effectiveness in future years.

Challenge: Improved Communication with USGS

A need exists for improved communication with USGS data providers so that our Technology Committee and StateView are not planning data delivery products that are in the planning stages by the USGS. Tom Cecere has been assisting with this request over the past year. This improved communication might well result in avoidance of duplication of efforts between

the USGS and AV initiatives, as well as assisting with informing U.S. residents about new USGS products and services.

Challenge: Restructuring of USGS and the Land Remote Sensing Program

It will be helpful to remain in close communication regarding the changing focus of the Land Remote Sensing Program and how AV may best serve the LRS changing mission as well as the needs of the State residents it serves.

5. CONSORTIUM ACTIVITIES

The 30 StateViews reported on 402 activities for the FY09 grant year. This section is divided into four separate sub-sections that follow the “Guidelines for Proposed Stateview Activities” found in Appendix 1.

- A. C-000 Consortium Development and Outreach Activities (**125 total**)
- B. D-000 Data Archive and Distribution Activities (**177 total**)
- C. E-000 Education Activities (**117 total**)
- D. R-000 Research Activities (**81 total**)

Each StateView focuses on the needs of the residents of its state given the strengths of its consortium members. Appendix 1 illustrates the differences in StateView activity emphasis for grant year FY09.

The complete StateView progress reports may be obtained by contacting Rick Landenberger at (304) 293-9468 or Debbie Deagen at (406) 994-6120.

APPENDIX 1 – AmericaView Grant Year 2009 Activities

A. CONSORTIUM DEVELOPMENT AND OUTREACH ACTIVITIES

(131 total activities)

C-000 - Other

- [WI] WisconsinView hosted the AV Fall Technical Meeting in Madison, Wisconsin, which included developing a website for meeting information, agenda, abstract upload, and online payment. WisconsinView/SSEC staff also coordinated moderators, sessions, posters, workshops, meals, social events, and field trips.

External vehicles (57 total activities):

(C-001) StateViews presented their programs and activities at state, regional, and national conferences and meetings (e.g., ASPRS, PECORA, State GIS users conference), accounting for 21 total activities. These presentations increased awareness of the StateView mission, and increased opportunities for partnerships. Highlights follow.

- [AK] AlaskaView made multiple presentations at the Alaska Surveying and Mapping Conference. Talks were given regarding web mapping services, statewide mapping programs, and real-time satellite data information services.
- [AR] ArkansasView members gave 13 presentations at 5 meetings/conferences in addition to University related presentations. Five of these presentations were given at the *Arkansas GIS User Forum* (ASPRS Paper Track). An additional nine technology demonstrations were presented. Of these, three were K-12 oriented, four of the demonstrations were to state government agencies (ANHC, AHTD, AOGC, and AGIO), and two were given to representatives of Trimble LLC in an effort to establish a relationship between CAST, Trimble, and AmericaView.
- [GA] Dr. Seong presented “AmericaView University: A Framework for Online Remote Sensing Courses” at the AmericaView 2009 Fall Technical Meeting. Dr. Seong also presented “AmericaView University: Teaching Remote Sensing via Online” at the Georgia STEM Conference at UWG. Three students at the University of West Georgia presented “2007 Georgia Bay Complex Fires” at the UWG Big Night event. The student’s research was about using Landsat imagery to analyze environmental change after the wildfires. Students also presented the research project at the AAG Conference at Washington D.C. Dr. Seong also met with Berry College in Rome, GA and invited the college to become a member of the GeorgiaView consortium.
- [IA] Three students attended national level conferences and meetings. One graduate student went to Washington DC to present a LiDAR survey result at the

AAG conference. The second student went to the AWRA Specialty Conference GIS and Water Resources VI in Orlando, FL, and the third student presented a poster at the Regional Space Grant Consortium meeting in Minneapolis, MN.

- [IN] IndianaView coordinator (now PI) Larry Biehl presented a poster on IndianaView and AmericaView at the 2010 Indiana GIS Conference. More than 300 people attended the conference. Copies of 7 IndianaView fact sheets were also made available for attendees; 25 fact sheets were picked up. Larry Biehl also presented a session titled "What is IndianaView and AmericaView All About?" Fifteen were in attendance at this session.
- [IN] Funds were used for travel for Gilbert Rochon and Bala Gnasekaran (student) to attend the Fall Technical Meeting in Madison, Wisconsin. Bala is a new student working with IndianaView and came to attend the sessions, particularly those about the web mapping services project that he will be working on. Gilbert Rochon was recognized for his service as director of IndianaView and for his new position as President of Tuskegee University.
- [KS] KansasView presented their activities at the MAGIC (Mid-America Geographic Information Consortium) conference in spring 2010.
- [LA] LouisianaView participated in the National ASPRS Conference in San Antonio, and participated in the monthly LAGIS Council Meetings.
- [MD] MarylandView co-conducted (with PAView) a mini-workshop on AmericaView and MarylandView at the 23rd annual TUGIS Conference. A total of 27 people attended our mini-workshop. MarylandView activities were described to the group of 22 teachers participating in the Maryland SATELLITES Summer Teacher Institute, who will reach approximately 660 teachers each year.
- [MI] MichiganView presented a half-day workshop "Overview of Open Source Geospatial Technologies" at the ASPRS/MAPPS 2009 Specialty Conference in San Antonio to 12 participants. The workshop content was made available on the MichiganView website.
- [MN] MinnesotaView presented "Advancing remote sensing applications and education in Minnesota" at the Minnesota GIS/LIS Annual Conference in Duluth. The session attendance was approximately 30.
- [MT] Rick Lawrence and Christine Sommers-Austin presented and gave updates on the Emergency Disaster Response Database Project at the AmericaView Fall Technical Meeting in Sioux Falls, and at the AmericaView Winter Business Meeting to the approximate 35-40 AmericaView members and supporters present.
Van Shelhamer presented MontanaView, the MTView website, and handed out MontanaView brochures at an ArcGIS II Tools and Functionality Training in Belgrade, MT to the 4 professionals in attendance.

MontanaView connected with 19 Montana teachers and 4 college undergraduates and graduates with Earth Observation (EO) Day 2010 by sending them a 2' X 3' Montana mosaic image for their awareness of remote sensing and MontanaView. An email with background information on EO Day, the EO Day website and remote sensing related lesson plans were sent to the teachers asking them to incorporate at least one and more activities if possible into their classroom.

MontanaView planned, coordinated, and hosted a remote sensing AmericaView Mini-Conference at the 2010 Intermountain GIS Conference in Bozeman that involved at least 40 professionals over the course of the day.

Rick Lawrence presented "Remote Sensing and Emergency Response: The role of MontanaView and AmericaView" at the 2010 Intermountain GIS Conference 'Challenges for a Changing World' in Bozeman to approximately 18 people.

Van Shelhamer presented "Freshmen Academy Incorporated Geospatial Thinking and Remote Sensing" as well as a MontanaView program during at the 2010 Intermountain GIS Conference to approximately 20 people.

He also presented the MontanaView program/activities and lectured on the practical benefits of remote sensing to farmers, ranchers, and land managers at a public gathering at the Fergus High School Library in Lewistown to 7 land managers.

Anna Klene presented "Remote Sensing in Research and Education at the University of Montana" at the 2010 Intermountain GIS Conference to approximately 20 people.

Klene also presented "Mapping active-layer thickness in an urban area using the modified Berggren solution, Barrow, Alaska" and mentioned AmericaView and MontanaView programs at the European Permafrost Conference in Longyearbyen, Norway.

- [NH] A New Hampshire View poster reporting on the use of USGS NLCD data for monitoring the Lamprey River Watershed in NH was presented at the University of New Hampshire Graduate Research Conference by Meghan Maclean. Approximately 200 faculty and students attended the session. The PI, Russ Congalton, presented a paper on NHView's Great Bay research and a paper on Loon research at the Annual ASPRS Meeting in San Diego. Each presentation had approximately 40 attendees. Finally, the PI was a member of a panel presentation at the AmericaView Fall Technical Meeting during which editors of various geospatial journals presented tips and tricks for publishing journal papers.
- [NC] A North Carolina View poster was presented at the Southeast Division of Association of American Geographers Annual Meeting in Knoxville. An updated North Carolina View poster was presented at the 2010 AAG Annual Meeting in Washington, D.C.
- [ND] The North Dakota GIS Users Conference, sponsored in part by NDView, and coordinated by the NDView PI was a very successful event with a record 210

registered attendees from state agencies, counties, cities, higher education, utilities, and the private sector.

Kelsey Watkins, an undergraduate atmospheric science major who received a NDView scholarship, presented her research at the 14th Annual Northern Plains Convective Workshop in Sioux Falls.

Rhonda Olson, a M.S. student in Geography and scholarship recipient, presented her research at the UND Graduate School Forum.

Navaratnam Leelaruban, a NDView mini-grant recipient, presented his work at the 18th Conference on Applied Climatology in Atlanta. His poster was awarded third best student poster at the meeting.

Peter Metzger, the NDView GRA, presented a paper at the ND GIS Users Conference.

- [OH] OhioView partners made the following presentations:
 - OhioView Session - Practical Applications of Remote Sensing: Kevin Czajkowski, James Lein, Doyle Watts, Peter Clapham; Ohio GIS Conference, OGRIP/CEAO Joint meeting. 50+ attendees.
 - Geography and Geospatial Technology: Poland Rotary, Poland, Ohio. 43 attendees.
 - Remote Sensing to Monitor Toxic Algae in the Great Lakes: Robert Vincent; Bowling Green Ohio Kiwanis Club. 45 attendees.
 - OhioView Conference - Climate Change Issues: Andy Jorgensen and Kevin Czajkowski, 200 students, teachers, parents, and OhioView members.
 - ASPRS – ‘Cooperative Projects’: Jim Lein, Ohio University, attended by 50+ scientists.
 - AmericaView Fall Technical Meeting – SATELLITES: Kevin Czajkowski, presented to 80 attendees.

- [PA] Dr. Tom Mueller and Dr. Jay Morgan (Maryland View) presented their collaborative efforts at the TUgis Conference at Towson University. Pennsylvania View also presented ‘LIDAR and Pennsylvania View’ to the Pennsylvania Workshop on Remote Sensing. The workshop was designed to build partnerships and collaborative projects.

- [WI] WisconsinView offered a workshop titled "Mapservices: How and Why" at the Wisconsin Land Information Association (WLIA) annual spring meeting in Appleton. Thirty GIS and remote sensing professionals from state and local government as well as private industry learned about serving imagery with mapservices.

- [WY] WyomingView PI Ramesh Sivanpillai presented in the following regional conferences and meetings:
 - Sivanpillai, R., Teaching Remote Sensing Courses through Inquiry-Based Learning Methods. GIS in the Rockies – 2009 on Sept 16-18, 2009. Loveland, CO.

- Sivanpillai, R., Promoting remote sensing applications through remote sensing. Talk presented at the 2010 Intermountain GIS Conference on April 21, 2010. Bozeman, MT.

(C-002) One StateView published in a trade journal to highlight the utility of remote sensing and the value of StateView programs. Trade journal publications target potential partners in industry. Industry partners offer unique and beneficial opportunities in AmericaView.

- [AR] ArkansasView wrote an article about their experiments with Definiens GRID Earth in connection with our Academic Center of Excellence (ACE) program through Definiens AG (Munich, Germany).

(C-003) StateViews delivered seven presentations to users' groups or geospatial consortia. Presentations to user groups are very effective in increasing awareness of the StateView and AmericaView mission, and create opportunities to partner. Highlights follow.

- [AL] AlabamaView, and the College of Business at Auburn University, presented on the utility of using Google Earth/Virtual Alabama for assisting cleanup of debris and sand after hurricanes. Approximately 50 stakeholders who manage utilities were present, and the presentation led to funding of a project to map critical infrastructure on the Gulf Coast of Alabama.
- [MS] MississippiView participates in the state Institutes of Higher Learning (IHL) Remote Sensing Council. The Council dealt with the initial loss of state funding for the state-wide licensing program for ESRI, ERDAS and ENVI. After negotiations, additional funding was obtained from the Mississippi State Board for Community & Junior Colleges to continue the licensing for an additional year. CC&JC's are part of the licensing beneficiaries and courses are taught in several workforce development programs.
- [NC] The North Carolina View PI hosted a full-day workshop on "Synthetic Aperture Radar (SAR) and Application" at the 2010 ASPRS annual meeting in San Diego.
- [TX] In August, 2010, internal budgets were altered to include a percentage salary for several key Columbia Center personnel from AmericaView funds. The following activities took place after the adjustment:
 - Charles Ashton manned a booth representing TexasView and the Columbia Center on November 22, 2010 during GIS Day activities the University of Houston Student Center in Houston, Texas.
 - Darrel McDonald spoke at Prairie View A&M during GIS Day activities. His talk included the role of Satellite Imagery in emergency response.
 - Columbia Center manned a booth at the Texas GIS Forum featuring TexasView.

- Johnny Brown spoke to the Forum audience on student training activities at the Columbia Center including the use of remotely sensed data in infrastructure mapping.
- [WI] WisconsinView is a member of the steering committee of the campus-wide Geospatial Coordination working group (formally known as SIAC) at the University of Wisconsin-Madison, and participated in the annual "GIS-Summit", preparation meetings, and subsequent follow-on meetings.

(C-004) Three StateViews have arranged or delivered presentations at planning meetings at local, state, or federal agencies to promote the StateView program and the services provided, for a total of seven presentations. These presentations were specifically tailored to address the utility of remote sensing in planning applications. Highlights follow.

- [LA] LouisianaView sponsored, hosted, and coordinated the state RS/GIS conference and presented the AmericaView and LaView program. The conference was attended by 150 professionals in the remote sensing and GIS fields in Louisiana.
- [OH] Several members of OhioView are on committees with the East Lakes Division of ASPRS. They have made contact and distributed OhioView information to more than 50 individuals through the Ohio GIS conference.
- [WY] WyomingView PI Ramesh Sivanpillai submitted an abstract for a local meeting organized by the UW Haub School of Environmental and Natural Resources that described the utility of Landsat and ASTER data for mapping water bodies generated from Coalbed Natural Gas extraction activities. Dr. Scott Miller, his collaborator, presented this paper in this meeting held in Laramie, WY. Sivanpillai, R., Miller, S.N., 2010. Mapping Small Waterbodies in the Powder River Basin Using Satellite Images. Energy Resources and Produced Water Conference, Laramie, WY.

(C-005) StateViews have engaged in 19 activities to visit agencies and elected officials at the federal, state, regional, county, and district levels. These visits increase awareness of the StateView and AmericaView mission, foster support, and increase the number of partnerships. Highlights follow.

- [AL] AlabamaView developed a relationship with the Alabama Forestry commission to help map invasive species in Alabama using NAIP imagery and hyperspectral imagery.
- [AR] ArkansasView made eight remote sensing-focused presentations to various local, state and federal agencies, including the Arkansas Highway and Transportation Department, Arkansas Natural Heritage Commission, the City of Fayetteville, Northwest Arkansas Regional Planning Commission, U.S. Geological Survey, Arkansas Geographic Information Office, Arkansas Oil and

Gas Commission, and the U.S. Department of Energy. The "Mapping the Ever-changing Landscape" focus has taken root in Arkansas and in 2009 the state legislature passed a General Improvement Funds bills to produce a statewide land-cover map using aerial photography from the USDA NAIP program.

