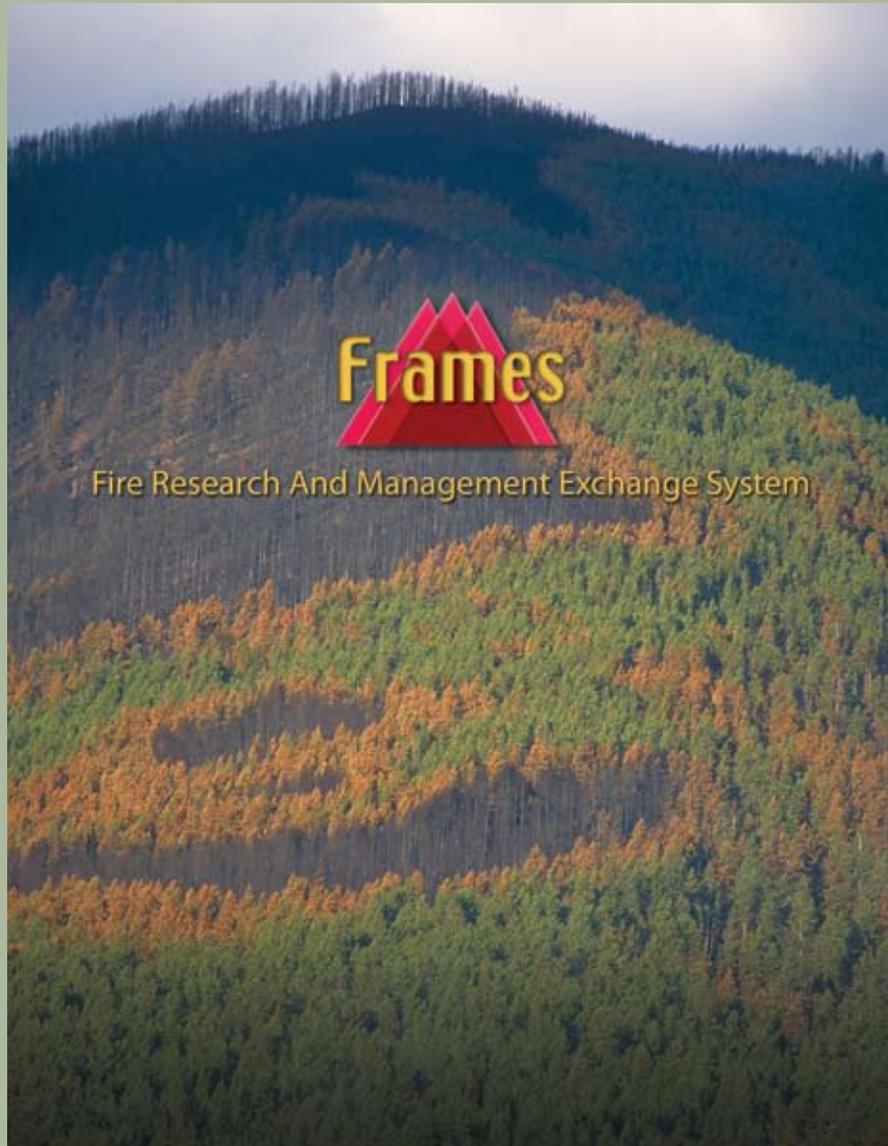


# 2007 Annual Report



**Technology in Support of Wildland Fire Research and Management**

<http://frames.nbii.gov>

**2007 Annual Report**  
**Fire Research And Management Exchange**  
**System (FRAMES)**

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by

Greg Gollberg, FRAMES Program Manager

Email: [gollberg@uidaho.edu](mailto:gollberg@uidaho.edu)

Phone: (208) 885-9756

Diana Olson, FRAMES Project Manager

Email: [dlolson@uidaho.edu](mailto:dlolson@uidaho.edu)

Phone: (206) 732-7844

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## Introduction

***“Half the battle of providing the best science is accumulating it under one roof.”***

- Tim Swedberg, JFSP  
Communications Director,

The Fire Research And Management Exchange System (FRAMES) was initiated in 2002 at the University of Idaho with funding support from the US Department of Agriculture Forest Service’s Missoula Fire Lab in response to the need for cataloging and organizing wildland fire tools, data, and documents into a single system. FRAMES was proposed to be a mechanism for ongoing information exchange and technology transfer between the wildland fire management and research communities. In 2004, the partnership with the US Geological Survey’s National Biological Information Infrastructure (NBII) provided the technical foundation for FRAMES development. The continued collaboration has advanced the mission of both the NBII program and FRAMES in their capacity to deliver natural resources and wildland fire data and information to a broad user community.

