

Quarterly Report

FY 2005
First Quarter
National Center for EROS

This is the Quarterly Report of the National Center for Earth Resources Observation and Science (EROS) for the first quarter of fiscal year (FY) 2005. It is not designed or intended to be a comprehensive accounting of all activities at EROS. Rather, it is a synopsis of significant events, agreements, publications, progress, and results. Current plans call for this report to be prepared for each quarter of each fiscal year. An Annual Report will review the overall annual activity of EROS and will be produced following the fourth quarter of the fiscal year.

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Questions regarding individual reports should be addressed to the contacts listed at the end of each report. Questions or comments regarding the overall Quarterly Report should be addressed to Dennis Hood at 605-594-6547, or hood@usgs.gov.

Feature Article

Message from the Director, USGS –
December 15, 2004



Recently, I elevated the EROS Data Center to national capability status. What does this mean? For EROS, it involves a name change (from Earth Resources Observation Systems Data Center to the National Center for Earth Resources Observation and

Science). But the key difference is extending the use of remote sensing and geographic information science beyond the Geography Discipline.

I've asked EROS to support all U.S. Geological Survey (USGS) programs with its unique land remote sensing archive and engineering and scientific expertise. EROS will expand and enhance the use of remote sensing as a tool for Earth and biological sciences, ensuring that monitoring efforts enable integrated science at regional and national scales. EROS will also provide a variety of remote-sensing education and training opportunities.

That is only part of the story, however. Remote-sensing terrestrial monitoring capabilities can help address science and land management issues facing our sister bureaus at the Department of the Interior (DOI), other Federal agencies, international organizations, and the public. The opportunities for partnerships and reimbursable projects are excellent.

If you want to integrate EROS' expertise into your science, contact R.J. Thompson, EROS Director. Read more about EROS at eros.usgs.gov.

Chip Groat

National Center for Earth Resources Observation and Science (EROS) Charter

On August 17, 2004, the Director of the U.S. Geological Survey (USGS) announced the decision to establish the EROS Data Center as a "national capability" of the USGS. The EROS Data Center is a national data reception, processing, archiving, distribution, and research facility for remotely sensed data and other forms of geographic information. It holds the world's largest collection of civilian remotely sensed

data covering the Earth's land surface, archiving millions of satellite images and aerial photographs. This archive, co-located with its attendant engineering and scientific expertise, provides a unique capability for developing and promoting science applications of remotely sensed data to identify, monitor, and understand changes on the landscape and across the interface between nature and society. Formerly the Earth Resources Observation Systems Data Center, the Center will rededicate its resources and capabilities to become the National Center for Earth Resources Observation and Science (EROS).

As a national capability, EROS will focus on the development and implementation of remote-sensing-based terrestrial monitoring capabilities to address national and international science and land management issues of concern to the Department of the Interior (DOI), other federal agencies, and the public-at-large. EROS will bring to bear its unique combination of existing capabilities and expertise in geographic information sciences, remote sensing technology, data acquisition, systems engineering, information access and management, and archive preservation. Through its diverse multidisciplinary science staff, EROS will provide an effective and critical link between remote sensing tools and techniques and interdisciplinary science needs. EROS will also assume an important role for establishing national priorities for existing and proposed land remote sensing systems based on the terrestrial monitoring requirements of the USGS and other bureaus within the DOI. EROS will leverage its existing infrastructure to access, archive, process, and distribute national and global remotely sensed data, and will work with the USGS Geospatial Information Office and external partners to implement key information technology and data management capabilities.

As a national capability, EROS will work directly with USGS National Programs and the associated USGS science disciplines to develop and enhance the terrestrial monitoring capabilities of the USGS via land remote sensing systems, data streams, allied technologies, and partners. EROS will work to expand and enhance the beneficial use of remotely sensed data as tools of earth and biological science by providing scientists and managers with a variety of remote sensing education and training resources and opportunities. EROS will work with USGS Regional Executives to ensure that regional monitoring requirements take advantage of existing, cost-effective, remote-sensing-based systems, whenever and wherever appropriate, as well as to ensure that those requirements are considered in the design, development, and exploitation of new systems. EROS will also work to ensure that resultant regional monitoring capabilities are designed to

enable integrated science across regions and at national scales. EROS will continue to leverage reimbursable collaborations and external partnerships that advance and facilitate development and implementation of new USGS mission-relevant, remote-sensing-based monitoring capabilities.

(Contact: R.J. Thompson, 605-594-6123)

Land Cover Status and Trends

USGS Research Shows Wetland Changes Affect Florida Freezes

Scientists funded by the USGS and the National Aeronautics and Space Administration (NASA) used Landsat 5 satellite data to look at changes in wetlands areas in south Florida, particularly south and west of Lake Okeechobee (fig. 1). Using satellite data, land-cover change history, computer models, and weather records, researchers found a link between the loss of wetlands and more severe freezes in some agricultural areas of south Florida. In other areas of the state, changes in land use resulted in slightly warmer conditions. They concluded, based on the study, that conversion of wetlands by itself may be enough of a trigger to enhance damage inflicted upon agriculture in these areas of south Florida during freeze events. The study, authored by Curtis Marshall and Roger Pielke of Colorado State University (CSU), Fort Collins, Colo., and Louis Steyaert of the USGS and NASA's Goddard Space Flight Center, Greenbelt, Md., appeared in a recent issue of the American Meteorological Society's *Monthly Weather Review*.