- [CA] CaliforniaView successfully established a working relationship internally between UCD and CAView to effectively inform legislators about the program. CAView met with staffers of three Congressmen and one Senator to present their program.
- [GA] Dr. Seong visited the Center for Disease Control and Prevention in Atlanta on and gave a presentation on "Preparing GIS Data for Noise modeling: Fulton County Case". There were about 15 participants. GeorgiaView Consortium was introduced and various geospatial data issues were discussed. Dr. Seong also presented GeorgiaView to the Atlanta Regional Commission (ARC), the MPO for Metro Atlanta. Since then, Dr. Seong has been developing an MOU to include ARC as a new GeorgiaView member.
- [IN] IndianaView visited with staff from all nine Indiana Congressional offices and both Senatorial offices during the Winter Business Meeting. There was particular interest in the educational activities by IndianaView and AmericaView particularly the AV Earth Observation Day activities.
- [ID] IdahoView continued to lay the groundwork for integration of the project with all other geospatial activities in the state. IdahoView members continued to participate in regional meetings designing state supported regional resource centers. These meetings have involved about ten participants each that come from a variety of different government agencies. The IdahoView PI also communicated about IdahoView in six regional GPS workshops run by the IdahoView coordinator in collaboration with University Extension Foresters. He also spoke on the development of IdahoView in statewide geospatial framework committees.
- [KS] KansasView Coordinator Kevin Dobbs visited members of the Kansas Congressional Delegation during the Winter Business Meeting and has frequently contacted Congressional staff members to apprise them of KSView activities. In addition, he maintains contact with the University Relations office to keep them aware of KSView service to Kansas.
- [MI] The MichiganView PI Dr. Tyler Erickson met with staffers in the offices of Senator Dingel and Senator Stabenow, and described the activities of MichiganView and AmericaView.
- [MT] MontanaView updated MontanaView brochure content and printed and mailed out brochures to consortium members to hand out to colleagues and at conferences, meetings, and related events. The Bureau of Indian Affairs (BIA) based in Billings, MT, and the Montana Natural History Center in Missoula were invited to become active in MTView.

Sommers-Austin talked with approximately 10+ geospatial professionals at the 2010 Intermountain GIS Conference in Bozeman about MontanaView resources.

- [NE] Milda Vaitkus, NebraskaView coordinator, visited the offices of NE Senators Johanns and Nelson, and NE Rep. Terry, meeting with staffers and updating them on NEView and AV activities. She also contacted the offices of Congressmen Fortenberry, Smith & Terry, and Senators Johanns and Nelson to update them on NEView activities and to inquire about the status of National Land Remote Sensing Outreach legislation.
- [NH] The New Hampshire View PI contacted with all three Congressional Representatives (Senators Shaheen and Greg and Congress Woman Shea-Porter) and provided information and the fact sheet about New Hampshire View ongoing activities and sent them a large poster of the NH Landsat image.
- [NC] The North Carolina View PI met with Bradley Ryon, a staff member of North Carolina's U.S. Representative Mr. Walter B. Jones, from NC-3rd district to brief him on the purpose and accomplishments of our consortium and to establish a relationship with Rep. Jones' office.
- [ND] The North Dakota View PI, Brad Rundquist, met Rep. Earl Pomeroy's State Director at the North Dakota GIS Users Conference. Mr. Keys is an alumnus of the UND Geography Department. He was familiar with AmericaView and he expressed an interest in working to help promote the cause of our organization.
- [OH] OhioView performed outreach to federal Congressmen and senator staffers in Washington DC. They personally met with staff from nine offices, left information fact sheet with others to disseminate information on RS/GIS and determine methods to increase awareness of OhioView/AmericaView. OhioView also continued state legislative outreach by meeting with representatives from the Ohio Board of Regents and the Ohio Department of Education to assess the potential for educational programs delivered through multi university and/or virtual methods.
- [PA] The PennsylvaniaView PI Dr. Tom Mueller met with representatives from both Pennsylvania senators and one representative.
- [VA] VirginiaView personnel provided legislative outreach on statewide consortium activities to Senate and Congressional representatives for the Commonwealth of Virginia.
- [WV] AmericaView was included in the formal report to the West Virginia congressional delegation, submitted by West Virginia University as a project that the university strongly supports.
- [WI] The WisconsinView PI, Dr. Sam Batzli, met with staff of Sen. Feingold and Sen. Kohl, both new contacts.

(C-006) StateViews engaged in seven activities to identify internship or exchange opportunities for students or scientists / faculty. These helped strengthen and broaden student educational experiences, and often resulted in employment opportunities. Highlights follow.

- [CO] ColoradoView, with cooperation with Colorado State University's Natural Resource Ecology Lab (NREL), has hired three student interns. The students are: 1) working with scientists from the NREL and the National Institute of Invasive Species Science (NISS; www.niiss.org) to map invasive tamarisk along the Arkansas River in southern Colorado. The goals of this project are to test multi-scene modeling approaches to map tamarisk at local and state scales using the Maximum Entropy modeling software, 2) using Landsat and MODIS satellite imagery to model landscape heterogeneity for Colorado, and 3) assisting with the development and enhancement of the ColoradoView web site.
- [GA] GAView PI Dr. Seong developed an internship program with Aerial Cartographics of America, Inc. (ACA), and Steve Nelson and Associates, Inc. (SNA). ACA is an aerial surveying company and SNA is a geospatial data-processing and engineering company. Dr. Seong also developed an internship with Atlanta Regional Commission, an Atlanta metropolitan planning organization.
- [IN] INView notified the faculty at all consortium institutions about exchange opportunities for internship possibilities. Also information from the Indiana Geographic Information Council (IGIC) and the Indiana Space Grant Consortium is shared with the rest of the IndianaView consortium; IGIC and INSGC are IndianaView partners. Even though IndianaView will not be in a position to provide much help through mini-grants this year, the Indiana Space Grant Consortium, a member institution of IndianaView, is in a position to provide internship possibilities for space based remote sensing activities.
- [LA] Two undergraduate students worked on internships during the reporting period and one graduate student completed his work this semester for these scholarships.
- [NE] The NEView coordinator applied for and received a \$5,000 grant from the NASA Nebraska Space Grant Consortium to fund a student intern for the reporting period. We funded a student until February, but he was unable to complete the internship. Space Grant intern Trisha Larson finished her research project in January and on April 23, 2010, Trisha Larson presented a poster entitled "Integrating Proximal Remote Sensing with In-Situ Measurements to Assess Water Quality" at the annual NE Academy of Science in Lincoln, NE.
- [NH] Two graduate students have had internships during this reporting time. An undergraduate intern was recruited for the summer and continued through the fall.

Internal Vehicles (29 total activities)

StateViews were involved in a range of activities designed to add additional Remote Sensing courses and course material resources. These additional courses broadened the range of remote sensing courses and added depth to the geospatial curriculum at StateView institutions.

(C-007) Software sharing among consortia members comprised nine StateView activities. Sharing licenses helped leverage course costs and resulted in more courses offered at partner institutions. Highlights follow.

- [AR] ARView continued to provide software and facilities at the Center for Advanced Spatial Technologies to ArkansasView members and collaborators. ArkansasView focused on the development of workshop materials for our Object-Based Image Analysis workshop series. They also provided presentations and software for hands-on presentations to the EAST Initiative K-12.
- [GA] GAView purchased PG-STEAMER 4.1 for the reporting period, and nine GVC members have shared the software package. It is currently distributed to GVC members through the GeorgiaView Website.
- [MS] UMGC supported and maintained state licensing program for ESRI, ERDAS, and ITT ENVI software products for Northern Mississippi. The state licensing program saw some changes this year related to the defunding of EIGS. EIGS had been the mechanism through which IHL procured the funding for licensing contracts. UMGC continues to serve as the license “hub” for north Mississippi and supports license administration.
- [NH] NHView provided an image processing license (ERDAS Imagine) to a new faculty member in the Civil Technology Program at the University of New Hampshire. The license allowed the faculty member access to the software for his teaching and also for finishing up the work on his dissertation.
- [ND] NDView is sharing ERDAS IMAGINE licenses with consortium members, most notably Turtle Mountain Community College, but also several academic departments at UND, including Geology and Biology. Students use the software on a regular weekly basis in course work and several students have been using it intensely for thesis work and independent projects every semester.
- [OH] OHView negotiated bulk pricing and changed from single seats to server licenses for software packages. Member universities received necessary software at a reduced price. Several 2-year universities were contacted to be included in the software project. A database of RS/GIS courses offered by member universities has been developed to determine the scope of other potential cost-saving software partnerships that exist within OhioView universities.

- [WV] The West Virginia site license for Imagine was renewed during the reporting period. West Virginia Wesleyan College was added to the program, thus bringing the number of colleges involved to five. The licenses form the core of the remote sensing education at the undergraduate level across the state, and at the graduate level at WVU and Marshall University. The licenses are centrally served by WVU.

(C-008) StateViews were involved in six activities that delivered faculty training activities among consortia members or within their own institution. These training activities, be they formal or informal, increased the number of faculty who are familiar with and capable of using remote sensing in their disciplines. Highlights follow.

- [AR] CAST routinely shares its GPS, RS and other hardware with members of various academic departments. ArkansasView members have provided remote sensing data and/or training to 17 faculty members or students at the University of Arkansas - Fayetteville, the University of Arkansas at Monticello, Arkansas State University, and the University of Arkansas - Little Rock. They also developed a new 2-day object oriented image analysis (OBIA) workshop. This workshop was offered to several graduate students at UA Fayetteville during the reporting period. One of the students enrolled in the June workshop, Aaron Lingelbach, is now a USGS EROS SCEP.
- [NH] The NHView PI supported two faculty members in the Geography Department at the University of New Hampshire in the use of image processing and the use of digital remotely sensed data. He has also been in contact with a faculty member at St. Anselm's College in NH about developing a geospatial information course.
- [ND] NDView provided assistance to the UND Regional Weather Information Center, in LiDAR processing; the UND Energy and Environment Research Center (EERC), with a literature review related to analysis of spatial data uncertainty; the North Dakota Department of Health, with a literature review related to masking spatial data to preserve personal privacy; UND EERC, with LiDAR data acquisition and analysis; and an estimated 10 graduate students in biology, geology, and geography with various GIS data analysis / digital image processing tasks.

(C-009) StateViews were involved in six activities designed to promote collaborative research. Collaborative research leveraged scarce research funding and can broaden project goals and objectives. Highlights follow.

- [AL] Worked with the Alabama Cooperative Extension Service in an effort to map invasive species, collecting ground truth for locations of Cogongrass and Chinese Tallow. They also collected hyperspectral imagery for over 100,000 acres.

- [GA] GAView member institutions worked together to apply for ARRA grants (LiDAR and Airphoto projects). The University of West Georgia, Gainesville State College and University of Georgia received ARRA funding from USGS during the reporting period, amounting to approximately \$1.4 million.
- [ID] IdahoView has initiated more regular communication and awareness of what Idaho Universities and public agencies are using remote sensing for. Maintaining regular communication via telecons, meetings, and a new IdahoView web interface to continue to stimulate cooperation and collaboration. Collaborations have continued across the three primary Idaho Universities and our 3rd Annual meeting was held during the reporting period.
- [MI] MichiganView maintained and augmented the capabilities of it's wiki collaboration website for sharing proposal opportunities, drafting proposals, and general sharing of information resources within Michigan. They also maintained the AmericaView wiki, to promote efficiently share information and promote collaboration among the StateViews. During the reporting period year they also started an experimental group: for distributing information as an RSS or email feed.
- [ND] NDView continued to update their website. Most recently, they added embedded the Geospatial Revolution videos. The listserv has 39 subscribers. It was used numerous times during the reporting period to communicate with members of the NDView consortium.
- [WI] WisconsinView continues to provide MODIS imagery in three band combinations to all AmericaView states.

(C-010) StateViews developed collaborative programs (certificates, transfer agreements, MOUs to support StateView consortium efforts, recruiting consortium members, etc.) through six activities. These collaborative programs supported existing and fostered new research opportunities. Highlights follow.

- [CA] CAView is developing an online remote sensing certificate to enhance geospatial workforce development across the state. This certificate will be available to all StateView members free of charge. From a total of 11 units the certificate comprises, units 1-4 are completed (lecture, lab and narration), while units 4-11 are in progress. CAView is engaging in conversations with other AV member states to get some additional help on reviewing the course content.
- [GA] ARC (Atlanta Regional Commission) joined GAView as a member in spring 2010.
- [NC] Two new members, Appalachian State University and University of North Carolina at Pembroke, have been recruited.

- [ND] The NDView director is working with NDView members at Turtle Mountain Community College to develop an Associate's Degree in Geography (with a focus on geospatial technology). Work is being supported in part by an NSF Advanced Technical Education program grant (\$150,000 over three years). Our NSF grant has been extended for 1 more year, and so it will now expire July 30, 2011.
- [MD] A MOU for membership was completed and distributed to five colleges/universities in Maryland. The MOU was signed by Washington College and the Community College of Baltimore County.
- [OH] OHView has been developing a collaborative program in remote sensing for OHView partners. The effort is being lead by Pete Clapham of Cleveland State University and Kevin Butler at the University of Akron.

Financial vehicles (16 total activities):

(C-012) One StateView obtained a grant for training faculty members in RS technology and applications. Training grants leverage AmericaView base funding for training and development activities.

- [WV] During the reporting period, WVView applied for an extension to our original two-year \$150,000 NSF educational grant. After external review, the extension for an additional six months and \$83,769 was granted. This extension will allow us to teach another cohort of 10 teachers in watershed science and geospatial technologies. West Virginia View both provided the seed money to start this activity, and provided field equipment for the teachers to use in their schools.

(C-013) StateViews were involved in five activities designed to fund training for K-12 teachers. Training K-12 teachers is essential for successful integration of geospatial technology in the classroom. Highlights follow.

- [LA] LAVView continued to explore ways that they might partner with WETMAAP, a USGS and NASA sponsored program working out of Chadron State College and the University of Louisiana Lafayette, Regional Application Center.
- [PA] Pennsylvania View hosted a Remote Sensing Education Workshop at California University of Pennsylvania and via the web. PAVView worked with the Cal U College of Education to put together an application process to select 10 teachers for the workshop. At the workshop, the Pictometry lessons were presented to the teachers, who then created a lesson based on a topic that they currently teach.
- [PA] During the reporting period, PAVView created lesson plans based on LiDAR and Pictometry. These lessons were evaluated by Dr. Jan Smith, one of the preeminent researchers in Geography education. Based on her evaluations,

changes were made to the lessons which were used for the Remote Sensing Education Workshop at California University of Pennsylvania.

- [SD] A four-day Geospatial Technology for Educators workshop was held during the reporting period at EROS. Twelve K-12 educators and one graduate student were in attendance. Each received a GPS unit, a GIS book with software from ESRI, a \$175 stipend, reduced tuition, and other material for classroom use. Remote sensing, GIS and GPS topics were presented by the workshop instructors, including guest lecturers from the City of Sioux Falls and EROS personnel. The educators reported an anticipated impact on 1125 students during the 2010-2011 school year.
- [WV] In support of the 2009/2010 cohort of teachers participating in the NSF-sponsored course, West Virginia provided partial funding for field equipment for 17 teachers to allow them to implement geospatial technologies in watershed projects in their schools across West Virginia. This activity enhanced education at 15 schools across West Virginia, and an impact on at least 450 students.

(C-014) StateViews have been involved in than eight activities to partner with other institutions that sponsor training (Space Grant, Extension agents, insurance companies, 4H, etc.). These partnerships leveraged resources and strengthened the state consortia. Highlights follow.

- [CA] A strong working relationship of sharing resources between CAView and the CA Space Grant Consortium has been established. CAView's coordinator is the Co-Chair the Education and Outreach Working Group of the California Space Grant Consortium. CAView is updating the CA Space Grant Director on a regular basis about AmericaView efforts and involvement in education activities (Earth Observation Day).
- [IA] Presented two workshops on LiDAR. The first workshop was given at EROS at the AmericaView FTM in Oct. 2009 and the second one was given at the MAGIC conference in Kansas City in April, 2010. Thirty people from academic, government and private agencies attended the workshops. The workshops were presented in partnership with the Iowa Space Consortium and state and federal agencies such as DNR and DOT.
- [ID] Key initiatives are currently underway for major state cyber infrastructure investment via NSF EPSCOR. IDView has also identified important related efforts in a "Water of the West" program, the Inland Northwest Research Alliance, the NSF supported CUAHSI network as well as the state geospatial data infrastructure implementation. IDView's coordination of these efforts is critical.
- [MD] The Maryland SATELLITES program was conducted during the reporting period at Towson University. A total of 22 teachers attended the workshop.

These teachers reach approximately 660 students each year. Funding is currently being sought to conduct a 2011 SATELLITES workshop.

