

AMERICAVIEW: A NATIONAL REMOTE SENSING CONSORTIUM

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ABSTRACT

AmericaView is a rapidly-growing national consortium of state-based partnerships involving academia with state-based and national government agencies as well as industry and non-profits; its goal is to increase applications for remote sensing throughout the United States. The primary partner for AmericaView is the Land Remote Sensing Program of the United States Geological Survey. Education and training are the foundations of AmericaView. Initiating, enhancing, and supporting the academic use of remote sensing and related geospatial technologies prepares the future and current workforce to apply these technologies effectively; AmericaView engages in numerous activities at K-12, undergraduate, graduate, and professional development levels. Applied research is the second major element in the AmericaView program; specific projects range from providing mini-grants to undergraduate and graduate students, to developing small, focused pilot projects, to larger-scale projects involving a consortium of states. AmericaView's challenge over the next several years will be to continue funding students in their academic research, while expanding the geographic scope and complexity of projects. An early element of the program involved making imagery freely available for applied projects through state-wide archives, to promote applications development. With the free data access from the U. S. Geological Survey a reality, StateViews are now focused on maintaining the archives as outreach tools that gather state-centric data sets in useable formats; StateViews use the availability of the archive to strengthen their consortia and bring together end users and applied researchers. They also provide a location for the donation, consolidation, and preservation of important and timely data sets.

INTRODUCTION

Background

AmericaView is a state-based, nationally organized consortium of partners whose focus is on *promoting* and *supporting* the many uses of remote sensing throughout the United States, in coordination with the USGS Land Remote Sensing Program. Funded by Land Remote Sensing and organized as a non-profit corporation under the laws of the Commonwealth of Virginia in 2003, AmericaView is a tax-exempt 501 (c)(3) charitable education and research consortium. Throughout its history, AmericaView has maintained a focus on three broad objectives: 1) education and outreach; 2) applied research, and; 3) data archive and distribution. Initially focusing on the data archive and distribution component, over the past several years AmericaView has concentrated more of its efforts on education, outreach, and applied research while continuing to maintain the extensive set of state-based data archives used in support of education, applied research, and outreach. The history of AmericaView is can be divided into four phases:

- I.** OhioView Pilot Phase: 1996 – 2000
- II.** Gateway-To-Earth Transitional Phase: 2000 – 2002
- III.** USGS AmericaView Program Definition Phase: 2002 – 2003
- IV.** Stabilization and Expansion Phase: Late 2003 - present.

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Phase I, the OhioView pilot project, was initiated through the support of by Ohio Congressman Ralph Regula (R-OH). Aimed at providing easy, efficient access to public domain Landsat data to academic and other partners throughout Ohio, the program was successful and spawned subsequent efforts to grow the OhioView model in other states.

Phase II saw AmericaView grow both geographically and in breadth of its mission. By the end of 2002, nine new states had become 'StateViews', offering a range of Landsat and other types of remotely sensed data and derived products, data support, research, education, and outreach services to state partners from Alaska to Virginia.

Phase III was characterized by incorporation of AmericaView as a non-profit organization, the formation of the AmericaView Working Groups, and continued growth. The Working Groups provided a formal internal structure that helped organize and facilitate projects of topical interest to the StateViews. The Working Groups act as specialists within the AmericaView consortium.

Phase IV, AmericaView's current focus, has seen significant growth and a renewed emphasis on an organized, expanded set of regional and national programs and projects. The current emphasis is on developing a set of national education and regional applied research projects, while increasing the number of states represented in the consortium.

Relevance

Geospatial technology, lead in large part by satellite-based remote sensing, is one of the most rapidly growing sectors of the U.S. economy. The reasons underlying this rapid growth in both awareness and applications are many and interrelated, but they can be summarized as follows:

1. *Environmental challenges appear to be growing in complexity and magnitude*
2. *Both renewable and non-renewable natural resources are under increasing stress and heightened demand;*
3. *Economies are increasingly interconnected, requiring a geographic understanding;*
4. *Geopolitics and political unrest are center-stage, requiring a comprehensive geographic framework, and objective resource data, as a basis of understanding;*
5. *Remote sensing produces timely and historic, objective information on these and other important natural and cultural features of the Earth; and*
6. *The general public is more aware of these issues through the media, which uses remotely sensed imagery on a daily basis to communicate the geographic relevance of the issues and related issues.*