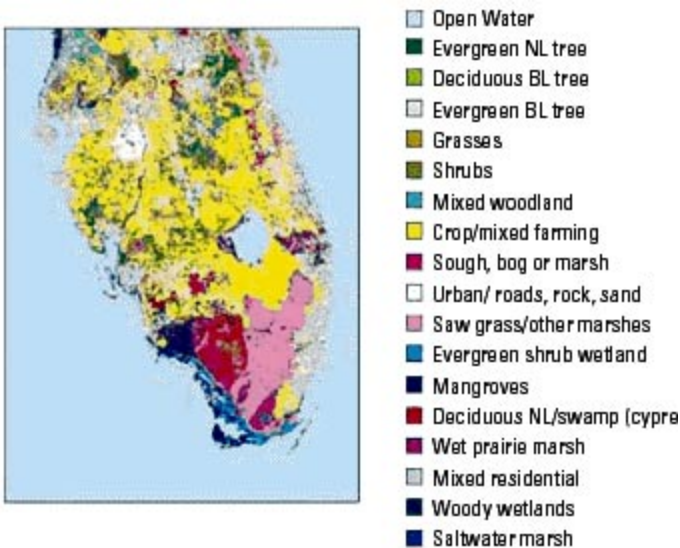


Figure 1. Current land use derived from Landsat scenes.

(Contact: Lou Steyaert, 301-614-6675)

Land Cover Change in the Northern Piedmont

Research scientists estimated that the rate of contemporary land use and land cover change in the Northern Piedmont was 6.2 percent between 1973 and 2000. Research findings indicate that 416,200 acres changed land cover at least once during the last 30 years. The ecoregion's dominant land covers (agricultural, forest, and developed lands) experienced the most change by sector. Scientists determined that developed land increased 322,000 acres. The vast majority (311,000 acres) of this change was from agricultural or forested land. The agricultural land-to-urban land cover conversion was the leading change, affecting 207,600 acres. Forest-to-urban was the second leading change across the study period, accounting for 104,300 acres. These two leading changes represented approximately 65 percent of the total change detected. Agricultural land decreased 244,000 acres, although not all of this loss was to urbanization, and forested land declined overall by approximately 100,000 acres. In terms of percentages, developed land increased from 22.5 to 27.3 percent, whereas agricultural land decreased from 39.2 to 35.6 percent. Forested land decreased slightly from 35.5 to 34.2 percent (fig. 2).



Figure 2. Map of the Northern Piedmont showing land cover in 1992 with sample block locations in yellow. The Northern Piedmont covers approximately 11,800 square miles in New Jersey, Pennsylvania, Maryland, and Virginia. It includes the western portions of New York City, Philadelphia, Baltimore, and Washington, D.C.

(Contact: William Acevedo, 650-329-4383)

GeoCafe

The online maps and geospatial applications developed by the GeoCafe project in the Dominican Republic, Guatemala, and Costa Rica provide gateways into the world of coffee in these participating countries. They contain, among other things, precise geographic locations and rich datasets associated with their coffee regions, farms, producer associations, and industrial mills. The GeoCafe will help buyers locate the coffee they are interested in, nongovernmental organizations

(NGO) monitor the impact of coffee production on the environment, coffee agencies predict the size of next year's crop, and the public learn more about coffee.

EROS and national coffee agencies are developing GeoCafe with funding provided by the U.S. Agency for International Development (USAID). During 2004, EROS provided assistance and funding to partner agencies for the implementation of national GeoCafe systems, which are now in operation and accessible to the public on the Internet.

(Contact: Larry Tieszen, 605-594-6056)

Impact of Climate and Land Use Change on Carbon Sink Strength

The following charts (fig. 3) show model-simulated impacts of (A) climate variability and change and (B) land use change on the carbon sink strength of terrestrial ecosystems. Results are generated from the General Ensemble Biogeochemical Modeling System (GEMS)¹ for a 10- by 10-km area within the Ridge and Valley ecoregion. Land cover change information was derived from Landsat imagery obtained in 1973, 1980, 1986, 1992, and 2000.² Model simulations based on historical climate and land use change information demonstrated stronger inter-annual variability (i.e., the Base scenario) than those based on either (1) long-term mean climate conditions or (2) a single static land cover snapshot obtained in 2000. Results clearly show that the inter-annual variability of climate has a predominant impact on the temporal dynamics of carbon exchange between terrestrial ecosystems, and land use change dynamics alter the magnitude and the inter-annual variability significantly.