- [MS] MSView partners support the statewide high school mentorship program know as the Mississippi Area Remapping Strategies (MARS). The MARS 2010 (Third Generation) program was concluded at a "Wrap-up" meeting during the reporting period at Hinds Community College in Pearl, Mississippi. Students from 13 high schools presented their projects.
- [MT] MontanaView partnered with GeoEssentials, MAGIP, Lewistown and Libby School Districts to provide four trainings and two professional meetings that taught and/or discussed remote sensing and GIS that impacted ~91 professionals.
Sommers-Austin partnered with GeoEssentials for 11 meetings to work on outreach activities and to discuss future remote sensing training and outreach activities to targeted audiences and organizations, especially the planning of a summer teacher institute.
MTView also contacted the Montana Natural History Center in Missoula, and the Big Sky Institute to inquire about possible future project and education collaborations.
- [PA] PAView hosted a GPS event for seven 4-H members of the local 4 - H group in California, PA. It was very well received and they are discussing completing a GPS exercise at the county fair.
For the second consecutive year, PAView and the Pennsylvania Space Grant Consortium collaborated on a Google Earth Competition. California University of Pennsylvania students created Google Earth exercises based on the Pennsylvania state standards. They developed four lessons that were considered publishable and the PA Space Grant provided scholarship money for the top three. These lessons are now available on the PAView website.
- [SD] Three remote sensing and GPS sessions were conducted for high school agricultural students from Beresford and Lennox, SD, at Opportunities Farm near Lennox. Approximately 40 students participated. Geospatial technologies sessions were also conducted on the SDSU campus for six students from St. Joseph's Indian School and ten students participating in the College of Engineering Youth Engineering Adventure camp.
GPS loaner sets were used by a four K-12 teachers. The GPS units were also used by SDSU personnel in the sociology, civil engineering and mathematics departments for mapping projects and a K-12 teacher workshop. Total K-12 impact is estimated to be more than 300 students.

(C-015) StateViews have been involved in two activities that leveraged other projects to get imagery for StateView archives. Leveraging other projects supplemented ongoing efforts by StateView personnel to add imagery to their archives. Highlights follow.

- [SD] The SDView Landsat archive currently holds 705 scenes of imagery. The archive of South Dakota MODIS imagery, acquired via WIView, has (with some exceptions) daily MODIS images available for download for the period of November 9, 2008, to the present. SDView assisted a Ph.D. graduate student in the acquisition of nine scenes of AWiFS data via the MOU with the Food and Agriculture Service, US Department of Agriculture, for a project involving the mapping of crop residue.
- [TX] Remote Sensing data archives at the Columbia Regional Geospatial Service Center at Stephen F. Austin State University and the University of Texas Center for Space Research continue to thrive. Although little AmericaView money goes to support these projects, the contribution is significant. The University of Texas Center for Space Research (CSR) received support from the TexasView consortium to partially support the work of Teresa Howard as TexasView Data Steward. CSR supplements this with funds from other sources to maintain an extensive archive of remote sensing data for Texas. The Columbia Regional Geospatial Service Center at Stephen F. Austin State University maintains the TexasView archives. This work is supported by AmericaView through partial salary support for technical and administrative personnel that are necessary to maintain the archives.

StateView/AmericaView vehicles (29 total activities)

(C-16) StateViews engaged in five activities to share Remote Sensing curricula developed by one StateView with others. Shared curricula reduced the efforts involved in developing new curricula (and supported resources such as lab exercises), that allowed StateView partners to do more with less. Highlights follow.

- [CA] CAView is working actively in the education committee to share educational resources among AV members. CAView will share its Remote Sensing Certificate Program, after completion, with all State Views. The lab section of the certificate program is in the process of being used by PennsylvaniaView. TexasView has also voiced their interest in these materials.
- [CO] COView's online tutorials will be freely available for download on the ColoradoView website, and will thus will be shared with the rest of the AV consortium, in the next reporting period.
- [GA] GAView maintained, on a monthly basis, the online remote sensing course Website. Updated course material and curricula were shared with other AV members through the Website.
- [MD] MDView included the updated remote sensing and digital image processing tutorials with the launch of the revised MarylandView Web site. Work is currently underway to check all links, add graphics, and edit the tutorial pages of the Web site.

- [NC] The NCView PI sent computer-based remote sensing laboratory exercises developed at East Carolina University to South Dakota View for possible inclusion in their curriculum development.

(C-018) One StateView was involved in efforts to develop and submit a multi-state request for regional grants or other forms of support that benefit multiple states. This project leveraged resources and distributed benefits across participating StateViews, strengthened the consortium and provided lessons learned for others to follow. Highlights follow.

- [PA] The Chesapeake View website is now operational. Chesapeake View is a collaborative effort between the following StateViews – West Virginia, Virginia, Maryland, New York, and Pennsylvania. The vast majority of the project funding comes from PAView partners Penn State University.

(C-019) StateViews have been involved in two efforts to develop and submit multi-state requests for topical grants such as invasive species; coastal risk mapping; agricultural pest; curriculum development, training, etc. These projects leveraged resources and distributed benefits across participating StateViews, strengthened the consortium and provided lessons learned for others to follow. Highlights follow.

- [OH] OhioView led submittal of a proposal to NASA and received \$211,225 to host SATELLITES K-12 teacher's institutes in West Virginia, Pennsylvania and Maryland from 2007 to 2009 with an extension into 2010. They trained 19 teachers in Maryland during the summer of 2010 at Towson University and 25 teachers in Pennsylvania at Clarion University in 2009. They trained 21 Ohio teachers and 19 Maryland teachers in the summer 2010.

(C-020) StateViews were involved in nine activities that improved and maintained in-state communications via teleconference, e-mail, stateview meetings and conferences. This regular communication has resulted in improved consortium activity, effectiveness, and grant procurement. Highlights follow.

- [ID] An IDView statewide consortium meeting was held during the reporting period, as well as four additional consortium-wide teleconferences. In addition, the updated IDView web site is now a major communication aide that will be continually updated and enable a stronger connection to the national initiatives.
- [KY] Approximately ten informal meetings between various members took place in conjunction with other activities (meetings) and via email and individual phone calls.
- [MT] Two teleconferences and one face-to face meeting were held with up to seven member organizations participating. Also, regular monthly 'News Updates' were emailed to the MTView Consortium members.

- [NH] The NHView Website has been completed and launched. The NHView PI received extremely positive initial feedback from members. NHView is continuing to add materials to the website.
- [NC] The NCView web site was established and is proving to be very useful as a way to keep NCView consortium members informed.
- [ND] The NDView PI met with five consortium members during the North Dakota GIS Users Conference 2009 meeting.
- [OH] OHView held weekly teleconferences and hosted an OhioView Conference and a membership meeting. Weekly update emails are sent to the membership.

(C-021) StateViews were involved in 12 activities to participate in statewide geographic data committees. Participation in these committees resulted in increased communication and shared ideas and resources. Highlights follow.

- [AL] ALView is a member of the Organizing Committee for the state GIS symposium, the 'Rocket City Geospatial Conference', to be held in Huntsville, AL. Over 200 people attended.
- [AK] UAF/GINA/AlaskaView participated in all scheduled meetings of the Alaska Geographic Data Committee (AGDC) and the subcommittee for orthoimagery and DEMs.
- [ID] IDView investigators have continued involvement in the state framework geospatial data technical working groups as well as the state geospatial steering committee guided by the Idaho State Geographic Information Officer. This has also increased awareness of IdahoView around the state. The IdahoView investigators have also been centrally involved in each of the state supported regional geospatial resource centers that are under planning.
- [KS] KSView representatives have regularly attended GIS Policy Board meetings through the year and have played an active role in promoting KSView at the meetings. The KSView coordinator gave a presentation to the Policy Board on inundation mapping research conducted for the Policy Board.
- [MD] MDView continued to participate in monthly activities of the Executive Committee of the Maryland State GIS Committee (MSGIC).
- [MN] Members of the MNView consortium have been active in the leadership of developing plans for statewide data sets such as NAIP and Lidar. Statewide lidar data acquisition over a several year period is being coordinated by the Minnesota DNR (also a MinnesotaView partner).
- [MT] MontanaView Consortium members attended meetings of MAGIP (Montana Association of Geographic Information Professionals). All five of these members

also attended planning meetings and served as leaders of MAGIP subcommittees to plan such events as the Intermountain GIS Conference.

- [NE] NEView works closely with the GIS Council of the Nebraska Information Technology Commission, formerly the Nebraska GIS Council, and its member agencies. We are actively participating on the advisory committee for the NebraskaMAP Geospatial Data Portal and have been involved in developing the objectives and overseeing the implementation of the program. They are working on identifying and procuring continued funding, and are also active participants in the NE GIS/LIS Association.
- [NC] The NCView PI met with the USGS North Carolina State Liaison, and the North Carolina Center for Geographic Information and Analysis (NC CGIA) Director, during the reporting period. The meeting was set up as an introduction to each other's organization in order to lay the foundation for future cooperation efforts in the state of North Carolina.
- [PA] The PAView PI is a Board Member of Pennsylvania Mapping and Geographic Information Consortium. PAMAGIC's vision is "To provide leadership, coordination, and guidance to enhance the development, use, and access to spatial information and related services in Pennsylvania."
- [WV] West Virginia View continues to serve on the WV State GIS Steering Committee

B. DATA ARCHIVE AND DISTRIBUTION ACTIVITIES (111 total activities)

Develop and Maintain a Remote Sensing Data Archive (46 total activities)

(D-001) 25 StateView members reported progress in developing and maintaining easily-accessible public remote sensing data archives. These archives made access to remote sensing data much easier, resulting in higher rates of data use. Highlights follow.

- [AL] Maintained a database of Landsat, MODIS, NAIP, DOQs, NLCD, and GIS layers, and funded an undergraduate student to download, process, and post the entire Landsat archive for the state of Alabama on the AlabamaView website. ALView is also updating their MODIS pages.
- [AK] GINA / AlaskaView continued to operate MODIS and AVHRR ground receiving stations, and with partnership between NOAA and USGS assisted in the reception and archival of Landsat imagery over Alaska that otherwise would not be collected. Through the AlaskaMapped project, GINA/AlaskaView acted as the primary public archive and distribution point for Alaska's high resolution satellite, aerial photography and DEMs.
- [AR] AR continued to maintain and supplement their archive. Thirty-seven new Landsat scenes, statewide NAIP coverage, and LIDAR coverages over the Bayou Metro area were acquired in FY2009, to be made available as time permits.
- [CA] A strong collaboration between CA Resources Agency and CSTARs (Center for Spatial Technologies and Remote Sensing) enabled the continuous maintenance of the archive.
- [GA] GeorgiaView continued to maintain a remote sensing data archive, utilizing both a GeorgiaView implementation of GloVis (for Landsat images) and static search pages (ASTER images). GloVis and the ASTER search tools allowed users to identify useful data quickly; at present, Landsat data is distributed through their GloVis implementation and ASTER data is distributed through links on the static search pages.
- [HI] HIView continued to make Landsat, ASTER, MSS data available via the HawaiiView implementation of GloVis.
- [ID] A framework has been developed for systematic storage of remote sensing imagery in the state geospatial repository (INSIDE) using FGDC metadata standards. The IdahoView web site was updated in collaboration with INSIDE Idaho, making it easier to access and utilize.
- [IN] Eleven new Landsat 5 and 7 images and 120 ASTER scenes were added to the IndianaView GloVis server. All bands of the Landsat images are in one geotiff

formatted file. The ASTER scenes are in hdf format. Most of the image data in the IndianaView GloVis server are stored on TeraGrid (NSF funded); the linkage to these data was successfully upgraded during the summer to a new data management system. Consortium partner Indiana University, which makes the aerial orthoimagery available on their spatial data server, is working to make the 2010 Indiana NAIP data available on their spatial data server.

- [KS] KSView continued to maintain their web site, performing a major update to include interactive viewing of their flood inundation extent database, which was created with support from AmericaView and the KS GIS Policy Board.
- [LA] LAView worked with the USGS National Wetlands Research Center to archive 4TB of imagery and prepared their site for new datasets.
- [MI] MichiganView continued to maintain an online public archive of Landsat and NAIP data. During this time period they acquired the 2009 NAIP data, which they are making available.
- [MT] NRIS (Natural Resources Conservation Service)/MT State Library employees and members of MontanaView reviewed and updated the accessible archive collection.
- [NE] NEView continued to maintain an archive of remotely sensed imagery that is served through the NEView website.
- [NH] NHView shared high spatial resolution digital orthophotography of southeastern NH and the Lakes Region with their partners. In addition, new digital orthos were acquired and plans were made to acquire LiDAR data. They also extracted specific dates and areas of Landsat imagery for their GLOBE Training partner. The images were provided to teachers in five schools and impacted over 300 middle school students.
- [NC] NCView is currently developing a remote sensing data clearinghouse for remote sensing users in North Carolina with the assistance of the Renaissance Computing Institute (RENCI) at East Carolina University (ECU). Users will be able to access the data clearinghouse through the NCView website and will be able to locate and download data directly from the clearinghouse.
- [ND] NDView recently installed a new server that contains remote sensing data and other miscellaneous GIS data for North Dakota. The data is available via the NDView web site. They also have added LiDAR data for selected areas of eastern North Dakota, as well as 2009 4-band NAIP imagery.
- [OH] OHView continued to enhance their website, adding and refining content on a regular basis throughout the grant year. They are working towards a site that will engage students, teachers, and anyone else interested in RS/GIS as well as be an easy source for publicly accessible data.

- [PA] The PAView webmaster restructured the PA View website, making it easier to use.
- [SD] The SDView Landsat archive currently holds 705 scenes of imagery. The archive of South Dakota MODIS imagery, acquired via WIView, has (with some exceptions) daily MODIS images available for download for the period of November 9, 2008, to the present. Several years of NAIP imagery are also available for download from the South Dakota Geological Survey archive via the SDView website. The imagery is available for downloading in GeoTIFF format.
- [TX] The TXView archive continued to provide free access to remote sensing data for Texas. During this grant year, the 2009 NAIP County Composite and quad-based data for all of Texas were added to the archive. In addition, work is underway to add the 0.7 meter raw imagery from which the 2009 NAIP data to the archive. Texas Today continues to acquire and archive a daily Aqua and Terra MODIS image for Texas.
- [WV] WVView will continue to maintain their web site, the largest single source of Landsat imagery of West Virginia. The site continued to see a lot of traffic, despite the availability of free data from the USGS. In part this reflects their provision of data in convenient format (e.g. Imagine format), and also their preparation of county-level data sets. In addition, they are increasingly providing Lidar data.
- [WI] WIView continued to provide online access to core remote sensing imagery. In addition, the 2010 NAIP Statewide 1-meter imagery was posted to the WisconsinView FTP servers for public download. In this grant year the number of registered users topped 9,700.
- [WY] WYView continued to maintain its data archive consisting of Landsat and ASTER images. WYGISC is transitioning its data to a new version of data and image serving software.

(D-002) 13 StateViews continued making remote sensing data available at low or no cost. Freely accessible data removed a previous barrier to use in education, applied research, resulting in higher use rates and more applications.

- [AR] Through the support of AmericaView and the Arkansas Geographic Information Office (AGIO), ARView continued to make their remote sensor data archive publicly available at no cost. The Center for Advanced Spatial Technologies maintains a full Landsat 4,5,7 archive. The Arkansas Geographic Information Office (an ArkansasView collaborator) maintains their downloadable (clip and ship) spatial data warehouse.
- [HI] HIView data are available at no cost (see D-001).