The mission of the FRAMES supports wildland fire and natural resource professionals and policymakers, by promoting and facilitating information and technology sharing, exchange, collaboration, and development through a state-of-the-art clearinghouse and web portal. The use of FRAMES portal informatics<sup>1</sup> technologies can help eliminate redundancy, reduce costs, and promote increased productivity and efficiency for the professionals responsible for wildland fire and fire-related research and management. The vision of FRAMES is to be a national wildland fire informatics system and clearinghouse that organizes, synthesizes, evaluates, distributes, tracks use, and measures the efficacy of wildland fire and fire-related information and technological resources<sup>2</sup>.

An Interim Steering Committee guides FRAMES development and includes representatives from the USDA Forest Service Rocky Mountain Research Station, Fire Systems Research Program, and Fire and Aviation Management; the USGS Terrestrial, Freshwater, and Marine Ecosystem Program and the NBII; DOI’s Office of Wildland Fire Coordination; and the University of Idaho. The role of this group focuses on annual project guidance as well as developing a strategy for long term governance of FRAMES.

From 2002-2006, FRAMES development has focused on building the infrastructure and designing the system for cataloging wildland fire and related natural resource research deliverables as well as increasing content and engaging partners. With critical support from the USGS NBII Program, the FRAMES prototype has emerged into a project that supports many users across the wildland fire community. The 2007 efforts reported in this document are guided by the FRAMES Strategic Plan (2007-2012). The Plan identifies programmatic and organizational goals that emphasize six principal areas of effort including:

### Programmatic Goals

- 1. Provide Content and Increase Content Utility.** Develop a rich and usable base of content that is useful to wildland fire and natural resource professionals and policymakers.
- 2. Expand Services and Increase User Base.** Identify opportunities to work with wildland fire and natural resource professionals (i.e., managers, practitioners, and researchers) to develop customized services that are complimentary with the FRAMES informatics architecture and that target their common technology transfer and science delivery needs.

<sup>1</sup> “Informatics” is the collection, classification, storage, retrieval, and dissemination of recorded knowledge - from the Center for Biological Informatics at <http://biology.usgs.gov/cbi/informatics/>

<sup>2</sup> From the FRAMES Strategic Plan 2007-2012.

3. **Increase Name Recognition and Program Awareness:** Develop marketing materials for outreach and cultivate relationships with agencies and potential FRAMES users and contributors.
4. **Maintain and Upgrade the Infrastructure.** Build a technological infrastructure that can support wildland fire and fire-related informatics.

## Organizational Goals

5. **Ensure Financial Support.** Determine staffing requirements and develop a sustainable system of financial support to ensure that FRAMES remains viable.
6. **Provide Responsive Governance and Management.** Establish a long-term plan for governance and accountability for the management and implementation of FRAMES.

This report summarizes activities and accomplishments during FY 2007 (October 1, 2006 to September 30, 2007). Additional details about FRAMES, its strategic plan, and projects can be found at <http://frames.nbii.gov>.

Figure 1 FRAMES Home Page

The screenshot shows the FRAMES Home Page with the following content:

- Navigation:** Home, Search, FRAMES Home, Subject Areas, Geographic Areas, All Resources, Partner Sites.
- Recent Resources:** Links, documents, projects, facts, webpages.
- Next Featured Area:** NFFIT Home, NFFIT Training, FIREWORKS, Assessing the Causes, Consequences and Spatial Variability of Burn Severity Fire Regimes and Standby Risks in the Northern Rockies, Southern Fire Monitor.
- News:**
  - FRAMES Technology in Support of Wildland Fire Research and Management:** Information needed to support fire managers will be developed through an integrated technology fire science program. Scientific results must be made available to managers in a timely manner and must be used in the development of fire management plans, fire management plans, and implementation plans. National Fire & Aviation Research Board, Task Group Briefing Paper #1 (September 2006).
  - FRAMES Research Highlight:** Vegetation Research after Wildfires in National Forests of Northwestern Oregon. Photos from "Vegetation Research after Wildfires in National Forests of Northwestern Oregon" by Charles Senter Johnson, et al. Four photos were used to study fire effects in the Douglas-fir / Gambel's quail oak woodland.
- FRAMES Research Highlight Photos:** Four photos showing vegetation research after wildfires in National Forests of Northwestern Oregon.
- FRAMES and LAWRENCE Training:** FRAMES and LAWRENCE online training were designed and provided by the National Fire Science Academy. NFFIT provides technology transfer products and services related to fire and vegetation management. All out the the way training from the Institute for Forest and Landscape Ecology Training at SRI.
- Next Notice Recently Posted to FRAMES:**