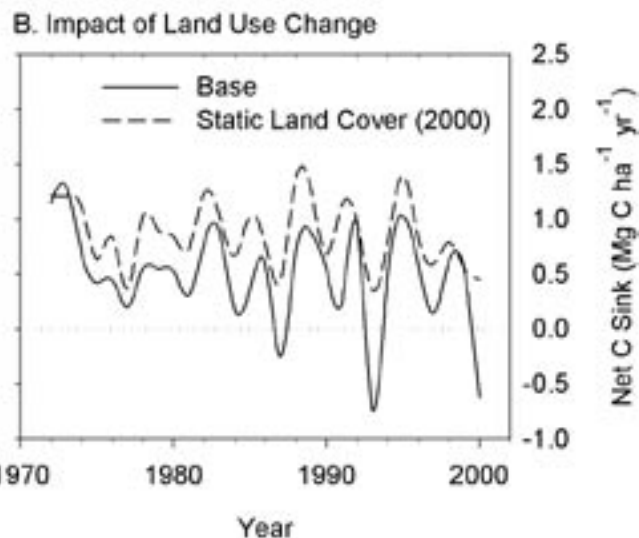
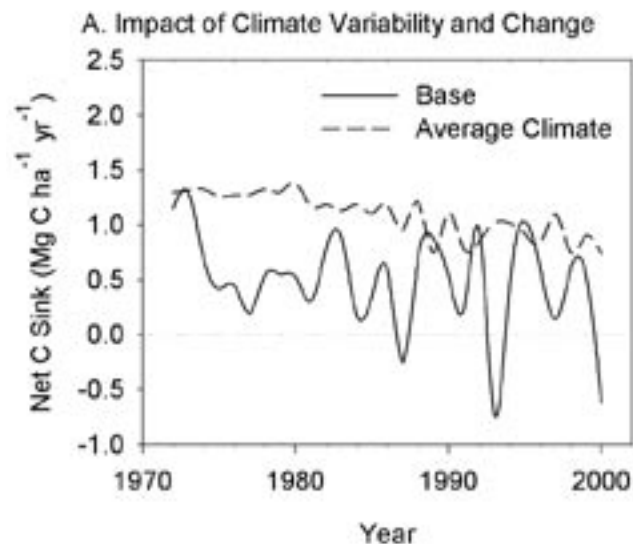


Figure 3. (A) Impact of climate variability and change. (B) Impact of land use change.

¹Liu, S., Kaire, M., Wood, E., Diallo, O., and Tieszen, L.L., 2004, Impacts of land use and climate change on carbon dynamics in south-central Senegal: *Journal of Arid Environments*, v. 59, no. 3, p. 583-604.

²Loveland, T.R., Sohl, T.L., Stehman, S.V., Gallant, A.L., Saylor, K.L., and Napton, D.E., 2002, A strategy for estimating the rates of recent United States land cover changes: *Photogrammetric Engineering and Remote Sensing*, v. 68, no. 10, p. 1091-1100.

(Contact: Shuguang Liu, 605-594-6168)

Arid Publication

USGS scientists completed a major multi-institution and interdisciplinary prototype project in Senegal, West Africa, that addressed global change issues, opportunities for mitigation, and the need for adaptation. The project, funded by USAID and several other international and private sources, integrated remote sensing approaches to evaluate land cover changes and biomass changes with biogeochemical simulation modeling of carbon fluxes in natural and managed systems. Substantial losses of carbon were documented, although opportunities to sequester carbon were illustrated as were management interventions to both mitigate climate change and support agricultural sustainability. The economic and policy implications were quantified in test sites. Impacts of climate change scenarios were simulated and suggest serious concerns about crop productivity in this area. These results were documented in a Special Issue of the *Journal of Arid Environments*, Volume 59, Issue 3 (November 2004), Land Cover, Biomass, and Soil Carbon Trends in Senegal: Management Options and Climate Sensitivity, edited by Larry L. Tieszen and G. Gray Tappan.

(Contact: Gray Tappan, 605-594-6037)

High-Resolution Orthoimagery

EROS started delivering high-resolution orthoimagery in May 2003. We continue to add cities on a monthly basis. Seventy-four high-resolution orthoimagery areas are available for download and viewing, and four areas are restricted to view only. The coverage area for downloadable imagery and view-only imagery is shown below (fig. 4).



Figure 4. Coverage area of high-resolution orthoimagery.

(Contact: Jean Paulson, 605-594-6560)

Topographic Science

EDNA Integration and Applications

A new on-demand, contour-generation tool has been developed in ArcObjects. It allows a user to generate contour lines (large-scale only) from the National Elevation Dataset (NED) at a user-defined contour interval (fig. 5). Initial indications are that contours generated by this tool compare favorably with digital line graph (DLG) contour lines of the