- [MD] MDView is currently developing a mechanism to make their Landsat data library available for free download via the MarylandView Web site.
- [MI] MIView continued to maintain an online public archive of Landsat and NAIP data. During this time period they acquired the 2009 NAIP data (both compressed county composites and uncompressed quarter-quad datasets), and are working to make these available. NAIP 2005 and NAIP 2006 county composites are currently downloadable from the MichiganView website.
- [NE] NEView continued to provide easy access and free data (Landsat imagery, FSA DOQQs, DRGs) through the NEView web site.
- [ND] NDView data is stored on their server and will be freely available to the public through an ftp site linked on the NDView web site homepage. They are processing LiDAR point clouds into normalized terrain models for free distribution.
- [OH] Several pieces of hardware were replaced and the OhioLink libraries and OHView continue to partner with OhioLink to bridge Landsat images.
- [TX] TXView provided remote sensing data free of charge to the general public through the TexasView Archives at the Columbia Center and the mirror location at the University of Texas Center for Space Research.
- [WV] With the exception of commercial imagery, all WV View is available at no cost.
- [WI] WIView continued to make the WisconsinView data archive available at no-cost.
- [WY] WYView continued to provide existing and new Landsat and ASTER data at low or no cost. Students and researchers want WYView to maintain the archive for the ease of locating data and obtaining it in ready-to-use formats (GeoTIFF and ERDAS).

(D-003) Seven StateViews worked to generate user-friendly formats (GeoTIFF, Jpeg and others) to accommodate a wide variety of users. These formats allowed uses of the data by inexperienced users and/or users who do not have access to certain types of software.

- [AL] An undergraduate student is downloading the entire Landsat archive and processing to GeoTiff format. Several Path / Rows were done this year out of a total of 11 scenes. The next step will be to post the latest dataset for free download.
- [HI] HIView is making Landsat and ASTER data available in Geotiff format.

- [MD] MDView clipped Landsat and other geospatial data by counties for use by K-12 teachers (similar to the small area clips of Landsat data provided by the Globe Program) in geotiff format for use with MultiSpec, ArcGIS, and other software. They are currently making this available on their new web site.
- [NE] NEView downloaded 16 Nebraska Landsat images, 32 FSA DOQQs and 4 DRGs to the NEView website. Many of these images were converted from NLAPS/raw formats into other formats (.img. .jpg.,etc.) and/or clipped to specific areas of interest to meet the needs of the users requesting data.
- [WV] WVView maintained a popular county-level series of user-friendly jpeg format satellite images of West Virginia.
- [WY] WYView obtained more than 40 Landsat images that were not available in the present archive from UW students enrolled in Remote Sensing for Agricultural Applications and Independent study courses. These images are in ERDAS Imagine format, and currently WYView is performing QA/QC on the image files before adding them to our archive.

Archive Growth (26 total activities)

(D-004) Nine StateViews added new images to their archives through sharing arrangements either within their consortia or among StateViews, resulting in more freely available data for the larger user community.

- [CA] CAView acquired and added NAIP imagery to the State archive through a Collaboration with the CA Resources Agency.
- [GA] GAView data were centralized with a new hard disk purchase. 5 GB of PALSAR images were added to the archive.
- [MN] MNView is developing ways to disseminate Landsat-derived data, particularly classifications of land cover, impervious surface area, and lake water clarity.
- [MT] NRIS (Natural Resources Conservation Service)/MT State Library have the MontanaView imagery download site connected via weblinks to GLOVIS and the University of Maryland's Global Landcover Facility.
- [NE] NEView added 792 additional MODIS images to the NEView archive, courtesy of WisconsinView. They also added 3.5 GB of MODIS images.
- [NH] All Landsat Thematic Mapper imagery of New Hampshire with cloud cover of less than 20 percent was successfully downloaded. The imagery was converted to ERDAS Imagine .img files and was distributed to NHView partners upon request.

- [ND] NDView added 2009 4-band NAIP and some processed LiDAR data. They continue to ingest and archive MODIS data from WIView.
- [WI] WIView added online access to 1-meter Wisconsin NAIP GeoTIFFs in WTM (Wisconsin Transverse Mercator) projection. The data was provided by WisconsinView consortium member USDA - Wisconsin Farm Service Agency.

(D-005) Four StateViews leveraged other projects that purchase data as a source for their archives. Leveraging saved limited funding, and resulted in additional freely available data.

- [LA] LAView worked with the Louisiana National Guard and the State Department of Homeland Security to acquiring 2009-2010 winter (leaf-off) coverage for Louisiana imagery and add it to the archive.
- [MN] MNView obtained Statewide Landsat TM/ETM+ data for summer 2008 for use by research projects at the University of Minnesota. Although they are de-emphasizing archival of Landsat data, the availability of these data for potential use by other organizations was provided on the MinnesotaView website. The priority objective, however, is to dissemination Landsat-derived products for Minnesota landscapes and lakes.
- [NC] NCView completed the testing of their new data-download site. The major datasets now provided are JERS-1 SAR and ALOS SAR, and optical data for the coastal areas of North Carolina, none of which are available for free from other websites.

(D-006) Seven StateViews collected free Landsat, ASTER, MODIS, or other data from existing web sources. Having redundant data available for free can save time and effort for those who primarily access data through StateView archives.

- [AL] An undergraduate student funded by ALView downloaded and processed the entire Landsat archive for the state of Alabama, making it more easily available. ALView is now working on posting the data on the AlabamaView website.
- [KY] Morehead State University has nearly completed uploading (offline) to the KyView website jpegs of all relevant Landsat TM imagery for the state. Approximately 1050 jpegs have been uploaded so far. A website interface and GloVis-based tutorial have been created to assist users in searching for available/relevant imagery of Kentucky.
- [MD] MDView installed the FTP download software for MODIS data and are building an archive of MODIS data provided by WisconsinView. Approximately 5 GB of data were downloaded during the reporting period. MDView also acquired Landsat 5 imagery for Maryland for April 2010 (spring, leaf-off imagery).

- [NE] NEView added six Landsat imagery to the NEView archive obtained from the USGS site for clients who do not have the capability to obtain or process it for their particular application.
- [TX] 188 MODIS images were collected during this performance period. The number is reduced by an anomaly that caused the loss of data between Oct 31, 2009 and April 23, 2010. The anomaly has been corrected and the system is archiving daily Aqua and Terra images again. These data are downloadable for free from the TexasView website along with the rest of the TexasView Remote Sensing Archives.
- [WI] WIVView continued to collect daily MODIS imagery from Aqua and Terra through their Direct Reception Facility at UW Madison. They are also processing historic MODIS imagery. Now mapservices are dynamically created on demand for any image collected between 2003 and the present.
- [WY] WYView continued to download no-cost ASTER data for Wyoming from the USGS Data Pool site. These datasets are available on a moving window basis – images for the past 24 months are available. ASTER images complement Landsat images by providing additional spatial resolution (15m ASTER vs. 30m Landsat). During this funding cycle WYView downloaded ASTER data for part of 2008, all of 2009 and part of 2010.
Also, UW faculty and research scientists have expressed interest in working with MODIS imagery – for assessing the bark beetle infestation spreading through the Medicine Bow National Forest. WYView downloaded MODIS data (8-day composites of surface reflectance) for 2000-09, and converted them from hdf format to ERDAS Imagine format.

(D-007) Five StateViews were involved in hosting data sets for StateView partners. By sharing archives, data is more consolidated and therefore easier to search, browse, and access. Highlights follow.

- [AL] ALView is sharing the 2009 NAIP imagery on ALWRIC link on AlabamaView.
- [IA] The State of Iowa acquired LiDAR data for the entire state and it was added to the IowaView web-portal for hosting. Several improvements were made to the web portal including additions of a metadata section and derived products. Iowa is the first state in the nation to provide such an interactive state-wide LiDAR dataset to the public. In 2010 alone, over 10 terabytes of data were downloaded from our web portal.

(D-008) Two StateViews brokered data purchases. Brokering data purchases leveraged funding and resulted in additional freely available data.

- [AL] ALView participated in CIR buy-up for the 2009 NAIP imagery and are sharing the data for free via the ALWRIC link on AlabamaView in partnership with the Alabama Cooperative Extension Service.
- [ID] At IDView, the state framework imagery technical working group is currently coordinating NAIP imagery purchases and contributions from groups around the state.

Data Processing, Distribution, and Improving User Interfaces (4 total activities)

(D-011) Three StateViews continued development of existing html, ArcIMS, or MapServer map-interfaces for finding data within their archives. These tools extended the utility of StateView archives and made data easily available to a large and diverse group of data users.

- [ID] IDView continued to develop a web interface for accessing image data, and the new site was launched during this grant year. They expect to continue to evolve and expand the IdahoView web site indefinitely and it will be a central task of the IdahoView coordinator to maintain the web site.
- [MD] MDView refined their OpenLayers and Google Maps Application for the MarylandView Web Site. A Google Maps application was developed showing all current AmericaView members with links in the information window. The ArcGIS API for Flex application was demonstrated at the grant year 2009 Fall Technical Meeting.

Ground Station or Airborne Operations (10 total activities)

(D-012) Four StateViews were involved in activities to receive, capture, process, and distribute satellite or airborne data. These partnerships strengthened the StateView consortia and helped to maintain critically important knowledge with the larger AV consortium.

- [AK] UAF/GINA/AlaskaView added dozens of new images daily to its free archives through X- and L-band ground station operations. 18,856 AVHRR scenes and 6,334 MODIS (Aqua/Terra) scenes were added to the public archive during the reporting period for a total of 84GB of new data.
- [AK] UAF/GINA/AlaskaView continued to be a partner in the capture Landsat 5 data for Alaska. In a three party partnership, the NOAA/NESDIS Fairbanks Command and Data Acquisition Station captured Landsat 5 data in the summer season; UAF/GINA/AlaskaView transferred the data to USGS/EROS where it was processed and archived. Additionally, NOAA/NESDIS/FCDAS works in partnership with UAF/GINA/AlaskaView to capture, process and distribute additional satellite data, including DMSP, AVHRR, and MODIS. End users

include weather forecasters, emergency responders, marine users, and scientists in support of field operations.

- [AR] The Departments of Geosciences, Entomology, Anthropology, and the Center for Advanced Spatial Technologies at University of Arkansas continued to conduct research using ArkansasView-supported RS equipment including the TerraHawk imaging system and an ASD FieldSpec Handheld spectroradiometer. During the reporting period, the TerraHawk imaging system was used by ArkansasView faculty and students in conjunction with the Department of Plant Pathology to image soybean blight in SW Arkansas. In particular, this use of the instrument provided valuable experience in the cockpit for one graduate student, Aaron Lingelbach, who is now a USGS EROS SCEP. Also during the reporting period, ArkansasView program director, Bruce Gorham, made some technical adjustments to the TerraHawk system.
- [IN] INView continued to maintain the near-real time MODIS and GOES data from the Purdue Terrestrial Observatory that is currently available, albeit in a reduced capacity, via the subscription service named PRESTIGE.
- [MI] MIView received, processed, and distributed satellite and airborne data. Current and recent images were made available on the MichiganView site, as downloadable images and a time series viewable in KML-complaint browsers (such as Google Earth). Daily MODIS subsets of Michigan are featured on the home page, with links to archived images, courtesy of WisconsinView.

(D-013) Four StateViews were involved in activities to develop near real-time collaborations with emergency responders. These activities are increasingly important as the number of natural and man-made disasters appears to be rising in intensity and in terms of economic impacts.

- [AL] This year ALView worked with stakeholders on a project to map critical infrastructure on the Gulf Coast of Alabama for utility companies and city and county stakeholders to be shared via Virtual Alabama to speed recovery processes after tropical storms.
- [AK] UAF/GINA/AlaskaView operated two ground stations and provided data in near-real-time to users such as the USGS/UAF/DGGS Alaska Volcano Observatory and BLM Alaska Fire Service. UAF/GINA/AlaskaView added a new public interface for browsing real-time fire data feeds in the form of a Google Map interface on the GINA HUB site. This interface also provides a REST interface to the fire point data, providing yet another simple feed for data consumers.
- [AR] ARView worked with the Arkansas Game and Fish Commission to capture images of flooded Wildlife Management Areas. It is their intent to extend such services to other agencies. They have also worked with partners in agriculture on the rapid collection of aerial imagery for mapping and monitoring crop disease outbreaks. ArkansasView also hired a pilot and sent a graduate student, Aaron

Lingelbach (who is now a USGS EROS SCEP), to operate the TerraHawk sensor in order to collect data on soybean disease in SW Arkansas and then subsequently provided the imagery to the Department of Plant Pathology.

- [HI] Following their efforts of last year, a post-doc under the HIView PI worked with the USGS Hawaii Volcano Observatory to integrate near-real-time remote sensing products into the USGS VALVE data stream. Near-real-time MODIS derived products (location and energy radiated by active lava flows at Kilauea volcano, Hawaii) are now made available to the Hawaii Volcano Observatory. The location and emitted energy from the flows are obtained from the MODIS data (using an algorithm described in a paper currently in review) and made available in a format that can be ingested alongside the HVO's other geophysical data sets.

(D-014) One StateView was involved in developing near real-time data collaborations in support of field operations. This collaborations strengthened StateView consortia and added depth and experience to the larger AmericaView consortium.

- [WY] The WYView PI attended the Program Manager training for the International Charter on Emergency and Disaster Response. As a result, the PI is now available to serve as a project manager if required.

Collect Metrics about Data Distribution (25 total activities)

(D-015) 13 StateViews maintained or improved their ability track the number of visitors and page views per month and per reporting period through installing or configuring a mechanism for reading web access logs for tracking web usage. Tracking web traffic provides useful information on the number of users and can be used to track changes in archive access over time.

- [AL] ALView utilized Google Analytics for web site metrics.
- [AK] The primary website for GINA/AlaskaView continued to have steady traffic, averaging over 2,500 visitors per month generating approximately 5,100 page views per month.
- [CO] COView tracked web traffic using Google Analytics and services provided by a web hosting company. Web visitation has been low, with less than 200 visitors during the past 6 months.
- [GA] GAView implemented a new mechanism for collecting download statistics with PHP and MySQL. The new applications allow the StateView PIs to retrieve download statistics off the Web in a table format. They also implemented Drupal for the new GaView Website, allowing them to check visitor access information accurately.

- [IN] INView is now using Google's Urchin to get web statistics on the IndianaView (and GloVis data portal) web site; this is the web statistics service that the web server farm which hosts the web site has implemented. The average number of visits and page views during the grant year was 1,472 and 5,225 per month, respectively.
- [MD] MDView used Statcounter and Google Analytics reports to evaluate the effectiveness of their web site. The results of this effort are being used to update the site.
- [MI] Google Analytics was used to collect page view information.
- [MN] MNView has been collecting web usage statistics since their website was implemented.
- [TX] Web metrics and usage continues to be monitored and reported.
- [WV] West Virginia View used the FastStats web log analysis program to generate statistics on the volume of data downloaded, and the number of visits and page views. Web site tracking software indicates high usage, and sustained download activity.

(D-016) 10 StateViews collected information on the volume of data downloaded (number of scenes and number of Gigabytes of data), and the type of data downloaded (Landsat or air photo, etc.). Information on the volume and type of data provides insight into how the data are being used.

- [AK] Traditional Landsat and air-photo downloads via the SwathViewer (AmericaView funded java application) of 673 datasets delivered 160 GB of data through the reporting period. The new AlaskaMapped interface tracked 4,450 datasets downloaded. The WMS and tile based services has continued to grow with over 1.5 TB of data delivered via WMS and another 196 GB of tiles delivered to 12,000 different users.
- [GA] GAView user data input forms were modified along with MySQL database during the reporting period. Users need to provide information to download datasets from the GeorgiaView Website.
- [IA] The ArcGIS server interface was enhanced to include a user specified download tool. Now, the user can download the data by county, city and watershed. In order to track web traffic, IAView implemented Google Analytics.
- [MD] MDView evaluated several tools to track data downloads from their web site. They are currently determining which tool would work best with the way they have configured data for download.

- [ND] NDView developed a new data logging system, but their system architect recently graduated.
- [WV] WVView used the FastStats web log analysis program to generate statistics on the volume of data downloaded (number of Gigabytes of data and estimated number of scenes), including total volume of data.
- [WI] WIVView continued to collect and map user metrics for their registered data users. Results were grouped by Congressional district for reporting to Congressional staff as in previous years. WisconsinView's registered data user count topped 9,000 during the reporting period.
- [WY] WYView continued to report data usage and download statistics, using the information during their Congressional outreach and other promotional meetings. Since they provide data on an individual basis (requests are received via email), they are able to compile data download statistics.