Because AmericaView concentrates its efforts primarily on medium resolution satellite-based remote sensing, it is actively engaged in supporting the uses of remote sensing in the natural resource sector of the U.S. economy, where medium resolution products such as Landsat are particularly well suited. In fact, AmericaView is uniquely able to address, through cooperative partnerships with agencies and organizations that also focus on natural resource management and administration, critically important natural resource issues in the 21st century. As a state-based, nationally organized education and research organization, AmericaView is positioned to address issues at state, regional, and national levels depending on the needs of our partners. In addition, as a partner with the U.S. Geological Survey's Land Remote Sensing Program, AmericaView's mission of promoting and supporting the use of remote sensing is very closely aligned with the USGS Science Strategy in the decade 2007-2017.

AmericaView's Education Mission

Although our education mission is in many ways tied to our other programs, education is also a stand-alone program composed of four components: K-12, undergraduate, graduate, and professional development. Each component is addressed through projects aimed at initiating, enhancing, and supporting the academic use of remote sensing and related geospatial technologies.

Our K-12 program focuses on science teacher training in Earth system science *content*. Earth system science content, identified and described in the National Science Education Standards, is the key to all AmericaView K-12 education programs, be they unique programs developed and supported by individual StateViews, or larger regional programs developed and delivered through a consortium of StateViews and affiliated partners. Our current focus is on developing regional and national K-12 science education and training, using the NSF, U.S. State Department, and NASA-supported GLOBE Program, one of national partners in Earth system science education.

The GLOBE – AmericaView Partnership

Working closely with GLOBE Program partners, AmericaView is able to deliver Earth system science content using a student-based inquiry approach, supported by the extensive use of geospatial technology including remotely sensed data and derived products, global positioning systems (GPS), and geographic information systems (GIS). The GLOBE Program has been a strong AmericaView partner since 2004, and provides support for AmericaView K-12 education programs by providing technical support of GLOBE Projects, and by hosting workshops, training sessions, and feedback to AmericaView partners.

One of the main strengths of the GLOBE program is its focus on student-generated data, gathered according to strict but fairly simple scientific protocols. Teachers are trained in the protocols, which are tied to the various GLOBE Projects. Once trained, teachers can then teach the content, supplemented and supported by data that the students themselves have gathered, summarized, analyzed, and interpreted. The culmination is a student-based research project which the students themselves design, implement, write up, present, and submit to the GLOBE web site. All GLOBE data is easily available if students want to compare their own local data to data gathered by students in 110 countries around the world. Every element of GLOBE, from the content-rich lessons, to the protocols and projects, are closely aligned to U.S. national standards and designed to fit seamlessly into existing state science and technology curricula.

StateView K-12 Training

Many StateViews are also involved in K-12 training through other partners. Training can take a variety of forms, from short (one to two hour) introductions to remote sensing, to week-long intensive workshops designed to prepare science teachers to seamlessly implement all three geospatial technologies within the state science and/or geography curriculum. Our focus in the current planning cycle (2008-2010) is to plan for and begin to develop a more coordinated set of K-12 training programs, aimed at ultimately implementing a set of content-specific workshops that focus on Earth system science topics such as weather and climate, land use / land cover, and hydrology, taught using geospatial technology and emphasizing satellite imagery from the StateView and USGS archives. We accomplish the larger, more nationally coordinated projects through external grants to funding agencies such as NASA, NOAA, and USDA. A new direction for us is to seek funding from private foundations whose mission includes strengthening science and technology education.

Undergraduate and Graduate Education

Each StateView is heavily involved in graduate and undergraduate education. Without exception, StateView PI's are academics that specialize in remote sensing, and many teach both remote sensing and GIS using traditional and extended learning methods. The focus has been and will continue to be on strengthening existing courses at StateView and partner organizations, while expanding the number of courses taught within states to help in meeting the growing demands of the geospatial industry in the U.S.