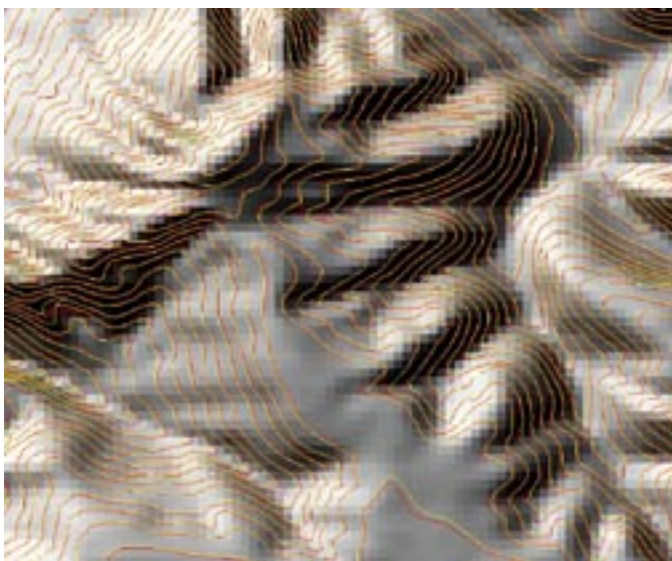


Figure 5. Contour lines computed using NED seamless data closely match the data from already available map sources. Contour line information does not require heavy computational effort and can be done upon request. Agencies such as the Federal Aviation Administration (FAA) have shown serious interest in this type of work.

same area. Index contour lines are identified and displayed as thicker lines. The lines are labeled with the contour value. A shape file is generated that could be delivered to the user as well. A similar tool has been developed that will allow a contour line to be generated from a user-specified point on a map. Both tools are scheduled to be Web-enabled.

(Contact: Sue Greenlee, 605-594-6011)

National Elevation Data Research

USGS light detection and ranging (LIDAR) activities were featured in a highlight article in the January 2005 issue of the *Photogrammetric Engineering & Remote Sensing (PE&RS)* journal. Vivian Queija (Western Region), Jason Stoker (EROS), and John Kosovich (RMMC) co-authored the article describing LIDAR research being conducted by the USGS. The cover featured LIDAR data collected for the USGS for Mount St. Helens (fig. 6).

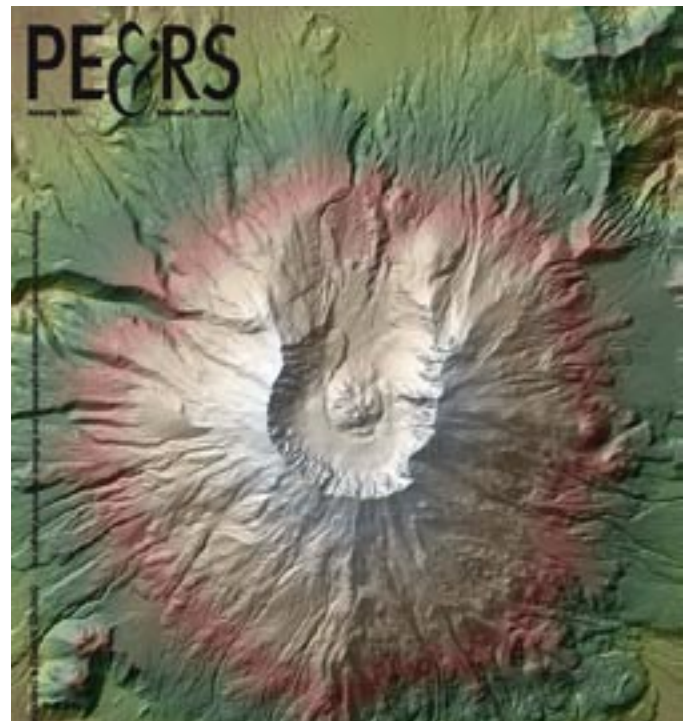


Figure 6. Cover of the January 2005 *PE&RS* journal.

(Contact: Sue Greenlee, 605-594-6011)

AmericaView

The USGS AmericaView project released the next version (Version 4.0) of the Moderate Resolution Imaging Spectrometer (MODIS) Direct Broadcast processing system in December 2004. This release allows users to begin receiving daily access to several new products and includes the following enhancements:

- Addition of a surface reflectance product (L2R and L2RG) and a normalized difference vegetation index/enhanced vegetation index (NDVI/EVI) product (L3V and L3VG).
- Modification of the 7-day composite products to use surface reflectance data instead of L1B data.
- Modification of the 7-day composite products to create a 250-meter (m) and 1,000-m product in addition to the existing 500-m product.
- Modification of daily user notification e-mail messages to include latitude/longitude extents of the pass, acquisition date (not day of year), Aqua or Terra platform, which day samples per scan, and number of scans.

An inquiry was received from the U.S. Department of Agriculture's (USDA) Foreign Agricultural Service concerning possible cooperative efforts to incorporate USGS Global Visualization (GloVis) capabilities into the USDA CropExplorer system. Initial technical discussions were held during the first quarter and several phases of integration were defined. The GloVis team provided technical assistance to the CropExplorer team during the implementation of the first phase, which included adding links on the CropExplorer site that open a separate browser window to the GloVis applet page, which displays the corresponding browse images available for the selected location (fig. 7).



Figure 7. The USDA CropExplorer system added links to GloVis for displaying corresponding satellite browse images selected by the user.