(D-017) Two StateViews developed a web-form, php/MySQL database, or other method to collect user type, organization type, user e-mail, and Zip code. These types of user data are very valuable as a means to better understand the data user community, ultimately to improve StateView data archives.

- [AK] University and state of Alaska organizations lead the known user categories.
- [GA] GeorgiaView collected download statistics using a PHP/MySQL application that was implemented during the previous reporting period (grant year 2008). They updated their download forms during the current grant year to make it more sophisticated and complete.

(D-018) One StateView was involved in requesting web metrics and developing protocols for collecting referral and data download statistics. This information is useful in tracking annual web site use and changes in use over time.

- [ID] Given delays in web site development, IDView web site access counters were in partial development during the reporting period. IDView partner INSIDE established counter tools related to remote sensing data accesses.

C. EDUCATION ACTIVITIES (96 total activities)

Support Additional Remote Sensing Courses and Resources (28 total activities)

(E-001) StateViews engaged in three activities that shared software licenses among academic member institutions within their respective states to support remote sensing courses and research. Sharing arrangements facilitated the availability of remote sensing laboratory instruction in colleges and universities that would not otherwise be able to offer these valuable experiences. Highlights follow.

- [GA] GeorgiaView shared a PG-STEAMER 4.1 license with consortium members through the GeorgiaView Website. The software package has been used for Remote Sensing, Image Processing, Airphoto interpretation, and Photogrammetry courses.
- [ND] North Dakota View shared a 30-seat ERDAS IMAGINE license academic partners, including Turtle Mountain Community College (a Native American Community College) and the Geology and Biology departments at UND.
- [WV] West Virginia View coordinated a statewide Erdas license purchase, as well as the serving of the licenses from a central location. West Virginia Wesleyan joined the program this year; now 5 colleges (60 licenses) are shared across West Virginia colleges and universities.

(E-002) StateViews engaged in four activities that shared course materials developed at one university with others. Shared materials saved valuable time and effort, strengthened existing course offerings, and may have led to the development of new courses that would not otherwise be possible. Highlights follow.

- [CA] Online remote sensing course materials developed previously by four State Views (CaliforniaView, GeorgiaView, IndianaView, and IowaView) were shared with PennsylvaniaView and TexasView to enhance development of the online remote sensing certificate program.
- [GA] Based on the online course material for AmericaView University developed previously, GeorgiaView posted all source documents at www.avuniv.org. Documents available are syllabus, exercise material, lecture PPT files with notes, and assignment source files. GeorgiaView promoted the use of the material and collected more material from AmericaView colleagues.
- [PA] Several years ago, Dr. Jay Morgan, the PI from Maryland, created a set of lessons called the Mid – Atlantic from Space, which were based on Maryland state standards. These lessons used a now defunct software package called Map Viewer. Pennsylvania View worked with Maryland View on reworking these lessons using Arc Explorer and other free software packages based on Maryland and Pennsylvania state standards. Pennsylvania View has also been contacted by Pictometry to help create University Lessons using Pictometry On-Line.

- [WV] Remote sensing laboratory instruction material was made available without restriction to West Virginia View partner institutions. This is an important companion to the state-wide Imagine license agreement, and has resulted in the teaching of remote sensing laboratory work at Marshall University, and at Davis and Elkins College.

(E-003) StateViews were involved in 12 activities to utilize data from StateView archives for teaching purposes. Using data for teaching purposes strengthened course content and built processing and analysis skills. Highlights follow.

- [AR] Dr. Jason Tullis used RS images from the ArkansasView archive in his classes, creating and updating 7 exercises for 3 courses, including Principles of Remote Sensing, Remote Sensing of Natural Resources, and Vector GIS. These are now shared with partner institutions. Bruce Gorham, ArkansasView program coordinator, used Landsat imagery from the archive in his eCognition workshops.
- [CA] CaliforniaView archive data was used in the two undergraduate and graduate student lectures prepared by PI Dr. Susan Ustin.
- [GA] Dr. Seong at UWG used GeorgiaView datasets for his university courses, including Introduction to GIS and Mapping Sciences, Geographic Information Systems, Advanced GIS and Spatial Analysis, Introduction to Remote Sensing, Introduction to Image Processing, Airphoto Interpretation and Photogrammetry, and Computer Cartography. Dr. Seong also supported students who used Landsat imagery to analyze the recent Georgia wildfires in his online Image Processing course.
Dr. Patterson at KSU used GeorgiaView data for numerous courses including Advanced GIS, Remote Sensing and Directed Applied Research. Several students have presented their geospatial projects at a student symposium at KSU.
- [HI] Remote Sensing workshops held in collaboration with Na Pua Noevau (Center for Gifted Hawaiian Children) and workshops held as part of Astronaut Lacey Veach Day used HawaiiView data sets.
The Lacey Veach Day event used remote sensing data to provide geographic context for a geocaching "ground validation" exercise. Approximately 50 students (and parents) attended the event.
- [IN] Image data for Indiana were downloaded for graduate-level remote sensing classes taught by Prof. Melba Crawford (Dept. of Agronomy/Assoc. Dean of Engineering) and Prof. Guofan Shao (Dept. of Forestry & Natural Resources), representing around 25 students. Prof. Okan Ersoy (School of Electrical & Computer Engineering) was also informed that the IndianaView GloVis portal is a source for data for projects.

- [MT] MontanaView integrated Landsat, AeroCam, and MODIS imagery into the lesson plans for 3 trainings and 2 workshops undertaken across the state for workforce personnel and K-12 educational programs, as well as university research.
Furthermore, MontanaView imagery was used by Professors Rick Lawrence, Anna Klene, and Xiaobing Zhou in their remote sensing and other geospatial courses at Montana State University, University of MT, and Montana Tech respectively. They also encourage using the data archive for research applications. These data greatly enhanced the students' ability to complete term projects in a timely manner because the data was already formatted for ready use with available software.
- [NE] The NebraskaView coordinator acquainted precision agriculture UNL Agronomy & Horticulture Department faculty with NEView during an informal meeting. She also made them aware of the Landsat archive and image services provided by NEView. She also provided faculty from NEView consortium partner Wayne State College (Wayne, NE) with 3 historical Landsat images for classroom purposes. This service is frequently promoted through the NebraskaView listserver.
- [NC] North Carolina View replaced the datasets used in instruction and laboratory assignments in remote sensing courses with datasets within the state or region. The course revision will occur at the member universities of NCView. For example, there are multi-temporal remotely sensed datasets available for coastal areas of NC, and they can be easily incorporated into instruction materials in classroom and computer laboratory instructions and assignments in coastal and/or shoreline changes. North Carolina View also supported a remote sensing s/w license for UNC Pembroke, and acquired World View - 2 data for a coastal study.
- [SD] Landsat and MODIS imagery from the South Dakota View archive was used extensively in GIS and Soil Science courses. The data were also used during a Geospatial Technology for Educators workshop and at Sisseton Wahpeton Tribal College in conjunction with a summer water quality monitoring project.
- [WV] The West Virginia View image archive continues to be used to support WVU and Marshall University remote sensing and GIS courses. The archive is also used in all WV GLOBE and NSF, and other land cover workshops. The archive was used extensively by the students in the Advanced Remote Sensing class (Geog/Geol 755) by 5 students.
- [WY] Drs. Driese and Sivanpillai taught 4 remote sensing courses, and Drs. Prager, Miller, and Oakleaf together taught 5 GIS courses annually. Data from WyView archive was extensively used by these instructors for teaching. Sivanpillai continues to provide technical support (merging or sub-setting images)

to UW instructors. Drs. Driese and Sivanpillai continue to use Landsat and ASTER data from WYView archive for their teaching purposes.

(E-004) StateView were involved in two activities to fund a remote sensing short course. Short courses provided professionals with a quality educational experience in a limited time-frame, and allowed them to efficiently maximize their time and effort. Highlights follow.

- [LA] LouisianaView and the USGS National Wetlands Research Center continued to sponsor their free annual workshop entitled, “2009 Louisiana Hurricane Season National and Local Geospatial/Imagery Data Availability: Data Mining Workshop”. This (grant) year’s workshop had 42 attendees, including local and state government, private agencies and educators interested or working in emergency response.
- [PA] California University of Pennsylvania GIS Club participated in a Remote Sensing Workshop using the America View Virtual University course. This course utilizes PG – STEAMER software. This workshop gives Cal U students an opportunity to learn about remote sensing since at this time there is not a course in the curriculum in this particular area. The PG-Steamer software was purchased and PAView had 3 students complete the workshop, while 10 other students will complete the workshop in the summer.

(E-005) StateViews were involved in five activities to delivered guest lectures on remote sensing for non-remote sensing classes and workshops to promote the utility of remote sensing within other disciplines. These lectures provided an important outreach element to non-geospatial disciplines, informing the audience about the benefits of remote sensing in a variety of disciplines. Highlights follow.

- [GA] Dr. Mohammed R. Mehdi from Pakistan delivered a guest lecture, “Pakistan: Its Land and People”, at the University of West Georgia. Dr. Mehdi used remote sensing technologies in noise and health research at NED University, Karachi, Pakistan. 74 college students and faculty attended the presentation.
Dr. Patterson delivered four guest lectures at Kennesaw State University on the use of geospatial technology and the GeorgiaView archive in examining social issues. Approximately 150 students attended the presentations.
- [IN] Larry Biehl and Professor Jie Shan (Purdue U 's School of Civil Engineering-Geomatics) presented on remote sensing, flood monitoring and IndianaView at the Indiana Geographic Information Council 's (an IndianaView partner) Fall Regional Dinner Meeting. 35 people were in attendance.
Larry Biehl presented a lecture for a graduate course on the use of digital remote sensing techniques and geographic information systems for renewal natural resources using MultiSpec for Professor Guofan Shao. Mr. Biehl also discussed sources for remote sensing image data including the IndianaView data portal. There were 10 students in the class.

- [NE] Dr. Jim Merchant delivered a lecture that included applications of remote sensing to fisheries, wildlife, forestry, grasslands, climate, and water science to 30 undergraduate students in an introductory Natural Resources course. NebraskaView coordinator Milda Vaitkus provided an orientation to three UNL Extension deans on NEView and applications of geospatial technologies to Extension Action Plans and Signature Outcomes.
- [NH] The NH View Director, Dr. Russ Congalton, presented two lectures. The first lecture was for an undergraduate introductory natural resources course and provided the basics of remote sensing and geospatial technologies for natural resource applications. Approximately 40 students were in attendance. The second lecture was presented in a graduate course on research methods and introduced the use of geospatial technologies in support of graduate research projects. Approximately 25 students were present.
- [WY] During this funding period, Sivanpillai presented five guest lectures in Agroecology, Earth System Science and Geography courses.
 - Sivanpillai, R., Remotely sensed data for agricultural applications. *Guest lecture* presented in AECL4900: Agroecology Capstone Seminar on March 23, 2010.
 - Sivanpillai, R., International Charter for Space and Major Disasters. *Guest lecture* presented in BOT/GEOG 3150: Survey of Remote Sensing Methods on March 11, 2010.
 - Sivanpillai, R., Introduction to remote sensing and GIS. *Guest lecture* presented in ESS 1000: Wyoming in the Earth System on November 16, 2010.
 - Sivanpillai, R., Remote sensing data acquisition and characteristics. *Guest lecture* presented in GEOG4200: Introduction to GIS on November 4, 2010.
 - Sivanpillai, R., Remotely sensed data for agricultural applications. *Guest lecture* presented in AG1010: Computers for Agriculture on October 28, Laramie.

Training Programs for Current Workforce (28 total activities)

(E-007) StateViews were involved in 10 activities that prepared and delivered short courses for government agencies, private companies, extension agents, private citizens, and students. Short courses provided professionals with a quality educational experience in a limited time-frame, allowing them to efficiently maximize their time and effort. Highlights follow.

- [AK] The UAF/GINA/AlaskaView training lab hosted 8 multi-day specialized courses including SAR data tools training, CAD, ENVI and GIS workshops, a summer research academy, and ESRI ArcGIS courses. Free or discount seats were made available to university students. The lab also provided a successful teaching environment for 5 university courses ranging from high level (Visual and

IR remote sensing) down to basic courses (Introduction to GIS) for undergraduates.

- [AR] ArkansasView began developing a short course titled "GPS methods for rapid ground reference data collection for RS image classification". Portions of the course are being used to instruct graduate students from various departments at the University of Arkansas, including Geosciences, Biology, and Anthropology.
The Introduction to eCognition workshop has now been expanded to an 8 hour course. The 4 hour course was delivered at the 2010 FTM in Madison.
- [CO] Three tutorials were developed by ColoradoView interns. These will be evaluated by fellow undergraduate and graduate students in a classroom environment. They include: 1) downloading free Landsat from the USGS GLOVIS website; 2) creating multiple scene mosaics; and 3) clipping mosaics to a defined study extent (i.e. Colorado). In addition, students are currently completing tutorials on creating tasseled cap transformations, normalized difference vegetation index (NDVI), and soil adjusted vegetation index (SAVI). Students have also compiled a Landsat library of monthly scenes for Colorado.
- [GA] Dr. Seong gave two 5-day GIS workshop for the Georgia Department of Transportation. Seventeen agency personnel participated. Mapping, basic and advanced, with vector and image datasets was instructed and practiced.
- [IA] IowaView organized a week-long summer training for Nebraska tribal community college students. The focus of the training was to promote remote sensing and GPS related areas for students from the Tribal college.
- [LA] Training in ESRI products occurred for 25 students. An additional 18 students were trained in Trimble GPS equipment, and 24 individuals from public and private agencies, including the wetland Identification team for USDA-NRCS and the Iberia Parish Government, were trained in Wetland Remote Sensing and Photo Interpretation.
- [MS] MississippiView and partner UMGC hosted a 1-day workshop for the regional meeting of the Society of Wetland Scientists (South Central Chapter). The workshop focused on the application and uses of remote sensing and GIS for use in wetland studies. While a small workshop, participants ranged from industry and government to student researchers.
Additionally, a two day workshop for county officials was hosted in nearby Batesville Mississippi for teaching the use of a shared GIS system.
- [MT] An ArcGIS training with remote sensing applications was held in Belgrade, MT with 4 professionals from agencies attending. Van Shelhamer, MontanaView partner, presented the MontanaView program and activities and lectured on the practical benefits of remote sensing to farmers, ranchers, and land managers at

a public gathering at the Fergus High School Library in Lewistown, MT to 7 land managers.

MontanaView offered a remote sensing awareness presentation in Libby, MT at the public library that was attended by 4 persons including Forest Service and private citizens.

- [NE] NebraskaView organized and co-taught three 1/2 day workshops in metadata and the NEMap portal. The 22 attendees at the workshop represented the NE Dept of Roads, City of Lincoln, City of Omaha, Douglas County, Lancaster County, Lincoln/Lancaster Planning Dept, NE Dept of Natural Resources, Lancaster Co Engineering Dept, USGS and the UNL School of Natural Resources.
- [NH] The NH View Director presented a workshop on Assessing the Accuracy of Remotely Sensed Data at the Fall 2009 ASPRS Conference in San Antonio, TX to approximately 20 individuals, and at the Spring 2010 ASPRS Conference in San Diego, CA to 20 individuals. He also taught the workshop as a Webinar during the summer of 2010. Approximately 30 individuals participated in this webinar.
- [WV] A remote sensing course for the NRCS was completely revised and updated and was taught to 15 NRCS employees.

(E-008) StateViews engaged in eight activities to provide ongoing support to government agency and other personnel, including those trained in workshops, via telephone, e-mails etc. Ongoing support is critical to a large segment of the non-remote sensing professional community, and can make the difference between using remote sensing data and technologies successfully, or not using them at all. Highlights follow.

- [AR] ArkansasView provides ongoing project support to attendees of the short course “GPS methods for rapid ground reference data collection for RS image classification”, and is preparing an evaluation form for the Introduction to eCognition workshop.
- [KY] KentuckyView provided remote sensing and geospatial science and technology software and analysis assistance to approximately 5 people in statewide groups.
- [KY] KentuckyView shared research results which highlighted the use of remote sensing technology to study agricultural burning to an audience of approximately 17 faculty/staff/students/general public members.
- [MS] MississippiView personnel continue to support the use and application of remote sensing technology to researchers, state, and local officials seeking assistance with various projects. In addition to technical

support, UMG/MSView loans GPS and other center equipment to local researchers.