Given the growth in demand for graduates trained in remote sensing and related technologies, the StateViews are currently producing students with the skills to join the current workforce. However because remote sensing, GIS, and GPS are used as tools in disciplines ranging from natural resource management, to environmental science, to physical and cultural geography, to political science and national security, there is an increasing need for additional courses that transcend specific natural and social science disciplines. Working across disciplines is therefore an important new approach, and new challenge, for those that specialize in remote sensing. AmericaView, through its StateView programs, will place an increasing emphasis on developing relationships with college and university programs that would benefit from a basic working knowledge of how remote sensing can be used in a wider variety of disciplines. To accomplish this, StateView directors offer lectures in course that range from political science to business and economics.

Professional Development

StateViews also provide a wide range of professional development programs, focusing their specific programs primarily on the needs of their in-state partners. Many StateViews provide professional development workshops at state-wide GIS and Remote Sensing conferences on an annual or semi-annual basis. In addition, many states have partnered with local, state, and federal agency partners to host joint remote sensing training programs aimed at addressing local and state issues such as watershed mapping, land use – land cover mapping at the watershed and / or county level, and natural resource-specific applications such as forest mapping and mapping of invasive species. Given increasing human development characteristic of many areas across the U.S., and the pressures that development places on finite natural resources, these training projects are invaluable for state-based partners. The operating budgets of our state-based partners, like the natural resources that they manage, are also increasingly

stressed, adding significantly to the value that training in remote sensing provides to their technical and professional staff.

AmericaView's Applied Research Mission

Like education and outreach, applied research comprises a broad area of activities. Specific projects range from providing mini-grants to undergraduate and graduate students, to developing small, focused pilot projects, to larger-scale projects involving a consortium of states. AmericaView's challenge over the next several years will be to continue funding students in their academic research (which is often of an applied nature), while expanding the geographic scope and complexity of projects. Projects that cover larger, multi-state areas and regions will be, by their very nature, more complex and longer in duration, requiring sustained funding. Thus, our focus will be on identifying a project or set of projects for each region, developing a research consortium and focus, and applying for competitive funding to support such projects. Certainly there is no shortage of issues facing state and federal natural resource managers, especially those who focus on fresh water and near-shore marine environments, terrestrial ecosystems, and climate-related phenomena, but funding for such projects is highly competitive and the amount of money available has not increased relative to the issues and costs associated with addressing these challenges.

To begin focusing on a set of regional and national projects, the USGS's Facing Tomorrow's Challenges—U.S. Geological Survey Science in the Decade 2007–2017, provides direction. It lists six issues that the USGS considers the most important and formidable research and management challenges that the U.S. will face over the next decade. These are:

- Understanding Ecosystem, and Predicting Ecosystem Change
- Climate Variability and Change: Clarifying the Record and Assessing Consequences
- Energy and Minerals for America's Future: Providing a Scientific Foundation for Resource Security, Environmental Health, Economic Vitality, and Land Management
- A National Hazards, Risk, and Resilience Assessment Program: Ensuring the Long-Term Health and Wealth of the Nation
- The Role of Environment and Wildlife in Human Health: A System that Identifies Environmental Risk to Public Health in America
- A Water Census of the United States: Quantifying, Forecasting, and Securing Freshwater for America's Future

Because the USGS will take an ecosystems perspective in addressing these challenges, AmericaView will identify those components of the larger USGS research agenda that are the most closely tied to synoptic, objective, and large-scale monitoring, assessment and predictive modeling using medium resolution remote sensing.

AmericaView's Data Archive and Distribution Mission

Data archive and distribution formed the core of earlier AmericaView projects, dating back to the first years of the consortium. As a minimum requirement for participation as a full StateView full, each state was required to host an archive of public domain Landsat data covering the state. The state archives were, and remain, a critically important required service and have a history of extensive use by state partners, other AmericaView states, and the general public. The data archive and distribution mission has changed over the past year or so, given USGS plans to release all Landsat data at no charge through their GloVis and EarthExplorer web-based archives. As a direct result, the AV state-based archives are no longer considered as important as the primary USGS data archives. While still providing an important service, AV will no longer support the development and maintenance of the StateView archives at the level of previous years.

StateView Work Plans & Anticipated Outcomes for 2008

State work plans are submitted annually, and constitute the program of work for each state partner. Work plans are presented within four major activity areas: 1) consortium development and outreach, 2) education; 3) data archive and distribution; 4) research (Tables 1,2). Each major activity area is grouped into subsets of related activities.