(Contact: Karen Zanter, 605-594-6945)

Data and Information Support/Archive and Records Management

National Satellite Land Remote Sensing Data Archive (NSLRSDA) Advisory Committee

The first meeting of the Federal Advisory Committee Act-approved National Satellite Land Remote Sensing Data

Archive (NSLRSDA) Advisory Committee was held October 19-21, 2004, at EROS. Co-chairs were selected from a group of national leaders in the areas of remote sensing education and use, commercial data providers, space law, archiving, and land remote sensing applications. The committee adopted a work plan for the 2-year charter period and established a sub-group to address how data is added to the USGS land remote sensing archive.

(Contact: John Faundeen, 605-594-6092)

Committee Earth Observation Satellites (CEOS)

The USGS chairs the Committee on Earth Observation Satellites (CEOS) Working Group on Information Systems and Services. This role includes providing a working group chair report to the CEOS Plenary meeting, which was held November 15-19, 2004, in Beijing, China. Plenary representatives are typically the heads of civil agencies and international organizations involved in satellite remote sensing. In addition to the reporting requirement, the Plenary provides guidance to working groups for the upcoming year.

(Contact: John Faundeen, 605-594-6092)

Landsat

ETM+ SLC-off to SLC-off Gap-filled Product

The USGS has completed development of a major new product enhancement for Landsat 7 Enhanced Thematic Mapper Plus (ETM+) data captured after the scan line corrector (SLC) anomaly. Gap-filled product options now allow the data merge of one or more SLC-off fill scenes for generation of a final gap-free image (fig. 8-10). The major advantage of this new product is a much improved temporal match of fill scenes used to produce the final image.

This new product represents a continuing effort by the USGS Landsat Project to increase the utility of the Landsat 7 ETM+ data affected by the non-functional SLC. Previously released products designed to compensate for the scan line corrector problem include a fully interpolated option and an SLC-on to SLC-off data merge option. The USGS is continuing to research other methods of providing merged data products and will continue to provide information resulting from this work as it becomes available. For more information on the current Landsat 7 SLC-off product options, detailed information on gap-filled processing, and to download sample products, please visit the Landsat Project website: http://landsat.usgs.gov/slc_off.html.

(Contact: Kristi Kline, 605-594-2585)

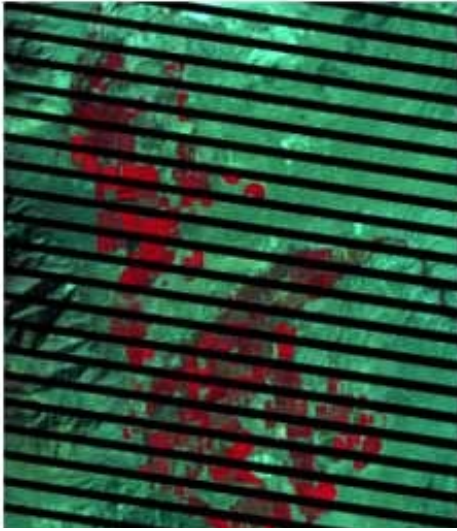


Figure 8. Primary SLC-off scene subset (path 43, row 33, acquired August 28, 2003).



Figure 9. SLC-off fill scene subset (path 43, row 33, acquired August 12, 2003).



Figure 10. Final gap-filled image subset.

Early Warning and Environmental Monitoring

Tsunami Relief Efforts

Through EROS, the USGS is playing a vital role in relief efforts to nations impacted by the Asian tsunami disaster of December 26, 2004. The dynamics of the disaster are constantly changing and will require long-term assistance on the part of the international community. An event of this magnitude underscores the invaluable nature of the EROS archive and Earth-observing satellites such as Landsat 7 and the Advanced Spaceborne Thermal Emission and Reflectance (ASTER) Radiometer. Archived satellite images, paired with those being gathered at this moment, reveal—with incomparable detail—the tremendous change wrought by such a disaster. By combining these images with other kinds of human and environmental data, EROS scientists are creating essential tools for bringing assistance to the millions in Asia who need it. Within hours of the disaster, EROS began providing relief organizations worldwide with pre- and post-tsunami satellite images, as well as image-derived products that incorporate information on population density, elevation, and other relevant topics (fig. 11). These images and image-derived products contain the detail needed to provide accurate information about conditions on the ground—information vital for relief workers to make sound decisions about how to prioritize relief efforts, determine who needs help most urgently, and decide where, when, and how to distribute food, water, and other aid.

The images and image-derived products are available via *The National Map Hazards Data Distribution System* (<http://gisdata.usgs.gov/website/tsunami/>) or image files can be downloaded via <ftp://edcftp.cr.usgs.gov/pub/data/disaster>.



Figure 11. Banda Aceh, Sumatra (top: Landsat 7 image from May 14, 2002; bottom: Landsat 7 image from December 29, 2004).