- [MT] MontanaView continued to support workshop participants by providing the instructors' (MontanaView members) phone numbers and email addresses to answer questions through telephone and/or emails.
Van Shelhamer (MontanaView member and trainer) has started writing *Geospatial Notes*, a type of geospatial newsletter, and has been emailing it to participants and teachers after they have taken a MontanaView workshop. Currently there are 44 Montana teachers on the mailing list as well as about 6 other out-of-state higher education professionals.
- [NE] NebraskaView will continue to serve as the main point of contact for many government agencies, private companies, extension agents, private citizens and students who are looking for spatial data or have questions about using geospatial data. Nine private firms as well as the Nebraska Game & Parks Commission, NE Department of Roads, USDA APHIS, USGS NE Water Sciences Center, and DIGIT lab (University of Utah) were assisted this grant year, including the Northern Great Plains Program of the World Wildlife Fund, in finding data and/or advising them on the use of specific types of imagery. NebraskaView also assisted three private individuals or firms (e.g. Lamp, Rynearson & Associates) with finding NE historical aerial imagery and one UNL Faculty member with re-projecting the 2005 NE land cover data.
- [SD] South Dakota View maintains an e-mail distribution list of K-12 educators and others who have attended our geospatial technology workshops over the past many years. As we become aware of information that may be of interest to this group, e-mails are sent to them. E-mails with geospatial content of interest to the K-12 community were sent approximately once per month to the SDView K-12 educator distribution list.
South Dakota View assisted Mickelson Middle School teachers (Brookings, SD) with GIS software and data acquisition.
South Dakota View hosted a planning meeting with Camelot Intermediate School (Brookings, SD) teachers to discuss remote sensing and GIS materials that could be used to enhance their geography of South Dakota curriculum content. A product showing the establishment of cities and towns across the state has been developed and others are in the planning stage.
South Dakota View also held a workshop for the Sioux Falls School District, and showed 18 teachers and administrators how to use GPS units for data collection and navigation, how to download the data, and how to use the downloaded data in combination with Google Earth and GIS software.
South Dakota View personnel provided geospatial technical assistance to SDSU faculty members and/or their students in the departments of Biology, Plant Science, Sociology, Civil and Environmental Engineering, Electrical Engineering, and Agricultural and Biosystems Engineering and the SDSU Office of Facilities and Services.

- [TX] Approximately 60 requests for geospatial technology support from state agencies, educators, and the general public were fielded during this performance period.
- [WY] WyomingView continued to provide technical assistance pertaining to remote sensing data acquisition and processing to federal and state government agency personnel e.g. ARS, BLM, and NRCS.

(E-009) StateViews were involved in six activities to develop web-based tutorials FAQs, and “how-to” materials. These tutorials were critically important as aids in circumventing technology (software) and analysis barriers for many non-technical users. Highlights follow.

- [CA] CaliforniaView developed web-based lab exercises using ArcGIS and MultiSpec for the CaliforniaView remote sensing certificate program.
- [CO] The new ColoradoView web site is to function as a web portal, listing links to pertinent national and Colorado-specific remote sensing and GIS resources. The website provides content to the user under headings that include Data, Online Training, Education, and Freeware. Data links range from ground based monitoring data and derived products such as those from the USDA UV-B Monitoring Network, to RS and GIS products from various levels of government. Links to a range of online information and tutorials provided by government agencies and the geo community are provided. Education links include materials for students from K-12 through undergraduate levels. Presently there are links to nine free remote sensing and GIS software packages.
- [GA] GeorgiaView is developing a web-based remote sensing tutorial using PG-Steamer 4.1. PG-Steamer 4.1 was recently released and the old 4.0 tutorials will be updated.
GeorgiaView has purchased Adobe Robohelp that will be used for developing online material. RoboHelp is a help file authoring tool for online and offline applications. The software was installed during this grant year.
Dr. Mark Patterson co-authored a RS lab manual with a student using data downloaded from GeorgiaView. The manual is used in Intro to Remote Sensing course.
- [IN] Two new tutorials were added to the MultiSpec web site, titled "Creating Vegetation Indices Images" and "Handling HDF Formatted Image Files". These were developed because of the number of questions that we received on how to accomplish these tasks using MultiSpec. The tutorials on the MultiSpec web site were also updated.
- [MI] MichiganView created two tutorials related to free and open source technologies that can be used for processing or distributing remote sensing datasets:

- An overview of open source technologies (slides from a half-day workshop) are available on the MichiganView website
 - A tutorial for OssimPlanet (open source 3D visualization) program was developed
- [MN] The University of Minnesota and MinnesotaView are hosting the online Remote Sensing Core Curriculum. This initiative, led by Joe Knight, has the objective of updating the RSSC materials. The RSSC website is averaging 2,000 visits and 8,000 pages downloaded per month. We are also outlining our FAQs, as well as links to other websites with potentially useful information.

(E-011) StateViews were involved in two activities that developed hands-on internship opportunities for students. Internships offered invaluable learning experiences for students and often supported a critical remote sensing need in partner agencies and organizations. Highlights follow.

- [GA] GeorgiaView continued their Hall County Historic Photo digitization and ortho-rectification project and complete mosaics for 1938 and 1974. They will have 1 m airphotos for 1938 through the present and will be used in a 'digital humanities' project in which students will interview longtime residents for area folklore, stories and hang it on the map as stories, video documentaries etc. This has supported students developing hands-on career experiences with the County and bringing RS into a literature/history/film classroom.
- [MT] Chris Walter, a graduate student at the University of Montana, reviewed and updated the remote sensing tutorials for the MontanaView website. A new method of posting the tutorials on the MontanaView website was incorporated.

(E-012) StateViews were involved in three activities that funded stipends/scholarships to encourage students to pursue remote sensing components of their education. Because many students experience financial challenges, stipends and scholarships often fill a critical need in their remote sensing educations. Highlights follow.

- [WV] At West Virginia View, four students were given support to attend national meetings to present their remote sensing research. Four additional students were given support to attend a remote sensing conference in Washington, DC. One additional student was given a data purchase award to buy data for Ph.D. research relating to regional climate change, and was used to generate a publication, currently in review. The group of funded students included three female students and one minority student.
- [WY] WyomingView PI Dr. Sivanpillai provided technical support to four graduate students (Ms. Alyson Courtemanch, Ms. Harika Tridandapani, Mr. Jake Edmunds, and Ms. Lynn Moore) on their research projects. These students have either incorporated or are planning to include Landsat or MODIS data in their thesis or dissertation research.

- [WY] WyomingView offered 7 internships. In fall 2009 two internships were awarded to undergraduate students: Mr. Travis Yeik, and Mr. Brett Fahrer, and to one graduate student Ms. Harika Tridandapani. In spring 2010 two internships were awarded to undergraduate students: Ms. Karley Shepperson and Mr. Paul Ardent, and two were awarded to graduate students: Ms. Alyson Courtemanch and Mr. William Gray.
Three internships were awarded to women and one was awarded to a Native American student (Mr. William Gray, a graduate student in Geography).

(E-013) StateViews were engaged in four activities that developed training programs that addressed topical ideas tailored for specific state and discipline needs. These topical professional development programs were designed to meet specific critical needs of StateView partners and the broader community. Highlights follow.

- [CA] CaliforniaView tailors their on-line remote sensing certificate program to the state's specific need to manage California wildfires.
- [IA] One undergraduate student was funded by IowaView last summer to work on precision farming focused on yield estimation utilizing Aerial imagery and Lidar data. A graduate student was funded to work on Lidar accuracy assessment and will be submitting an article to a journal this fall.
- [MD] MarylandView and PennsylvaniaView jointly developed an introductory lesson on Pictometry On-line. The tutorial consists of five lessons including: Navigating POL Imagery; The Workspace; POL Measurement Tools; POL Annotation Tools; and Image Export Tools. It was tested by a group of teachers as part of K-12 program sponsored by PennsylvaniaView's PI, Dr. Tom Mueller.
- [VA] One of the VirginiaView CO-Is leveraged his funding to write a successful NSF grant for a seven-day intensive GIS workshop for Virginia Community College System faculty to be conducted at Virginia Tech for Summer 2010. VirginiaView members also provided instructional training in remote sensing to 24 community college faculty and high school dual-enrollment educators. Participants gained a comprehensive understanding about the history and applications of remote sensing, Landsat and MODIS data acquisition, image classification and processing. Follow-up activities are continuing during this academic year, and participants will participate in additional remote sensing training during a follow-up week-long workshop in 2011.

Activities Targeted Towards K-12 Programs (24 total activities)

(E-014) StateViews engaged in five activities that prepared and delivered guest lectures and demonstrations to highlight RS applications. These lectures provided an important outreach element to non-geospatial disciplines, informing the audience about the benefits of remote sensing in a variety of disciplines. Highlights follow.

- [KY] KentuckyView faculty co-presented a two hour 'Getting to Know Google Earth' workshop for a group of 26 gifted 5th graders on the university campus. The KentuckyView PI attended a Career Day at Deming School in Robertson County, KY where she promoted remote sensing and GIS academics and careers.
- [NH] A subset of Landsat imagery of NH was provided to our GLOBE Training partner for use in training teachers and eventually to be used by middle school students.
- [NC] North Carolina View presentations on climate and climate change were made through an outreach activity to local High School students called "Friday with Professors" at the East Carolina University Geography Department.
- [ND] North Dakota View accomplished GIS and Remote Sensing outreach in conjunction with GIS Day/Geography Action Week on the UND campus.
- [WY] More than 115, eighth grade students at Laramie Junior High School were introduced to remote sensing technology and applications as part of the Earth Observations (EO) Day activities. Ramesh Sivanpillai provided an overview of remote sensing and its applications for monitoring Earth resources such as forests, rangelands, vegetation, and water and introduced these students to various career options in remote sensing.

(E-015) StateViews were involved in six activities that developed workshops for students and teachers. Teacher workshops are an essential element of introducing remote sensing and related geospatial technologies into the classroom, and are often the first step in adopting these tools into the larger curriculum. Highlights follow.

- [MT] MontanaView had 22 teachers attend a geospatial and remote sensing educational training which impacted over 1,000 students. They continued to train and develop a project where four of the teachers in the cross-curricular Freshman Academy at Lewistown High School are incorporating geospatial thinking and remote sensing instruction into the Science, Math, English and Physical Education classes.
MT also had 21 teachers attend two phases of a geospatial and remote sensing workshop (first a 3 day summer session and then a 2 day follow-up session) which will impact over 900 students.
- [OH] OhioView has been offering summer institutes for K-12 teachers for 12 years. The SATELLITES program (Students and Teachers Exploring Local Landscapes to Interpret the Earth from Space) has now expanded to include scientists from the OhioView Remote Sensing Consortium.
OhioView also trained 12 teachers in Ohio and 25 teachers in Pennsylvania on SATELLITES-IPY program. They trained 8 OhioView members to be able to offer

SATELLITES–IPY material in subsequent trainings. They continued the Surface Temperature Field Campaign. 65 schools participated from around the world in this year’s campaign. Dr. Czajkowski posted several blogs a week on the GLOBE website.

OH held the fourth SATELLITES Conference. 80 students, 10 teachers, 6 parents, and 15 volunteers attended the conference.

- [TX] TexasView contributed to Columbia Center’s educational workshops promoting GIS and remote sensing technology. Included among these is a comprehensive geospatial training program developed for the Texas State Guard. Levels I and II of this 3-part program was delivered to approximately 250 Guardsmen. All training missions incorporate the use of remotely sensed data for navigation, planning, and analysis, as these relate to domestic emergency response.

The *TexasView Fundamentals of Remote Sensing* workshop was presented as part of the East Texas Geospatial Conference in Nacogdoches. 15 Students attended.

- [WV] Working with the NASA IV&V Educator Resource Center partner, WVView develops and supports various teacher and student workshops using data from the WVView archive and WVView software tutorials developed in previous years. West Virginia View also has an on-going NSF grant with the WVU College of Education that supports geospatial science training of teachers over an extended period of time (one year). The project was extended to provide support for an extra cohort of 10 teachers, two of whom are supported by WVView funding. Equipment for the project is also purchased with WVView funding.

(E-016) StateViews were involved in two activities for groups such as 4-H, Boy/Girl Scouts, and other youth organizations. These “informal” education and outreach activities introduced groups to the power and excitement of geospatial technologies in ways that may not be possible in the classroom, for instance in an outdoor setting where students can practice and experiment. Highlights follow.

- [CA] Cub Scout's 'Water and Soil Conservation Badge' requirements were taught by a soil science undergraduate and graduate student using the iPhone Application 'Soil Survey' to acquire soil type information using GPS data. A total of 9 cub scouts participated in this event.
- [NE] The NebraskaView coordinator attended and supported the 4H Big Red Summer Camp, an academic camp for high school seniors from across the country, during which they presented a half day workshop on "Mapping in the 21st Century - GPS, GIS & Satellite Images".

(E-017) One StateView sponsored mentor programs for high-school students (during summer). This program provided hands-on learning, often for students of reduced income environments or students who have other challenges.

- [MS] MississippiView partners support MARS, the Mississippi Area Remapping Strategies, a statewide high school mentorship program. The program partners Mississippi college and university mentors with regional high schools for the purpose of bringing GIS and Remote Sensing curriculum into the classroom through student led community based projects. MSView personnel support the program and provide mentorships as well as travel funds as needed. Students from 13 high schools presented their projects.

(E-018) StateViews were involved in three activities that supported state educational standards. Teachers are much more willing to adopt and implement educational resources that are closely tied to their state standards. Highlights follow.

- [MT] The MontanaView intern will continue to work on tutorials for grades 6-12 that utilize remote sensing. The tutorials will be explicitly tied to state educational standards.
- [NE] NebraskaView prepared and administered the Remote Sensing Test of the 2010 Nebraska Science Olympiad to 20 Grade 9-12 students. NebraskaView provided display materials and handouts on geospatial technologies for annual Teacher's Night Out - an educational outreach event for K-12 teachers at the Durham Museum in Omaha. Approximately 1200 teachers from northeast NE were in attendance.
- [VA] VirginiaView Prepared the VirginiaView Atlas Materials for Web Delivery. This activity is coordinated with the Virginia Geographic Alliance (VGA) (an organization of K-12 and university Geography instructors) and the Virginia Geospatial Extension Specialist to integrate VirginiaView Atlas materials with VGA teaching materials to deliver resources in forms suitable for K-12 and post-secondary students.

(E-020) StateViews engaged in two activities to provide hands-on training for teachers during the summer -- so that they will incorporate remote sensing lesson plans in their classroom during the school year. Summer workshops are one of the most effective ways to reach teachers and provide professional development, because teachers are busy during the school year. Highlights follow.

- [MD] MarylandView conducted a SATELLITES institute for Maryland K-12 teachers at Towson University, funded in part by NASA as well as the Maryland Space Grant Consortium and MarylandView.
- [SD] A two-day Geospatial Technology for Educators workshop was offered to eight K-12 educators, reaching 160 students. At the workshop, educators learned about GIS, GPS and remote sensing and how to integrate these tools into their curriculum. Teachers were also given remote sensing modules that can be incorporated into their classroom activities.

(E-021) One StateView developed lesson plans to incorporate remote sensing into other K-12 disciplines (Geography, Botany etc.). These lesson plans help students understand the broad application of remote sensing and related geospatial technologies. Highlights follow.

- [VA] VirginiaView supported in-service teachers to assist in preparation and evaluation of lesson plans and teaching materials based upon the VirginiaView Atlas materials. Lesson plans for "Virginia's Physiographic Provinces" and "Virginia's Hydrographic Resources" have been developed and are being evaluated and refined.

Increasing Awareness and Public Education (12 total activities)

(E-022) StateViews were involved in six activities to promote understanding of geospatial data among the public. The public is often overlooked as an audience for informal educational programs, but they are interested, and often have much to gain from educational offerings of various types. Highlights follow.