Event	Notice Type	Start Date	Deadline
Call for Papers for the Third Annual Vegetation Research (PVR) Conference and Gallery, California	Call for Papers	N/A	September 15, 2006
2007 Fire Behavior and Fuels Conference call for papers and abstract	Call for papers	N/A	November 1, 2006 (entry, N)
GIS Data Newsletter	General	June 28, 2006	N/A
The Joint ANU/NCMA Bushfire Conference Melbourne, Australia	Conference	August 20, 2006	N/A
2006 ANU/NCMA Bushfire SMC Conference Melbourne, Australia	Conference	August 20, 2006	N/A

## 2007 Accomplishments: CONTENT

### Overview

In 2007, FRAMES accomplished many projects that contributed to overall growth and use of the system. These activities are described below.

#### CONTENT: Resource Records

Cataloged resource records are a core component of FRAMES. These records include information about data, documents, tools, web pages and are connected to programs and projects in the wildland fire community. There are 1,176 records currently available on FRAMES as of December 1, 2007. They include:

- 92 data,
- 795 documents,
- 121 tools,
- 82 web pages,
- 0 programs, and
- 86 projects

An additional 96 records (95 documents and 1 tool) will be available online once the FRAMES Resource Catalog Database (RCD) and Online Cataloging Tool are implemented<sup>1</sup> in early 2008. The total records cataloged for this year are 1,272. The top 10 accessed records are shown in Table 1.

**Table 1. Top 10 Accessed Records**

RECORD	TYPE	HITS
1. Fire Effects Monitoring and Inventory Database and Data Analysis Software ver. 2.1.0 (FIREMON)	Tool	515
2. FIREMON - Integrated Sampling Strategy Guide	Document	281
3. Demographic And Geographic Approaches To Predicting Public Acceptance of Fuel Management at the Wildland-Urban Interface	Project	237
4. CONSUME: Modification and Validation of Fuel Consumption Models for Shrub and Forested Lands in the SW, PNW, Rockies, Midwest, SE, and AK	Project	229
5. Fire Effects Monitoring and Inventory Database System (FIREMON)	Tool	227
6. Changes in Fire Regimes and the Successional Status of Table Mountain Pine ( <i>Pinus Pungens</i> Lamb.) in the Southern Appalachians	Project	224
7. Conversion of Upland Loblolly Pine-Hardwood Stands to Longleaf Pine: Does it influence fuel load, restore native forest cover, and reduce fire danger	Project	224
8. An Integrated Assessment of the Historical Role and Contemporary Uses of Prescribed Fire in Southern Appalachian Ecosystems	Project	220
9. Characterizing Moisture Regimes For Assessing Fuel Availability In North Carolina Vegetation Communities	Project	217
10. Duff Consumption and Southern Pine Mortality (2)	Project	209

<sup>1</sup> The FRAMES Resource Catalog Database (RCD) and the Online Cataloging Tool are currently in Beta test.

# Overview

The six different types of FRAMES records can be categorized by Subject Area, Geographic Area, or Partner Site. Often a record will be categorized in more than one area. For example, fire history data can fall under the Fire History subject area, but it may also be specific to a particular Geographic Area and cataloged there as well. All cataloged records are also available on the FRAMES home page. According to the FRAMES taxonomy the 26 subject areas, currently 3 geographic areas, the 8 partner sites, and the FRAMES home page each have a community associated with it. It is through this community structure that metrics are accumulated. Communities are discrete units of organization within the portal architecture.