(Contact: Jim Verdin, 605-594-6018)

Earth Observing Systems

DAAC Ingest/Access Rates and Volumes vs. Last Fiscal Year

The Land Processes Distributed Active Archive Center (LP DAAC), located at EROS, distributed 1.2 million products (94 terabytes (TB)) of ASTER and MODIS data to all users in the first quarter of FY 2005. This compares favorably with the 2.7 million products and 232 TB of data distributed during all of FY 2004. In FY 2004, approximately 22 percent of the data went to NASA data processing users, 7 percent went to NASA science users (with nasa.gov addresses), and 1.5 percent (approximately 20,000 products) went to USGS science users. The remainder of the data was distributed to a wide spectrum of users—for education, global climate change research, land management, disaster response, and many other purposes—across the country and the world.

(Contact: Tom Kalvelage, 605-594-6556)

Comparison of MODIS Daily Surface Reflectance Products and Standard EOS Data Products

EROS has implemented capabilities to receive and process Terra and Aqua MODIS data received through direct broadcast mechanisms and to process these data to daily Level-1B calibrated radiances and surface reflectance. The generation of Level-1B data is accomplished using the International MODIS and AIRS Processing Package (IMAPP) software developed by the University of Wisconsin. Further levels of service include providing daily surface reflectance products in swath or gridded format. The MODIS Adaptive Processing System (MODAPS) institutional algorithms and processing software are then implemented to compute surface reflectance products. An investigation was undertaken to quantitatively compare the surface reflectance derived through the implementation of the MODAPS institutional algorithms and software to the MODIS Direct Broadcast System (DBS) data with the standard MODIS surface reflectance data products derived from instrument data for the same acquisition date and time.

Our approach was to transform the surface reflectance products to a common map projection and pixel size. We then used the National Land Cover Dataset as a guide for extracting regions of interest from the surface reflectance datasets, to compute descriptive statistics and generate spectral plots of the various land cover types for comparison. Examination of the statistics and the spectral plots (fig. 12 and 13) show close agreement between the surface reflectance values derived from the processing of MODIS DBS data and the reflectance values from the standard data products corresponding to the same acquisition date and time that are

generated by MODAPS and archived by the LP DAAC. For most land cover types, the spectral curves are very similar in terms of shape and amplitude, with subtle offsets in the blue and green bands. These differences in the shorter wavelength reflectance values are probably due to differences in the ancillary climatology data used for atmospheric corrections.

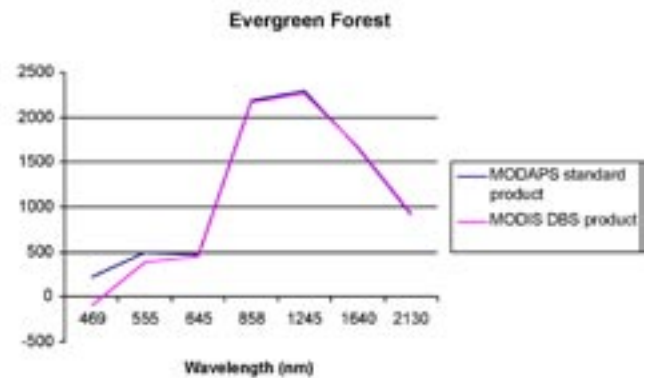


Figure 12. Comparison of unscaled surface reflectance values for Aqua MODIS data over evergreen forest.

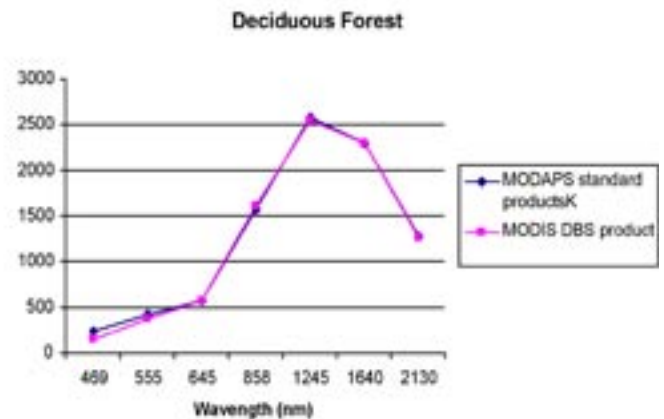


Figure 13. Comparison of unscaled surface reflectance values for Terra MODIS data over deciduous forest.

(Contact: Tom Kalvelage, 605-594-6556)

Summary of Online Downloads

The following figures illustrate, by quarter, trends and values in two categories. Figure 14 shows the total data downloaded online in gigabytes (GB) by quarter. For the first quarter of FY 2005, a total of almost 7,000 GB of data was delivered. Figure 15 shows the number of Web Mapping maps rendered. The definition of “maps rendered” used for this information is the number of times a request is made for a file or image delivered to an Internet browser for viewing.