- [CA] Using a puzzle game, CaliforniaView introduced Imagery to approximately 50,000 people at the annual University Open House. UC Davis has invited the geospatial science exhibition to continue its presence at this event.
- [HI] At the biannual SOEST Open House event, HawaiiView developed an exhibit which allowed students to simulate active lava flows. Students used a range of remote sensing data sets (Landsat, IKONOS) to identify appropriate vent locations and simulating the inundation (of lava) of particular areas on Oahu using a numerical flow simulation model. Over the two days approximately 5,000 students, parents, teachers, and members of the public attended the event.
- [NE] The NebraskaView coordinator assisted Geography Students in preparing for UNL's Geography Awareness Week by producing posters and preparing handouts highlighting geospatial technologies and products. The NebraskaView coordinator also prepared exhibits highlighting geospatial technologies for UNL's Weatherfest and provided satellite image posters of Nebraska for distribution. The event was attended by over 2,000 people.
- [WI] WisconsinView added educational material and a dramatic MODIS poster to the lobby display of their building by the elevators. These materials have received significant attention from students, faculty, and staff entering and leaving their 16-story building.
- [TX] The TexasView Earth Observation Day project was conceived and implemented. The project consisted of an Internet Map Application featuring Texas State Parks and publicized by an email campaign aimed at K-12 teachers across the state.

(E-023) One StateView participated in a museum display. Displays can be expensive and may require significant effort (and partnerships), but have the potential to reach a large number of people in an environment that is non-technical and conducive to learning. Highlights follow.

- [NE] NebraskaView presented an exhibit at the State Museum of Natural History as part of their “Sundays with a Scientist” series on using satellites to see the world in different ways. They showed how Landsat images can be used to monitor pivot irrigation and lake levels at the state’s largest reservoir. 48 Adults and 45 children attended the event.

(E-025) One StateView made a presentation to a service organization. Service organizations may have much to gain from a presentation on remote sensing, but are often not targeted. Highlights follow.

- [SD] A PowerPoint slide was shown to the Kiwanis Club of Brookings to create awareness of AmericaView and South Dakota View and the services they provide. The presentation featured imagery of local interest and demonstrated how various types of imagery can be accessed. The same presentation was used for several other purposes since that time, including university classroom lectures.

(E-026) StateViews engaged in three activities to display remote sensing imagery in public venues. Public venues have the potential to reach a very broad audience, many of whom may not know very much about remote sensing. Highlights follow.

- [AR] ArkansasView provided Landsat scenes for use in posters at GIS Day activities.
- [GA] An undergraduate student intern at GeorgiaView developed a shaded relief map of Georgia using a mosaiced Landsat image, to be displayed at publicly accessible places.
- [TX] TexasView displayed the "Earth as Art" exhibit in a storefront in downtown Nacogdoches during most of this reporting period. The “Earth as Art” display is currently on display in the halls of the McKibben building on SFA campus. Dozens of students pass by the imagery every day.

D. RESEARCH ACTIVITIES (64 total activities)
(R-000)

- The HIView PI is a member of NASA's Thermal Imaging Science Working Group and presented, on behalf of the team, the HypSIPI mission concept at the IAVCEI (International Association for Volcanology and Chemistry of Earth's Interior) general assembly in Iceland. As a member of NASA's Sensor Webs Team, the PI continued to participate in proposal writing duties to find continued support for EO-1 operations.
- [KY] KYView developed mini-grants for faculty and staff application at Member institutions to support applied research pilot projects in Kentucky. Three faculty at Member institutions applied for stipends/mini-grants in support of activities including monitoring forests following prescribed fire, urban forest mapping, watershed vulnerability modeling, and assessing landscape impacts on water quality.

Develop New Applications for Remote Sensing through Pilot Projects (30 total activities)

(R-001) StateViews were involved in 12 collaborative activities with agency personnel or private companies to assess the utility and/or apply satellite data for monitoring and mapping activities that were not performed using imagery in the past. These activities strengthened state consortia and effectively leveraged limited resources. Highlights follow.

- [AL] ALView disseminated the preliminary results of a study that a graduate student funded by AmericaView is undertaking that involves close range hyperspectral RS to map algae concentration on associated eutrophication levels of Lake Martin Alabama. ALView will use the results of this to help determine the best Landsat bands to estimate Chlorophyll-a levels for the entire lake throughout the year for operational applications utilizing Landsat.
- [HI] The HIView PI worked with scientists from the Hawaii Volcano Observatory to assess the role that remote sensing data sets can play in hazard management and routine documentation of the ongoing eruption of Kilauea volcano (e.g. mapping flow field distributions).
The HIView PI and his post-doc also worked on integrating thermal remote sensing data products into the Hawaii Volcano Observatory's geophysical monitoring system. A co-authored paper is in press (USGS/Univ. Hawaii) describing their work. The HVO has never previously integrated remote sensing data into their data stream.
- [KS] KSView developed potential flood inundation databases and user tools in support of Kansas emergency management. As a result of KSView's response to a major flooding event in summer 2007 that included the creation of flood extent maps using satellite imagery and aerial photography, they received a grant from

the Kansas GIS Policy Board to perform a pilot project to map potential inundation extents in a 20-county area in southeast Kansas. They subsequently received a second year of funding from the GIS Policy Board to complete additional potential inundation mapping for eastern Kansas and to develop web-based and stand-alone user tools for emergency responders and the public. Their research is also being supported by the State Adjutant General's Office through its Division of Emergency Management. They have completed work on their second year of preparing inundation extents for the GIS Policy Board, and now have coverage for approximately 40 counties in eastern Kansas. Based on this work they have created a mapping web site that permits viewers to visualize depth-to-flood extents for the completed counties. They have also used this work as a springboard to apply for funding to (1) identify potential new reservoirs in eastern Kansas, (2) create potential inundation maps for additional counties in central Kansas, and (3) perform dam breach modeling for critical dams in Kansas. They anticipate that inundation modeling and its derivative products will continue to be our major applied research thrust for the coming year.

- [MD] MDView tested a procedure to map impervious surfaces through the use of recently acquired 6-inch, 4-band (RGB and NIR) digital orthophotographs for selected portions of Maryland. Several agencies have contacted the Laboratory regarding the development of other land cover maps, including a map of thistle and other invasive species in Maryland.
- [MN] The MNView PI, and partner institution University of Minnesota, are actively involved with research on moderate resolution data, particularly Landsat, for monitoring and mapping land cover and water quality. In conjunction with MinnesotaView he will extend this to include new data, e.g., AWiFS, MODIS and MERIS.
 MNView processed multitemporal AWiFS data, obtained via the AV agreement with USDA, for land cover classification. A second project that is processing 2008 Landsat TM/ETM+ images for statewide (~10,500 lakes) classifications of lake clarity is nearly complete. Another project is beginning to process and analyze MODIS and MERIS data for monitoring clarity and chlorophyll of larger lakes.
 MNView and the University of Minnesota, in cooperation with the State, is assessing the potential of high resolution imagery, including NAIP, RapidEye, and hyperspectral data in Minnesota.
 Finally, MNView explored the potential of high resolution multitemporal multispectral and hyperspectral imagery for assessing wetland quality with the Minnesota Pollution Control Agency. Seven dates of RapidEye Imagery were acquired during the planning period, along with AISA hyperspectral imagery, for a township-sized test site in Washington County. Processing and analysis of the data are underway.
- [MS] MSView and partners at UMGC and EIGS pursued outside funding opportunities in the fields of GIS and remote sensing. Current research activities include projects with NASA, Dept. of Homeland Security, Dept. of Energy, the Army Corp of Engineers, MS State Department of Environmental Quality and

various other organizations. These projects involve researchers at universities in Tennessee, South Carolina, New Mexico, Washington, as well as other EIGS MS View consortium members. Research activities and pursuit of independent funding will continue into the next reporting period.

UMGC is now part of the Mississippi Mineral Resources Institute at the University of Mississippi. Several avenues were pursued regarding independent funding including NASA, Dept. of Energy, US Fish and Wildlife, and several others during the reporting period. A NASA proposal to the Education & Public Outreach for Earth & Space Science (EPOESS) Program was declined but had fairly good reviews. Plans are to address the issues raised and resubmit.

- [NE] NEView provided imagery and expertise as requested to assist agency personnel and private companies in using satellite imagery to perform various mapping activities, including working with the Lower Platte North NRD to explore the use of Landsat and Lidar imagery for identification of irrigated acres. They also assisted personnel from the Upper Big Blue NRD regarding land use questions and applications of aerial photography.
- [NH] The NHView Director is the Senior Technical Consultant to the Solutions Group of the Sanborn Mapping Company and Chair of the Academic Advisory Council for the Sanborn Mapping Company. A major goal of both of these positions is to take the use of remotely sensed data beyond its current applications.
- [NC] The NCView PI coordinated all the open-house on remote sensing activities with the support of IAVO Research and Scientific, Inc., a private company based at Durham, NC and participation of ASPRS-Potomac Region members. Coastal datasets of NC were provided by the PI to the IAVO staff members, who will use their GeoGenesis s/w to automatically extract shoreline changes through time.
- [VA] ALOS PALSAR products were used to support a Virginia working group in developing a business plan for the use of imagery and geospatial data for emergency management. An application of remote sensing for hurricane (flooding) response was selected. PALSAR examples were prepared to demonstrate the use of SAR data to determine the extent of flooding.
- [WY] The WYView PI continued to work with ARS and BLM personnel to test the utility of satellite data (Landsat in particular) for monitoring rangeland vegetation and land cover changes. He also completed the first draft of a manuscript on the project that will be submitted to the journal Ecological Indicators, a peer-reviewed publication.

(R-002) StateViews coordinated five research collaborations within their own Stateview and between other StateViews. Coordination of research projects was critical to cooperative research and leveraged limited research funding. Highlights follow.

- [AL] The ALView PI helped to coordinate a cooperative NASA education proposal with MSView, LAVView, and AV-national personnel titled "Education through Remote Sensing and Geospatial Sciences". Although the project was not funded, the group plans to resubmit under a similar request for proposals.
- [KY] Three faculty members at partner institutions applied for KYView stipends/mini-grants in support of activities including monitoring forests following prescribed fire, urban forest mapping, watershed vulnerability modeling, and assessing landscape impacts on water quality.
- [MS] UMGC/MSView was lead on a NASA education proposal (see R-002, ALView). Partners included AV National, ALView and LAVView.
- [WV] WVView submitted a regional SATELLITES proposal to NASA, with co-investigators from multiple institutions. The proposal was not successful. WVView is also collaborating on a ChesapeakeView project with neighboring StateViews. The ChesapeakeView project now has a website complete with a data-selection tool.

(R-003) StateViews were involved in four activities designed to develop innovative uses for moderate-resolution satellite imagery. These projects effectively extended the range of applications of Landsat data, and fostered partnerships within and between state partners. Highlights follow.

- [SD] SDView personnel have assisted a PhD student in the acquisition of AWiFS imagery for crop residue mapping through the AmericaView/USDA FSA agreement. SDView also created a NAIP mosaic of the Bad River watershed in South Dakota and provided assistance with GIS software installation and digital line graph data to researchers working on the Bad River project. Finally, SDView prepared imagery (Landsat and NAIP) and maps showing the extent of flooding in northeastern South Dakota for the South Dakota Local Transportation Assistance Program (SDLTAP). SDLTAP personnel along with township and county officials used the imagery to assist in the task of prioritizing roads in need of repair due to Spring 2010 flooding.
- [WY] During the fall 2010 semester, students in the WYView PI's applied remote sensing class worked on projects that demonstrated the value of multi-temporal Landsat imagery for monitoring lakes, wildfires, rangeland, and cropland. The PI presented some of these findings to state agencies to highlight the potential of Landsat data for environmental monitoring.

(R-004) StateViews were involved in four activities related to development of software to support the distribution of satellite, airborne, and other geospatial data. These projects helped to get data into the hands of partners and the public. Highlights follow.

- [AK] In addition to continuing to maintain and expand the features and datasets available through SwathViewer and AlaskaMapped.org, the GINA HUB website was developed and deployed. The HUB application allows AlaskaView to quickly make a new landing page for a project's collection of GIS datasets. Example hub sites deployed the reporting period were Alaska fire points - latest fire points detected by the GINA/AlaskaView MODIS receiving station; and Arctic Transportation Network hub - allowing the public to see the current travel status for DNR managed North Slope travel areas.
- [IN] INView personnel have recently been in correspondence with personnel from Goddard Space Flight Center concerning a request for MultiSpec modifications to help users better handle the current free Landsat data and the upcoming LDCM data.
Two updates of MultiSpec were released during the reporting period. A significant addition was the ability to handle jpeg2000 formatted images, one of the formats used for the most recent NAIP data collected for Indiana. MultiSpec can now also handle a different variation in tiled GeoTIFF image files. Also, work is nearing completion for adding the capability for the ECHO Classifier in MultiSpec to handle images with more than 250 million pixels. A test version is being evaluated by a researcher with the US Fish and Wildlife Service who needed this capability.
- [TX] TXView will continue developing a data distribution channel through the Research and Education Data Depot Network (REDDnet) for distributing free data from the USGS. The system will harvest free data from USGS GloVis, upload it to REDDnet and add metadata to the REDDnet GloVis instance. During the reporting period, work on the REDDnet project also concentrated on mirroring the USGS Hazards Data Distribution System (HDDS). This system is used to distribute remote sensing data during emergency events. REDDnet will provide a faster, more robust delivery mechanism for these data.
- [WI] WIView is partnering with atmospheric scientists at University of Wisconsin-Madison to produce mapservices of weather information such as "convective initiation" and Nexrad radar. Their focus is on mobile devices and GoogleMaps API v3.

(R-005) StateViews were involved in four activities that posted methodologies or tools for other StateViews to use or test. These efforts reduced duplication and saved limited funding resources. Highlights follow.

- [AR] ARView posted methodologies and improved system performance of a U.S. Forest Service-funded spatial decision support system developed between 2005-2010 and highlighted these improvements through the ArkansasView website. Methodologies include instructions on how to deploy efficient vector and raster overlays online using the Google Earth API and other tools. Rather than just clicking on remote sensor-derived layers for download, this website

demonstrates a simplified interactive approach to viewing and learning about remote sensing methodologies based on the Google Earth API.

- [MI] MIView continued to host and administer the AmericaView wiki as a resource for sharing tools, and will continue to support its usage through examples and training.
MichiganView also led the development of an AmericaView blog, intended to host articles written by AmericaView members.
- [NH] The NHView PI improved his accuracy assessment software tool. In addition, NHView is exploring how to deliver (via the web) an "image advisor" tool to help users determine the best choice of imagery for their application.

Develop Research Opportunities for Students (28 total activities)

(R-007) StateViews were involved in four activities that provided students with scholarships or stipends to promote remote sensing research and promoted participation of under-represented groups, including women, ethnic minorities, and first generation college students. These activities effectively advanced the nation's need to support minority participation in STEM education fields. Highlights follow.

- [KY] Four undergraduate students completed geospatial workshops with the KentuckyView PI at MSU. Two students assisted with collecting Landsat .jpegs and with developing a GloVis-based tutorial to help users in KY find relevant imagery. Another student worked on an applied pilot project in which she began the process and collecting information and geospatial data that can be used to assist small farmers in assessing the 'crop potential' of their land. The fourth student worked on mapping land use/land cover in the local floodplain hazard zones using multi-temporal aerial photographs.
- [ND] NDView provided four \$500 scholarships to graduate students interested in using remote sensing in their research (testimonials are listed in the NDView report).
- [WV] At West Virginia View, four students were given support to attend national meetings to present their remote sensing research. Four additional students were given support to attend a remote sensing conference in Washington, DC. One additional student was given a data purchase award to buy data for Ph.D. research relating to regional climate change, and was used to generate a publication, currently in review. The group of funded students included three female students and one minority student.

[WY] WYView offered seven internships. Three internships were awarded to women and one was awarded to a Native American student.

(R-008) Eight StateViews were active in promoting the use of StateView archived data in student research projects (term projects), where students would not have

had such an opportunity for use in the absence of free data. These projects made available an applied educational opportunity that would not otherwise be recognized. Highlights follow.