Table 1. Activities are planned by the StateView programs in 416 task areas for 2008.

<u>Rank</u>	<u>Major Activity area task areas proposed</u>	<u>Total number of task areas</u>	<u>% of total</u>
1.	Consortium Development and Outreach	122	29%
2.	Education	110	26%
3.	Data Archive and distribution	104	25%
4.	Research	80	20%

Table 2. The top ten most commonly proposed areas of activity are as follows:

<u>Rank</u>	<u>Activity Area – “activity subset”</u>	<u># Task areas in which activities are proposed</u>	<u>% of Major Area</u>
1.	Consortium Development and Outreach - “External Vehicles”	54	44%
2.	Data Archiving/Distribution – “Maintenance/Development”	50	38%
3.	Data Archiving/Distribution – “Archive Growth”	43	33%
4.	Education – “Training Current Workforce”	35	32%
5.	Research – “Develop Applications Through Pilot Projects”	35	44%
6.	Research – “Research Opportunities for Students”	33	41%
7.	Education – “Offer New Courses and Resources”	31	28%
8.	Consortium Development and Outreach - “Internal Vehicles”	27	22%
9.	Consortium D. and O. - “Inter/Intra Consortium Vehicles”	26	21%
10.	Education – “K-12 Programs”	22	20%

The following sections outline descriptive level information, with a small subset of examples representative of the states’ work plans. The subsets are provided in lieu of a complete list, for brevity.

Education Activities

Education activities comprise 110 (26%) of activities proposed by the states for 2008 in 416 tasks areas (Table 1). Of these activities, the most important activity for states will be to use a percentage of their AV funding to support the training programs and follow-up support for current workforce users (32% of educational activities). These activities are ranked fourth among those proposed for 2008 (Table 3). Expansion of remote sensing course offerings or other resources is the second-most important education activity proposed for 2008, compared to being ranked seventh in 2007. Education activities fall into five subgroups, as follows:

1. Additional courses and resources offered through AV funding

Includes sharing software licenses and making them centrally available; sharing course materials with other institutions; using StateView data archive resources to support teaching; enabling the offering of short-courses; giving guest lectures in courses across multiple disciplines; promoting the recruitment of new remote sensing faculty. Over one-half of StateViews have proposed in this category of activities for 2008, and 28% of educational activities fall into this subgroup. The newest members eligible for funding have focused on providing access to imagery for teaching, and on guest lectures demonstrating remote sensing applications in multiple disciplines. StateViews which have been funded for extended periods continue to be active in those areas, and also are actively developing, sharing and distributing course materials. Representative examples include:

- Developing and sharing new course materials with in-state and AV partner institutions (SD, WV, KT, HI, MD)
- Developing and sharing new short-course materials (LA, HI, MD, WV)
- Continuing to teach recently-developed (2007) applied remote sensing courses that depend on Landsat and ASTER archival data as resources (WY, WV)
- Presenting guest lectures in non-remote sensing / geoscience disciplines (MI, NB, NH)
- Disseminating online remote sensing distance learning resources developed during 2007(CA)

2. Training programs for the current workforce

Short courses; post-training follow-up and support; development of new training materials. Over one-half of StateViews have proposed in this category for 2008; 28% of educational activities fall into this grouping. Previously-funded StateViews propose to continue existing efforts and to develop new training programs. Over 60% of the newly-funded members propose to engage in these activities; most will be leveraged with funding from partners and existing programs. Representative examples of state proposals for workshop activity in 2008 include:

- Developing materials and delivering a short course to agency partners (AR, IA, LA, MS, MN, VA, MD, NM, WY, IN, KY)
- Creating tutorials related to sharing remote sensing datasets (MN, NM)
- Enhancing an existing remote sensing lab manual by creating flash tutorial “walk-through” of basic image manipulation, information extraction, and processing operations using ERDAS IMAGINE. These will be made available online for download (ND)

3. Undergraduate and graduate training programs for the future workforce

Summer training programs; hands-on training opportunities for interns; training in-service teachers; funding a stipend to encourage a student to pursue an RS component in their education. Five states have proposed to conduct activities in this subset in 2008, in seven task areas. Four of these are new task areas for the proposing StateViews. These include:

