



INVESTIGATOR'S ANNUAL REPORT

United States Department of the Interior
National Park Service

OMB # (1024-0236)
Exp. Date (6/30/2007)
Form No. (10-226)

If you are not using the automated system supporting this report process,
please fill out this form and return it to the appropriate park.
All or some of the information you provide may become available to the public.

Reporting Year: 2009	Park: Washington Office RISD	Select the type of permit this report addresses: Scientific Study	
Name of principal investigator or responsible official: Jim Loftis		Office Phone: 970-491-2667	
Mailing address: Department of Civil Engineering Colorado State University Fort Collins, CO 80523-1372		Office FAX: 970-491-7707 Office Email: loftis@engr.colostate.edu	
Additional scientific study investigators (first name, last name): Name: Joe Gregson Phone: 303-969-2964 Email: Joe_Gregson@nps.gov Name: Allen Sparks Phone: 303-969-2445 Email: Allen_Sparks@nps.gov Name: Tim Smith Phone: 303-969-2086 Email: Tim_Smith@nps.gov			
Project Title (maximum 300 characters): Geographic Information Systems, Remote Sensing, Global Positioning Systems, and Mobile Mapping Research and Development for the NPS GIS Program (J2551053034) CSU Account #532873			
Park-assigned Study or Activity #: N/A	Park-assigned Permit #: N/A	Permit Start Date: April 1, 2006	Permit Expiration Date: September 30, 2011
Scientific Study Starting Date: March 1, 2005		Estimated Scientific Study Ending Date: September 30, 2009	
For either a Scientific Study or a Science Education Activity, the status is (select one): Continuing		For a Scientific Study that is completed, please check each of the following that applies: <input type="checkbox"/> A final report has been provided to the park or will be provided to the park within the next two years <input type="checkbox"/> Copies of field notes, data files, photos, or other study records, as agreed, have been provided to the park <input type="checkbox"/> All collected and retained specimens have been cataloged into the NPS catalog system and NPS has processed loan agreements as needed	
Activity Type (select one): Other			
Subject/Discipline (maximum 60 characters): Geography			

Purpose of Scientific Study or Science Education Activity during the reporting year (maximum 4000 characters):

- Provide R&D and implementation support for web mapping services utilizing reusable components and integrating web services from a variety of existing applications.
- Provide documentation of research results, implementation recommendations, and development requirements for functional interactions among GIS, GPS, remote sensing, metadata, and other IT applications.
- Provide research support for the NPS GIS Program and field collection of resource data for use in enterprise systems and geospatial applications.
- Research and document broad stakeholder and workflow requirement analyses, workflow documentation, and research, development, and implementation of related spatial data, descriptive metadata, and applications.
- Provide research support for the EGIS program and develop new knowledge to guide future standards, applications, and support in NPS resource information management programs.
- Acquire new understanding and develop processes for implementing geodatabases, GIS, image services, metadata, and related applications.
- Research, develop, integrate, populate, test, and provide training support for enterprise geospatial databases and applications covering multiple NPS and partner themes and data sets.



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Findings and status of Scientific Study or accomplishments of Science Education Activity during the reporting year (maximum 4000 characters):

- Provided application development, data management, and technical and user support for multiple project-specific databases, including databases for Abandoned Mine Lands, Federal Lands to Parks, Air Resources Division, National Trails, and Civil War 150th.
- Researched and implemented innovative techniques for serving and consuming spatial and tabular data via the web.
- Continued development/deployment of a web mapping framework called NPMMap. The framework integrates multiple disparate systems and services into user friendly mapping applications for use by NPS staff and partners.
- Utilized NPMMap to develop integrated applications for Air Resources Division, Civil War Sesquicentennial, Federal Lands to Parks Program, and National Trails System.
- Collaborated on a new EGIS data model (called the "Generic Enterprise Model") to assist with NPS-wide data development efforts. The model allows enterprise spatial data sets in the NPS to use the same core schema and share geometries. Helped interested NPS programs and parks implement the model.
- Developed and deployed web services for databases hosted by the Resource Information Services Division (RISD).
- Supported numerous technical assistance requests and data development support for several projects including mapping American Rehabilitation and Recovery Act sites and compiling GIS data for the National Trails System.
- Worked on developing data and metadata standards and related extract/transform/load (ETL) tools in support of RISD and partner programs.
- Provided research and documentation support for a new federated search system called NPSearch to support GIS and multiple program areas with overlapping requirements.
- Interacted with and participated in meetings and discussion with numerous NPS workgroups and committees, including the EGIS subcommittee, the Heritage Assets subcommittee, the Park GIS users group, the Park Digital Information Management user group, the NPS Building Standard workgroup, the NPRC IRMA workgroup, and numerous other project-specific workgroups.
- Brainstormed and prototyped several technologies to improve enterprise data management across the NPS.
- Continued to develop/support the SharePoint site that integrates communication across multiple Resource Information Services program areas.

For Scientific Studies (not Science Education Activities), were any specimens collected and removed from the park but not destroyed during analysis? No
If "Yes", identify where the specimens currently are stored: N/A

Funding specifically used in this park this reporting year that was provided by
NPS (enter dollar amount): **\$238,361.88**

Funding specifically used in this park this reporting year that was provided by all
other sources (enter dollar amount): \$

List any other U.S. Government Agencies supporting this study or activity and the funding each provided this reporting year:

Paperwork Reduction Act Statement: A federal agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. Public reporting for this collection of information is estimated to average 1.625 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the forms. Direct comments regarding this burden estimate or any aspect of this form to Dr. John G. Dennis, Natural Resources (3127 MIB), National Park Service, 1849 C Street, N.W., Washington, DC 20240.