- [GA] Two students at UWG used StateView-archived data in classroom research where students would not have had such an opportunity in the absence of free Landsat data available from GeorgiaView and USGS. The two students used 14 Landsat scenes for the research.
Nine students at Kennesaw State University used imagery obtained through GAView or other StateViews to do student research projects. They primarily used Landsat imagery, but some used elevation data as well.
- [LA] LAView promoted the use of archived data in the GIS Certification Program GIS Level I and II for project development, data pertaining to emergency response such as Hurricane Katrina, Rita and Wilma data and pre- and post-imagery from multiple state sources including Homeland Security.
GIS classes of 22 undergraduate students utilized data from many archived datasets at the RAC and 14 undergraduate and 4 graduate students utilized many of the datasets from these and for faculty projects.
- [MT] MTView presented and made MontanaView data and imagery available to the university students at MSU in the LRES 426 Remote Sensing and Digital Image Processing (24 students) and 525 Applied Remote Sensing course (4 students).
They also presented and made MTView data and imagery available to students at U of MT in Geog 487 and its lab 489 Raster GIS & Remote Sensing (34 students), and Geog 587/9 Digital Image Analysis and Modeling/Lab (15 students).
Finally, they presented and made MTView data and imagery available to students at Montana Tech of The University of Montana in Geop 491/495 Remote Sensing and GIS Applications (5 students and 1 faculty). These data greatly enhanced the students' ability to complete term projects in a timely manner because the data was already formatted for ready use with available software.
- [NE] NEView continued to promote the use of this imagery through lectures, the NEView listserv, and on the NEView website. They provided two students from the University of Nebraska-Omaha with imagery for a class research project.
- [SD] SDView assisted a PhD student in the acquisition of AWiFS imagery for crop residue mapping through the AmericaView/USDA FSA agreement.
Landsat and MODIS imagery from the SDView archive and GloVis was used by students in GIS and Soil Science classes.
K-12 educators in the SDView-sponsored Geospatial Technology for Educators workshop at EROS learned how to utilize imagery from the SDView archive, from GloVis, and from other sources.

Students from Sisseton Wahpeton Tribal College made extensive use of Landsat, NAIP and other imagery during a lake quality monitoring project. Assistance with digital image processing of UAV-acquired gravel road images was provided to a Civil and Environmental Engineering graduate student.

- [WV] The WVView archive is used extensively in all WVU and partner institution remote sensing and geospatial science (GIS, GPS) courses. West VirginiaView data was used extensively in student projects in the Advanced Remote Sensing class by five students.
- [WI] WIVView hosted two students (one graduate and one undergraduate) in its remote sensing lab. Also, WIVView began hosting a new undergraduate meteorology student.
- [WY] WYView data have been used in more than 125 class projects in 4 remote sensing and 2 GIS/spatial sciences courses in UW during the reporting period. Students find it easier to use WYView data because they are available in ready-to-use format (ERDAS Imagine or GeoTIFF). Students in two remote sensing classes (BOT5130/4130 and BOT5150) used 51 Landsat images and two MODIS images for their term projects. The WYView PI worked with these students to import (from USGS), extract, and process these images.

(R-009) StateViews engaged in eight activities to support student publications or presentations in university or other forums. The publications and presentations significantly strengthened the student's abilities and provided them with valuable resume-building experiences. Highlights follow.

- [AL] ALView *funded travel for Chandler White to present a joint-authored poster at the Southeastern Division of American Geographers Annual Meeting in Knoxville, TN.*
White, C., L. Marzen, J. Glasier, W. Deutsch, W. Seesock, E. Reutebuch and D. Bronson. 2009. Close Range Hyperspectral Remote Sensing of Lake Eutrophication at Lake Martin, Alabama. Southeastern Division of Association of American Geographers Conference, Knoxville, TN.
- [GA] The GAVView PI guided two students to present at Big Night (an undergraduate student research appreciation event) at the University of West Georgia. Dr. Seong has also guided another student to prepare a manuscript for a publication on 2009 flooding in Douglas County, Georgia.
- [KY] KYView supported their undergraduate student geospatial poster sessions at MSU. Approximately 30 posters were presented in each session. Other university students, faculty and staff attended both events.
- [NE] NEView provided a student from South Dakota State University with Landsat imagery that was used in a publication.

- [ND] A NDSU student received a scholarship and presented his work at the 18th Conference on Applied Climatology in Atlanta, GA. His poster was awarded third best student poster at the meeting. Another scholarship winner, presented a poster at the UND Graduate School Forum. The NDView GRA presented a paper at the ND GIS Users Conference. An undergraduate atmospheric science major presented her research at the 14th Annual Northern Plains Convective Workshop in Sioux Falls, SD.
- [OH] OHView hosted an OhioView conference where faculty and students presented their research in a poster session. The conference was well attended, and student's publications were judged on established criteria.
- [WV] WVView awarded a mini-grant that was used directly for a student publication currently in review.
- [WY] The WYView PI worked with the following undergraduate students on their abstracts and presentations. They received WYView internships and also presented their work at the Wyoming Undergraduate Research Day:
 - Arendt, P., 2010. Utilizing Landsat TM and Forest Service Aerial Survey Data for Mapping Mountain Pine Beetle Outbreak in Medicine Bow National Forest, WY
 - Shepperson, K.A. 2010. Assessing the Suitability of Landsat Satellite Data for Distinguishing Cheatgrass Infested Sites in Douglas, Wyoming.

The WYView PI also worked with a Native American student on his abstract for the GIS in the Rockies Conference.

(R-010) One StateView promoted research competitions among member institutions within their consortia. This competition offered an opportunity for faculty and students to share and extend their work.

- [IN] A group from Indiana University, an IndianaView consortium partner, was funded from an IndianaView mini-grant and created three video tutorials on how to access data from the Indiana Spatial Data Portal (ISDP). The ISDP currently provides access to over 20 terabytes of Indiana aircraft remote sensed imagery. The video tutorials answer user's frequently asked questions and assume the user has little or no prior remote sensing or GIS experience.

(R-012) AmericaView Principal Investigators served on more than 58 M.S. and Ph.D. committees or otherwise advised students to guide and encourage the use of remote sensing. Serving on committees is required of most research-oriented faculty, but AV funding helped to support this work both directly and indirectly. Unless otherwise noted, the supported projects all involved geospatial science and technology tools and applications. Highlights follow.

- [AR] The ARView PI completed service on two PhD and five Masters committees (including two as chair), all with a remote sensing component. He is now serving as an advisor to four Masters students conducting remote sensing research and is serving on 12 Masters/PhD committees.
- [HI] The HIView PI currently serves on three committees, two PhD (research into the use of remote sensing data for analyzing volcanic ash clouds; the use of TIR data to map the distribution of chloride deposits on Mars) and one MS (use of InSAR/GPS for studying Andean tectonics).
- [MT] The MTView PI served as major advisor for three MS students and one PhD student. Three of the PI's students relied on data provided by MontanaView and the results of their research have been published in peer-reviewed journals. A faculty member at a MTView partner institutions served as major advisor for four MS students and one PhD graduate student. They also served on six MS student committees, and continue to serve on eleven more MS student committees that are in the middle of their projects during the reporting period.
- [ND] The NDView PI sits on 23 graduate committees (eight PhD, 13 MS, and two M.E.M). The committees are in departments of geography, geology, biology, criminal justice, space studies, communications, and earth system science at the University of North Dakota and range science at North Dakota State University. All but one of those students are using GIS and/or GPS in their studies. Six of them are also using remotely sensed data.
- [WV] WV View PI and partners serve on multiple graduate-level theses. Many of these student projects are themselves WVView related, receiving data or other financial support.
- [WY] The WYView PI served as a member on the following theses committees of students who graduated during the reporting period:
 1. Arthur Kneeland, MS Rangeland Ecology & Watershed Management/Entomology
 2. Jake Edmunds, MS Civil Engineering
 3. Jameson Bell, MS Civil Engineering
 The PI continues to serve in the committees of the following graduate students:
 4. Arjun Dongre, MA Geography
 5. Jerod Smith, MS Rangeland Ecology & Watershed Management/Entomology
 6. Kelsey Swanson, MS Rangeland Ecology & Watershed Management/Entomology
 7. Ge Zhu, MS Rangeland Ecology & Watershed Management/Soil Science

These students are incorporating remotely sensed data in their research and the PI continues to meet with them on a regular basis to address technical questions about image processing.

Using StateView Resources for Leveraging (4 total activities)

(R-15) One StateView leveraged the StateView coordinator's salary and or data archive as a matching cost while submitting grant proposals. The value of StateView networks added to the probability that competitive funding was awarded.

- [IA] IowaView, with its partners, submitted several proposals and received funding. Members used the IowaView data archive as matching costs for the proposals.

Some of the funded projects are:

1. Acquisition of Hyperspectral Imaging System (HIS), **NSF**, 03/2010 – 02/2012, \$166,000.
2. Harnessing cloud computing for processing massive spatial data, **Amazon Research Grant**, 08/2010 – 07/2011
3. Cloud computing for LiDAR data, **Microsoft Research**, 08/2010 – 02/2012.
4. Iowa Space Grant Consortium, **NASA**, 05/2010 -05/2014, \$2,875,000.
5. Emergency Planning and Management: GeoInformatics Training, Research, Education and Extension Center (GeoTREE), **NASA**, 01/2009 – 12/2010, \$598,000.
6. NASA EPSCoR- RID, **NASA**, \$400,000, April 1, 2010 -2012.
7. Real-time Predictive Framework for Mosquito-Borne Diseases, **DOD-National Geospatial-Intelligence Agency**, 08/2009 – 07/2014, \$713,196.
8. Multifunctional Polymer Matrix Composites. **NASA**, September 2009-- August 2012, \$700,708.
9. Cedar Falls Utilities' Energy Efficiency Program, **Department of Energy/Iowa Department of Energy Independence**, 09/2009 – 08/2014, \$315,000.
10. GIS and GPS analysis, **John Deere**, 07/2010 – 07/2015, \$3,700.
11. Mapping Hazards and Mitigation Infrastructure for the City of Des Moines, Iowa. **City of Des Moines**, April 1, 2010 -October 2011, \$42,000.

(R-016) StateViews engaged in three activities that promoted the value of their consortium to attract research funding. The value of StateView networks added to the probability that competitive funding was awarded. Highlights follow.

- [MD] At MDView, several businesses have expressed interest in donating to the consortium when the economy improves. The PI is working with ITT Visual to receive a donation of ENVI for our Lab.
- [NH] The NHView PI and others are working on a number of opportunities in which NHView would be an important component. These efforts include a proposal to look at the impacts of forest fragmentation in Southeastern NH. Also, a proposal was submitted to NOAA from AmericaView for secondary education and the use of the existing GLOBE Land Cover Protocols that are supported as part of NHView. Finally, NHView developed and tested part of the capstone activity for Earth Observation Day 2011.

- [WV] A WVView-initiated NSF project received a competitive extension of six months and an additional \$83,769.

Publication of Results in Peer-Reviewed Journals (3 total activities)

(R-017) StateViews engaged in three activities related to submitting and/or publishing their AV-funded research results in peer-reviewed journals. These publications strengthened the PI's standing and thus strengthened the StateView consortium, and AmericaView. Highlights follow.

- [AL] At ALView, four remote sensing articles were published during the reporting period, and four were submitted for peer review.
- [AR] At ARView, one remote sensing-related refereed journal article was published in *GIScience and Remote Sensing*. A second article was accepted for publication in *Southern Journal of Applied Forestry*. By the end of the reporting period, two ArkansasView-supported manuscripts were in progress related to 1) red oak borer hazard response spatial decision support system, and 2) a refereed journal review article on object-based image analysis or OBIA (commissioned by *Geography Compass*).
- [IA] lowaview worked with the DNR and DOT on a LiDAR survey accuracy assessment project. Currently based on the collaborative work, IowaView will be submitting a journal article to a peer-reviewed journal this Spring. IowaView has also received funding from NSF for a Hyperspectral Imaging System, which is a collaborative work from other state agencies in Iowa.

APPENDIX 2 - Expended Funds by Category (Grant Year 2009)

AV Budget Account Name		
7000 · Grant & contract expense	\$719,575.25	
7010 · Contracts - program-related	\$0.00	
7020 · Grants to other organizations	\$702,760.84	Grants to 30 StateViews (NM did not complete their SOW as proposed so no funds were disbursed to them)
7030 · Allocations to affiliates	\$4,255.48	Travel awards to Affiliates to attend Fall Technical Meeting and Winter Business Meeting
7031 · Affiliate & AV wide minigrants	\$12,051.50	Three mini-grant projects
7040 · Awards & grants - individuals	\$507.43	
7050 · Specific assistance - ind.	\$0.00	
7200 · Salaries & related expenses	\$134,934.26	Salary, benefits, and IDCs to host universities for Executive Director and Program Manager
7210 - Officers & Directors	\$0.00	
7500 · Other personnel expenses	\$76,571.43	
7520 · Accounting fees		
7521 · Banking Expenses/Credit Fees	\$220.00	
7522 · Accounting & Finance	\$12,206.66	Accountant's fees
7523 · Audit	\$29,710.00	Audit, including A-133 required by USGS, 990 tax form preparation
7524 · Payroll Services		
7530 · Legal fees	\$1,161.83	General non-profit matters
7540 · Professional fees - other	\$0.00	Consultant for Board retreat in October, 2009
7541 · Program Management/Web	\$18,000.00	Grant to GeorgiaView for AV database development, to VirginiaView for website redesign
7542 · Legislative Outreach/Ed. Consulting	\$14,948.94	Legislative consulting
8100 · Non-personnel expenses	\$6,519.41	
8110 · Supplies	\$830.89	
8130 · Telephone/telecommunications	\$5,417.23	Monthly membership teleconferences, phone charges for E.D. and P.M.
8140 · Postage, shipping, delivery	\$92.46	
8180 · Books, subscriptions, reference	\$0.00	
8190 · Printing/In-house publications	\$178.83	
8300 · Travel & meetings expenses	\$27,156.10	
8310 · Travel		
8311 · Executive Director	\$2,255.77	Travel to WBM, FTM, Washington, DC
8312 · Board Chairman	\$2,385.80	Travel to WBM, FTM
8313 · Directors	\$13,306.15	Travel by 7 Board members and 1 Advisor to WBM, FTM
8320 · Conference, Convention, Board Mtg.	\$7,718.53	WBM & FTM expenses
8314 · Other Travel-Related	\$1,489.85	Travel by P.M. to WBM & FTM
8500 · Misc expenses	\$2,643.55	
8530 · Membership dues - organization		
8520 · Insurance - Dir. & Officers Liab.	\$2,200.00	Director's & Officers Liability Insurance
8540 · Staff development		
8570 · Advertising expenses		
8590 · State Fees/licenses	\$303.55	Required for non-profit status
9800 · Fixed asset purchases	\$0.00	
9830 · Capital purchases - equipment		
TOTAL	\$967,400.00	

APPENDIX 3 - StateView Activity Emphasis

Program Area Key

C= Consortium Development

D= Data Delivery

E= Education

R= Research

A **bold** letter indicates that the state proposed more than five activities in the Program Area, regular font indicates that 1-4 activities were proposed. A dash represent zero activities.

State	Activity Types
Alabama	C D - R
Alaska	C D E R
Arkansas	C D E R
California	C D E R
Colorado	C D E R
Florida	C D E -
Georgia	C D E R
Hawaii	C D E R
Idaho	C D - -
Indiana	C D E R
Kansas	C D - R
Kentucky	C D E R
Louisiana	C D E R
Maryland	C D E R
Michigan	C D E R
Minnesota	C D E R
Mississippi	C D E R
Montana	C D E R
Nebraska	C D E R
New Hampshire	C D E R
New Mexico	- D E -
North Carolina	C D E R
North Dakota	C D E R
Ohio	C D E R
Pennsylvania	C D E R
South Dakota	C D E R
Texas	C D E R
Virginia	C - E R
West Virginia	C D E R
Wisconsin	C D E R
Wyoming	C D E R