- Offering an internship with stipend to an undergraduate or graduate student to help directly with its consortium and remote sensing related projects, educational materials, and research related work (MT)
- Providing direct stipends to students in support of the remote sensing component of their education (AL, SD, WV, WY)

4. K-12 Training programs for the future workforce

Includes guest lectures, demonstrations, workshops; activities targeting youth organizations; mentoring programs for students; supporting state educational standards; teacher training, developing K12 lesson plans. Thirteen StateViews have proposed in 24 task areas in this subset for 2008; more than one-half are continued from previous years of effort and approximately two-thirds of the tasks proposed will receive more than 50% of their support through AV. Specific activities include:

- Delivering guest lectures on K-12 campuses to support the GLOBE Land Cover Investigation (NH)
- Developing educational materials demonstrating remote sensing through visual media and hands-on activities (VA)
- Designing and implementing a one-day workshop to introduce in-service 9-12 teachers to remote-sensing concepts and software (HI, NB, KY, TX-GA-MD (two programs))
- Implementing the SATELLITES weeklong workshop (OH, MD, PA)
- Developing a two course (six credit) geospatial science ‘watershed dynamics’ course via a NSF grant written by StateView coordinator (WV)
- Developing a tutorial focusing on Native American & historic Montana culture that utilizes remote sensing (MT)
- Recruiting teachers to write, implement, and evaluate remote sensing lessons plans (MT)
- Offering a four- day Geospatial Technology for Educators workshop at the USGS National Center for EROS (ND)

5. Increasing awareness of the public

These activities include outreach via displays, mass mailings, posters, presentations to service organizations, using imagery in public venues. The total percentage of task areas proposed for 2008 within the “Education” area has increased compared to that proposed in 2007, from 22% to 25%. Specific increases are predominantly in the areas of developing and presenting training programs for the current workforce, and in increasing remote sensing public awareness. The increase in training for the current workforce is significant and involves the newly-funded StateView members. Eight states have plans to provide display materials or other materials for general outreach to the public in 2008, in a total of 15 task areas. Activities include:

- Presenting and sharing materials for remote sensing-based public lectures and demonstrations (KY, NB, PA, MD, TX (three programs))
- Creating public posters and hosting information booths at community events (ND, CA, TX, MD, GA)

Consortium Development and Outreach Activities

Consortium development and outreach accounts for 122 (29%) of the 416 task areas identified by the states in their 2008 work plans. Consortium development and outreach activities fall into one of four groups of activities:

1. External Vehicles

Includes activities such as presentations, seminars, faculty exchange, agency interactions, publications in trade journals, and establishing student internship opportunities through networking) to bring positive attention to the StateView program and encourage broader participation. Of the four consortium development and outreach groups of activities proposed, the main focus in 2008 is on external vehicles; this is the top-ranked of all activity subsets for 2008. Forty-four percent of all Consortium development groups of activities are external. Approximately 38% of the 122 task area activities involving Consortium Development for 2008 are accounted for by giving presentations at various regional, state, or national conferences, to users' groups or through presentations to agencies at multiple levels of government. Conference events span a range of audiences, including state GIS communities, applied geography groups, industry and academia (e.g. ASPRS, AAG), and various specialty groups. Examples include:

- Presenting at statewide GIS/Geospatial/Geography conferences (ID, IA, KY, MD, PA, NH, MN, AL, WY)
- Organizing a land use planning conference (MD,)
- Presenting at the 2008 PECORA Conference (KS, TX, AL, WI, VA, GA, AK, WY)
- Sponsoring and co-sponsoring invited sessions at national conferences (AmericaView)
- Hosting regional conferences (ND at Great Plains/Rocky Mountain Division of AAG and the Upper Midwest Chapter of ASPRS meetings)
- State/local agency and organization support (apart from conference outreach, workshops) (AR, MI, MS)
- Presenting to partners / user groups (newly-funded members ID, NM, MS, IA, KY, LA, MI, MD, NH, PA)
- Offering internships for students in support of research or StateView activities (LA, MD, NH, WV)
- Representing the consortium on the technical program planning committee for the ASPRS national conference in 2009 (AmericaView)