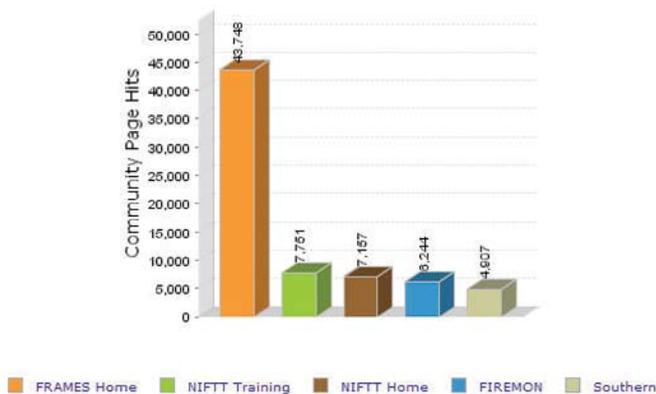


Figure 2. Number of Hits per the Top 5 Communities in 2006

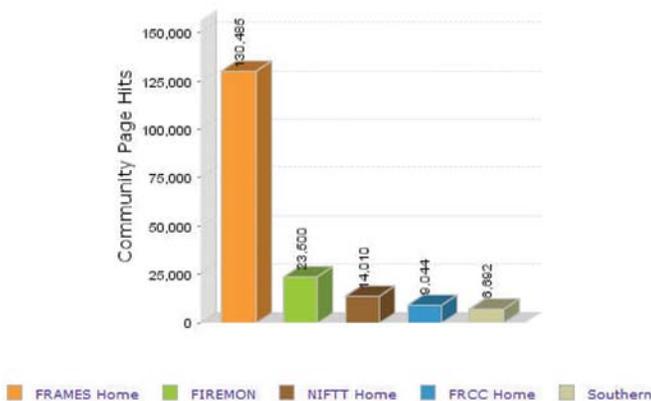


Figure 3. Number of Hits per the Top 5 Communities in 2007

A quick comparison of total hits in the top 5 communities in 2006 versus 2007 shows a dramatic increase in usage. On the FRAMES home page alone, hits in 2006 totaled 43,758 to 130,485 in 2007, nearly a 200 percent increase. The following describes the other functional areas and highlights achievements in each.

## 2007 Accomplishments: CONTENT

### Subject Areas

FRAMES subject area portals contain specific information about topics of interest to the wildland fire community. Currently, FRAMES identifies 26 subject areas reflecting categories that were previously proposed by researchers in wildland fire and as part of a draft of the National Wildland Fire Enterprise Architecture through the National Wildland Fire Coordinating Group (NWCG) (Appendix A). Each subject area contains information relevant to that particular interest. Subject areas are collaborative spaces managed by experts in the subject area for other content providers and content users. Content users may be active participants. Currently, the Fire History Subject Area is the only subject area being managed by experts in the field. Most subject area portals remain in the prototype phase, however, the Fuels Subject Area portal was functional prior to this reporting period and the Fire History Subject Area portal was developed during FY2007. Between January 1 and November 30 there were a total of 1,587 hits on all subject areas. Below, Figure 1 depicts that 60% of those people visited Fire History, 29% visited Fire Behavior, with the remainder visiting the other 24 subject areas.

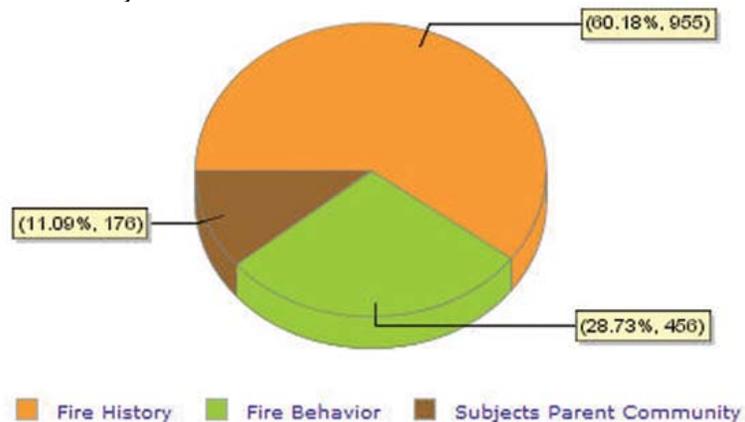


Figure 4. Traffic for Fire History, Fire Behavior, and Other Subject Areas (Jan-Nov 2007)