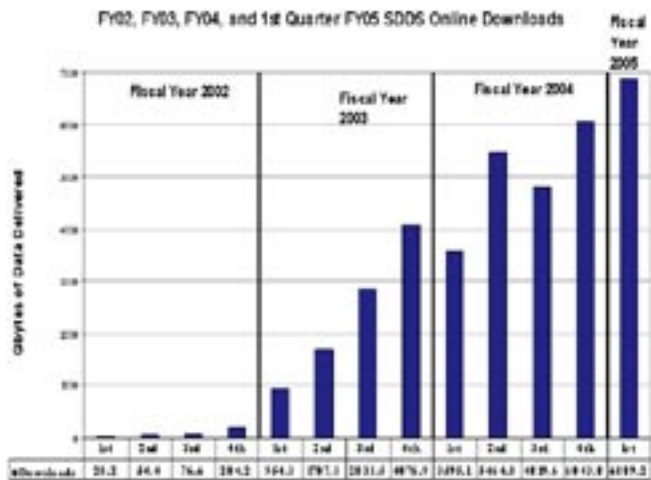


Figure 14. Number of downloads by quarter.

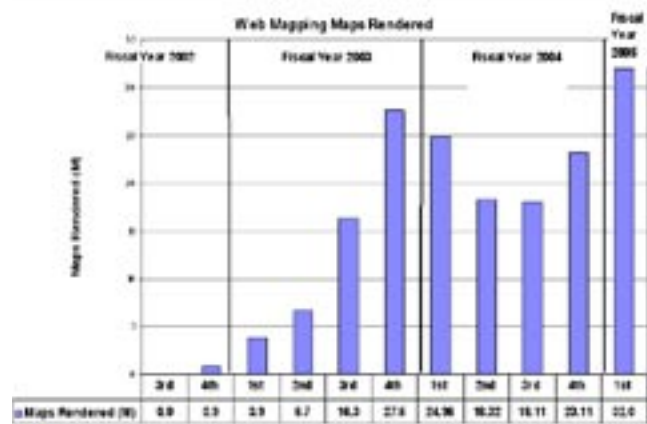


Figure 15. Web Mapping maps rendered.

(Contact: Jean Paulson, 605-594-6560)

Use of the “Seamless Server” at EROS

The “Seamless Server” is actually a collection of two Sun Fire 4800 database servers with a string of Dell two-processor, rack-mounted, front-end servers that render data to the Internet. The third Sun Fire 4800 server and 18 of the Dell Sun Fire 4800 front-end servers are owned and operated by reimbursable projects under Sue Greenlee and Jim Verdin. The following information addresses only the resources apportioned to Seamless.

Seamless is supported wholly by Cooperative Topographic Mapping (CTM) Program’s Investigations & Research (SIR) funding for activities that support delivery of national USGS datasets as basemap layers for *The National Map* and Geospatial One-Stop. EROS has also developed a number of science viewers and interactive mapping websites in support of SIR and reimbursable science projects that use both these national/international USGS and other datasets as well as

data particular to the science project. These projects fund the direct labor charges for implementing their viewers and websites, but also fund additional disk space on the Seamless Server to hold their science data and pay operations and maintenance (O&M) costs related to that hardware. Thus, we now have “fractional ownership” of the Seamless Server with CTM being the majority owner with a significant number and variety of partners.

(Contact: Jean Paulson, 605-594-6560)

CTM Archive Management and Operations

A draft Archive Plan was completed that describes the archive methodology for digital line graphs (DLG), digital raster graphics (DRG), digital elevation models (DEM), and digital orthophoto quadrangles (DOQ). We will seek approval of this plan with Headquarters during second quarter. In addition, the Memorandum of Understanding (MOU) with USDA’s Farm Services Agency (FSA) on “Exchange of Products to Facilitate Data Distribution” was finalized and is ready for signature. It marks the end of a one-year process to revise the original MOU (ACIS Ref. ID #598). The MOU changes the archive location of all future National Aerial Photography Program (NAPP) original rolls to the Aerial Photography Field Office (APFO) in Salt Lake City, Utah, as well as continues the exchange of data between APFO and EROS. This MOU will be signed by the Director of EROS and the Director of APFO.

(Contact: Doug Binnie, 605-594-6160)

Engineering and IT Support

IT Audit

DSD Laboratories, Inc., the Security Test and Evaluation (ST&E) contractor for the USGS, visited EROS during the week of November 29, 2004, to audit the EROS component systems of *The National Map* in relation to DOI Information Technology (IT) Security standards. DSD noted several minor configuration glitches on the systems selected for audit in the out-briefing of the visit, and EROS incorporated the noted findings into Plans of Action and Milestones, which EROS has scheduled for completion during FY 2005. EROS also received positive recognition in the DSD out-brief, quoting from the summary: “Great support from the EROS staff! The EROS management staff is highly proactive in identifying and mitigating any potential vulnerability. Many of the findings had plans of action already in place. The highly competent and motivated management, security, system and database administrator staff made our testing efforts very productive and rewarding. This is the most secure system

we have encountered over the last two years! A professional organization! Our taxpayers should be proud!”

(Contact: Tom McCulloch, 605-594-6574)

Facilities Operation and Maintenance

Several Civic Projects were completed at EROS in the first quarter of FY 2005. These projects addressed several safety and security issues. Concrete walkways were constructed from several egress points, providing a consistent surface for building evacuation. Dilapidated surfaces were replaced in the front parking lot of the main building entrance, and the loading dock was completely replaced. The number of parking spaces was increased in the front parking lot. Americans with Disabilities Act (ADA)-compliant ramps were installed at the main building entrance and the employee entrance.