2. Internal vehicles

Internal vehicles include sharing curriculum and software licenses with other consortia members, developing opportunities for collaborative research among consortia members, leveraging funds to support a StateView Coordinator. Activities in this activity subset have held relatively steady since 2007; it is now the seventh-ranked activity subset for 2008. Software sharing has been implemented by eight StateViews, and training for faculty is ongoing in seven StateViews. Examples include:

- Providing software licenses for StateView consortia members (AR, ND, OH, WV, MS, MD)
- Providing training for faculty members in various aspects of remotely sensed data analysis and other geospatial technologies (KY, LI, MS, NH)
- Providing training for StateView (faculty) members in SATELLITES K-12 educational outreach program (OH)
- Maintaining and augmenting a Wiki website for sharing information (MI)
- Hiring a part-time StateView coordinator (TX, CA)
- Developing, with consortium member Turtle Mountain Community College, an AAS degree in Geography with a focus on geospatial science and technology (ND)

3. Financial vehicles

Financial vehicles include providing training grants for faculty and teachers, partnering with other organizations that sponsor training, and leveraging other project resources to obtain imagery. Several states have activities planned for 2008 that will allow them to better leverage their StateView funding and resources to advance their consortia. Two important tasks in this group of activities are 1) to partner with other institutions that have existing and well-supported training programs in place and 2) to collaborate with other projects that expand StateView archive holdings in a cost-effective and leveraged manner. Examples include:

- Partnering with WETMAAP (LI), the U.S. Space and Rocket Center (AL), and Space Grant (IA, MD, PA)
- Offering a four day Geospatial Technology for Educators workshop at the USGS National Center for EROS (SD)
- Transferring newly-purchased imagery to the StateView archive (GA, SD, TX)

4. StateView/AmericaView Vehicles

StateView/AmericaView vehicles involve activities such as sharing of curricula and software licenses among StateViews, collaboration on regional or topical grants, maintenance of in-state communications through conference calls and conferences, and participation in statewide geographic data committees. Highlights include:

- Developing joint projects through cooperative grants (AL, TX, LA, MS, GA, and OH, SD, IA, and AV ED)
- Providing regular meetings and teleconferences (ID, MT, KY, NH)
- Providing regular teleconferences for AV-wide Working Groups / committees (AV national)
- Representing StateView on statewide geographic data advisory committees or boards (AL, AR, CA, HI, ID, KS, KY, MD, MT, NB, TX, WV)

Research Activities

Although the Research subset of major activities was the least commonly planned by StateViews for 2008, and tasks in the Research area comprise only 20% of all task areas proposed, overall the 5th- and 6th-ranked activity subsets include developing applications through pilot projects and developing research opportunities for students. Pilot project development will see a particular increase during 2008. Of the 80 research-related task areas proposed for 2008, approximately 44% are focused on developing applications through pilot projects; the majority of these are heavily-leveraged in cooperation with diverse organizations, and most will involve student participants. Forty-one percent of all task areas proposed under the Research subset are accounted for by developing specific research opportunities for students; one-third of these are fully funded by AmericaView.

1. Develop Applications - Pilot Projects

These activities include collaboration with agency personnel, with researchers from other StateViews, finding innovative uses for moderate resolution satellite data, developing software to support distribution of satellite, airborne, and geospatial data, posting methodologies or tools for other StateViews to use or test, and seeking commercialization opportunities for tools and data. Twenty four StateViews have proposed in this activity subset, with a concentration on task areas involving collaboration with agency personnel from local to state and federal levels and on developing innovative applications for moderate-resolution imagery. Examples include:

- Working with partners to develop pilot projects (HI, TX, NH, MI, KS, MD, NB, VA, AR, IN, MI, OH)

2. Develop Research Opportunities for Students

These activities include offering funding to students (including minority students) to support remote sensing research, promoting the use of StateView archived data in class room research, supporting student publications/presentations in university forums, promoting research competitions among institutions in a consortium, and serving on MS/PhD committees or advise students on remote sensing. All StateViews are involved in supporting students, and 35 task areas within this subset of activities are identified in the annual Statement of Work. Most of these activities involve the use of imagery for teaching and research, and in service on MS and PhD committees. Examples include:

- Making competitive research mini-grants available to faculty-supervised undergraduate and graduate students (KS, ND, SD, IN, WV, WY, AL, GA, MT, NB, WI)
- Serving on graduate committees (all funded StateViews; several PI's sit on multiple committees)
- Planning a conference or symposium for presentations of student and faculty research (OH, WY)

3. Develop innovative ways and methods to process and deliver data

These activities include developing enhanced ability to subset (spatially and spectrally) on the fly and developing the ability to conduct certain type of enhancements and transformations on the StateView website.