The Fire History Subject Area seems to indicate that when experts in a subject area manage content use goes up. In 2006, without active content management on any subject area the total hits for all subject areas was 111. In FY2007, personnel from NOAA's National Climatic Data Center's Paleoclimatology Branch (<http://www.ncdc.noaa.gov/paleo/paleo.html>) assumed the roles of content managers for the Fire History Subject Area. They were the key contacts and coordinated between FRAMES and the fire history research community to provide and manage the information and resources available through the Area. The Fire History Subject Area is a resource for fire history data, research, and projects. The primary goal of this collaboration is to make valuable fire history research and data more accessible to land managers and other non-specialists. In particular, data from the International Multiproxy Paleofire Database (IMPD; <http://www.ncdc.noaa.gov/paleo/impd/paleofire.html>), which is maintained by the Paleoclimatology Branch, is available via the portal so that it may be integrated with management tools such as the Fire Regime Condition Class. It is anticipated that the Fire History Subject Area will be the platform for future projects to tailor fire history data to land management needs. In addition, the NOAA staff has created a Fire History Analysis and Exploration System (FHAES) partner site (see below) as well as the FHAES Working Group and Paleo Development Community. Both are FRAMES Intranet sites that provide a suite of collaboration services to be discussed later.

Plans to encourage other experts in the field to assume the role of community manager for other subject area portals are underway. The Fire History Subject Area provides a good example for how the subject area portal concept can be successful.

# 2007 Accomplishments: CONTENT

## Geographic Areas

The geographic areas section of FRAMES provides easy, comprehensive access to fire documents, data, tools, and other information resources in support of fire and natural resource management by the geographic regions established to manage collaboratively wildland fire and other incident management activities such as natural disaster relief efforts. Eleven geographic areas exist across the contiguous 48 states and Alaska and are organized into Geographic Area Coordination Centers (GACCs).

In FY2007, portals were maintained for three geographic areas: the Southern, Northwest, and Alaska Fire Portals. Funded through the Joint Fire Science Program (JFSP) and the USGS NBII, the geographic areas pull together fire data and information relevant to the region into a single interface.

The Southern Fire Portal project was completed in FY2007 and provides single point access to fire data, documents, tools, and other information resources in support of fire and natural resource management for the southern United States. Funded by the JFSP and the NBII, project collaborators include the Tall Timbers Research Station (TTRS), The Nature Conservancy (TNC), USDA Forest Service Southern Research Station, the NBII, and FRAMES. Resources incorporated into the portal include:

- Regional deliverables funded by the JFSP and the National Fire Plan (NFP)
- The TTRS E. V. Komarek Fire Ecology Database
- Encyclopedia of Southern Fire Science

The Northwest and Alaska Portals were established in FY2006. These portals access information directly from the Northwest and Alaska Fire Research Clearinghouse (FIREHouse; <http://www.fs.fed.us/pnw/fera/firehouse/>). FIREHouse has received funding from JFSP and NBII, and collaborators include the Fire and Environmental Research Applications Team (FERA) of the USDA Forest Service Pacific Northwest Research Station, the University of Washington, the National Park Service, the Bureau of Land Management – Alaska Fire Service, and the US Fish and Wildlife Service. Records from FIREHouse will be integrated into the overall FRAMES system in Fiscal Year 2008.

Figure 5. Southern Portal Home Page



## 2007 Accomplishments: CONTENT

### Partner Sites

FRAMES is working with partners to host their sites in the FRAMES public portal. In some instances these Partner Sites were existing websites that were migrated into FRAMES. Often the partner websites have established and well defined user bases. However, some partner sites were developed and available for the first time in FRAMES. The portal provides an efficient environment for managing partner content and can add value when paired with a FRAMES intranet community. FRAMES collaborates with a number of partners in the maintenance of their sites (Table 2), and is sometimes engaged with site development. In 2007, a great deal of content and increased activity on FRAMES was due to partner site activity. In the coming years the growth in partner site hosting and development is expected to grow substantially in FRAMES.