The automated Security System was upgraded this past year with completion taking place in the first quarter of FY 2005. The computer system, card key readers, and security cameras were upgraded, greatly augmenting the capabilities of the system and functionality of the security camera system. The upgrades meet or exceed the requirements of DOI and Homeland Security.

(Contact: Gary Dinkel, 605-594-6081)

EROS Continuity of Operations Plan

The EROS Continuity of Operations Plan (COOP) has been drafted and is awaiting final determination of the essential functions and services needed to support an operational capability under emergency conditions. The primary objectives of the COOP are to prevent or reduce loss of life; minimize damage to EROS property; protect essential equipment, records, and other assets; ensure continuous performance of EROS essential functions; reduce or mitigate disruptions to operations; and achieve timely and orderly recovery and resumption of full service.

The draft's concept of operations is based on several steps. These steps progress from preparedness—the minimal response, to establishment of an emergency operations center, to establishment of essential function operations, to sustaining long-term operations, to reconstitution of the Center, to a return to normal operations. Each step hinges on trigger events and provides flexibility in the response generated to cope with emergencies or threats to the Center.

EROS has established a COOP Advisory Board to assist in reviews of the document and to ensure that views from various parts of the Center are reflected in the document. Meetings scheduled for next quarter will provide definition

needed to complete the documentation part of the COOP process. Training and exercise components still need to be addressed.

(Contact: Bob Black, 605-594-6893)

Communications and Outreach

Communications and Outreach Advisory Team (COAT)

On November 4, 2004, EROS chartered the Communications and Outreach Advisory Team (COAT) as a group of creative people who work together to brainstorm, formulate, and help implement technical, scientific, and professional outreach projects on behalf of the Center. Ultimately, COAT will endeavor to create excitement and enthusiasm for our science among the lay public, the science community, our colleagues in government and the private sector, and potential sponsors of our work. Together this team targets important, timely, and interesting areas of EROS outreach focus; chooses effective media, venues, and events through which to present and publicize these focus projects; and assists in planning and prioritizing the work to accomplish our outreach goals.

(Contact: Tom Holm, 605-594-6127)

Cooperative Agreement

Dakota State University (DSU) and EROS signed a cooperative agreement to benefit technology development and research activities at both institutions. Officials from DSU and the USGS signed the agreement on December 8, 2004. South Dakota Governor Mike Rounds joined officials from DSU and the USGS to commemorate the significance of this event. The partnership grew from a conversation initiated by Governor Rounds between DSU and USGS officials after both parties recognized their mutual interest in data security and storage issues.

This 5-year agreement will enable DSU faculty and students to work with USGS staff to develop, apply, and deliver emerging computer and information systems technology to benefit scientists, planners, educators, and decision makers worldwide. Through its National Center of Excellence in Information Assurance Education, DSU faculty and students will cooperate with USGS staff in training and education, information technology security, digital image processing, geospatial information analysis and synthesis, project management, and networking and computing systems to benefit programs within both institutions.

(Contact: Tom Holm, 605-594-6127)

Fall Planning Workshop

On September 24 and 25, 2004, EROS held the Fall Planning Workshop. The workshop was part of the EROS 2006 strategic and annual planning cycle. The purpose of the workshop was to continue Center-wide efforts that support future strategic direction development. The objective was to engage EROS management, project chiefs, and contractor leadership in strategic planning. The target deliverables included establishing a set of strategic concepts, recommendations, and next steps for use in developing "FY 2006 and beyond" planning priorities. Topics explored included Management Planning, EROS Business Models, Science Strategy, National Capability, Satellite Reception Capabilities, and IT/IM Infrastructure.

(Contact: Nick Van Driel, 605-594-6007
or Tracy Zeiler, 605-594-2677)

Health and Wellness

During the past quarter, the Health and Wellness Specialist had several personal contacts with employees in regard to fitness or health-related topics. She took more than 70 blood pressures, provided first aid care for ten employees, and provided workstation evaluations for two employees. Another 12 employees used her services for specific nutrition/fitness counseling and health assessments.

The Health and Wellness Specialist provided several opportunities for employees to exercise at work by offering a fall circuit training session (23 employees per 8-week session), Pilates classes (9-14 employees per 8-week session), stretching classes (6-8 employees on a weekly basis), football theme exercise incentive program (48 employees) and by running two fitness facilities. The two facilities recorded more than 667 individual uses over the last quarter.

Three separate Brown Bag sessions were offered during the quarter pertaining to health and fitness: climbing wall demonstration (30-plus employees), medicine ball and stability ball presentation (15 employees), and a breast cancer awareness guest speaker (14 employees). The Health and Wellness Specialist gave a separate TSSC All Hands presentation on the topic of stress management. She also facilitated four separate cardiopulmonary resuscitation/automated external defibrillator (CPR/AED) courses, certifying 17 employees through the American Red Cross program in November.

(Contact: Michelle Lewis, 605-594-6999)