- Research the possibility of using free open-source geospatial server applications to spatially subset data through geospatial web services (MI)

4. Using StateView resources for leveraging

These activities include leveraging coordinator salaries in grant proposal; leveraging data resources in support of grant proposal; publication of leverage research in peer-reviewed publications with acknowledgements to AV.

- All StateViews leverage their resources in a wide variety of ways.

Data Archive and Distribution Activities

Data archiving accounts for 104 (25%) of the 416 task areas identified by the states in their 2008 work plans. Data archiving activities fall into one of four groups of activities as follows:

1. Archive Maintenance, Distribution, and Growth

These activities include basic maintenance of a publicly accessible archive; making data available at low- or no-cost; generating user friendly formats (e.g. GeoTIFF, JPEG); adding new images to the archive; installing a state instance of GloVis; developing an ArcIMS, MapServer, or simple html interface to help users locate data over an area of interest. Twenty-seven StateViews have 93 activities planned in these task areas. The majority of those activities will focus on the continued maintenance and expansion of archive infrastructure, a basic (historical) StateView requirement. For previously funded StateViews, this is a continuation of efforts begun in previous years and is not new for 2008. Forty-eight percent of total data archive and distribution activities fall within maintenance and development task areas, and 41% fall within the archive growth domain. These are the second and third ranked activity subsets for 2008. The archives are powerful outreach tools that gather State-centric data sets in useable formats. They also provide a location for the donation, consolidation, and preservation of important and timely data sets that many end users would otherwise not have access to. Activities include:

- Maintaining a basic StateView archive (all StateViews funded in 2007)
- Expanding archives to include non-Landsat data (AL, AK, ID, KS, GA, HI, MI, LA, MN, OH, MT, SD, WY, WI, IA)
- Providing 'easy to use' formats (MI, MN)
- Developing a web interface for data search and retrieval (ID, KY, MD)

2. Ground Station or Airborne Operations

Receiving/distributing data; developing real-time collaborations with emergency responders; supporting field operations. Both satellite reception and airborne data collection figure in proposals from six StateViews; four will receive/distribute satellite data and two will collect airborne data with partners. In each case, the ground receiving station/airborne sensor system is generally funded through other means and the StateView focus is on making the imagery available through the StateView archive, and/or leveraging the imagery in an applied setting with a specific state agency or group of state agencies. Four StateViews will develop near real-time collaborations with emergency responders. Examples include:

- Receiving Landsat, MODIS, or other satellite data (AK, WI, IN, HI)
- Developing a project with a partner to collect aerial imagery (AL, AR)

While the need for developing and sustaining a free archive of Landsat imagery will diminish with the new Landsat Data Policy promulgated by the USGS, the StateView archives contain a valuable source of historic data for many users in their states. The data is also directly connected to StateView consortium members who serve as mentors for potential users who might otherwise never "take the plunge" into imagery applications without the education and training resources offered by StateViews. StateView archive maintenance and development has shifted towards use of archives for outreach, education, and training, and as a resource for applied research projects.

CONCLUSIONS

Although AmericaView has a short history, we have grown rapidly as an organization and are now involved in literally hundreds of remote sensing projects of various size and scope across the country. Over the decade or so of our existence, our mission has remained focused on supporting and promoting remote sensing and related products free of charge to the public. With the recent announcement by the USGS that all Landsat data will be freely available over the internet, AmericaView has placed its emphasis on the data support role, rather than on data archive and distribution. The support role is more challenging, but also more important as data becomes easily accessible to a wider range of users. To meet this challenge, we are focusing our efforts on education and applied research, which are in reality very closely related and in many cases, one and the same objective.

REFERENCES

U.S. Geological Survey, 2007. Facing Tomorrow's Challenges—U.S. Geological Survey Science in the Decade 2007–2017. U.S. Geological Survey Circular 1309. Washington, D.C.

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