**Table 2. FRAMES Partner Sites**

FRAMES Public	Partner	Status 2007	Date Developed	With Intranet Communities
Assessing the Causes, Consequences, and Spatial Variability of Burn Severity	UI, JFSP, FS RMRS, and, FS RSAC	Maintenance	2007 by FRAMES Staff	None
Fire and Fire Surrogate Study (FFS)	JFSP, FS, USGS, UC-Berkeley, NPS, Auburn, UC-Davis, CSFS, JERC, UM QLG, UI, CDF, UA, and OSU	Maintenance	2007 by FRAMES Staff	None
Fire Effects Monitoring and Inventory System (FIREMON)	FS RMRS Missoula Fire Lab, JFSP, USGS, SEM, and NASA	Maintenance	2006 migrated by FRAMES Staff	Fire Ecology
FEAT / FIREMON Integration (FFI) Ecological Monitoring Utilities	FS RMRS and NPS	Maintenance	2007 Partner Developed	Fire Ecology
Fire History Analysis Exploration System (FHAES)	NOAA Paleoclimatology Branch, RMRS, UA, Laboratory of Tree-Ring Science, and Rock Mountain Tree-Ring Research	Maintenance	2007 Partner Developed	FHAES Working Group, Paleo Development
Fire Regime Condition Class (FRCC)	FS, BLM, SEM, and TNC	Maintenance	2007 migrated by FRAMES Staff	NIFTT Working Group
National Interagency Fuels Technology Team (NIFTT)	BLM, NPS, FS, TNC, FS RMRS Missoula Fire Lab, SEM, BIA, USGS, and FWS	Maintenance	2006 by FRAMES Staff	NIFTT Working Group
Northern Rockies Climate and Fire (NRCF)	UI, JFSP, FS RMRS Missoula Fire Lab, and Aldo Leopold Wilderness Research Institute	Maintenance	2006 by FRAMES Staff	None

# Partner Sites

## Partner Site Descriptions

- **Assessing the Causes, Consequences and Spatial Variability of Burn Severity**

[http://frames.nbii.gov/portal/server.pt?open=512&objID=288&mode=2&in\\_hi\\_userid=2&cached=true](http://frames.nbii.gov/portal/server.pt?open=512&objID=288&mode=2&in_hi_userid=2&cached=true)

The JFSP funded the USDA Forest Service Rocky Mountain Research Station and Remote Sensing Applications Center, and the University of Idaho to conduct a project assessing the causes, consequences and spatial variability of burn severity during and after active fire incidents. Nine large wildfires were sampled in Montana, California and Alaska. The team quantified conditions before, during and after fires burn with the goal of understanding the spatial variability in fire effects and exploring relationships between burn severity and fuels, fire behavior, local weather and topography. The project team worked closely with, and share data and results with, Fire Use, Incident Management, and Burned Area Emergency Response (BAER) teams. It will be providing an improved set of quantitative indicators of burn severity that are scalable and mappable from the ground, using satellite and airborne hyperspectral imagery. This data will be useful to fire managers making challenging, timely decisions and in building the next generation of fire behavior and fire effects models. As part of this project, a Burn Severity – Spectral Library Project page was developed on FRAMES: ([http://frames.nbii.gov/portal/server.pt?open=512&objID=500&mode=2&in\\_hi\\_userid=2&cached=true](http://frames.nbii.gov/portal/server.pt?open=512&objID=500&mode=2&in_hi_userid=2&cached=true)).

An objective of this project was to form an online spectral library of endmembers of the major surface component materials encountered on the wildfires we sampled in western Montana mixed conifer forest, southern California chaparral, and interior Alaska spruce forest. FRAMES assisted with this effort and organized the content into the three regions; FRAMES staff further organized the spectral endmembers into functional groups: 1. green (photosynthetic) vegetation, 2. non-photosynthetic vegetation, 3. soil and/or rock, and 4. char and/or ash spectra. A digital photo of the endmember material, a graph of the endmember spectrum, and a downloadable ASCII file of the actual spectrum is provided.

- **Fire and Fire Surrogates (FFS) Study**

<http://frames.nbii.gov/ffs/>

The JFSP has provided funding for a long-term study to assess how ecological components or processes may be changed or lost, if fire “surrogates” such as cuttings and mechanical fuel treatments are used instead of fire, or in combination with fire. The FFS project managers are using FRAMES to deliver information about the various fire and fire surrogate studies. Numerous partners and study sites were utilized in this study and 169 publications have been produced. FRAMES is the home of all of the FFS study and hosts most of the publications.

The study network consists of 12 main sites and 1 satellite site (which has less than the full suite of core treatments. All of these initial sites represent forests with a historically short-interval, low- to moderate-severity fire regime. Eight sites are in western coniferous forests, ranging from the Pacific Northwest to the Southwest.

These sites share the fact that ponderosa pine is an important tree component, but sites vary in composition of other conifers and differ substantially in topographic and soil parameters. Two sites are in the southeastern U.S.--one in the Piedmont and one on the Coastal Plain--and are dominated by mixtures of southern pines





## Partner Sites

with hardwood understories. Rounding out the network is a site in the midwestern oak-hickory type of Ohio. Collectively, these sites comprise a network that is truly national in scope. Depending on the level of interest and support available, future sites in the same or other fire regimes may be added to the network.

In 2005, four regional workshops were conducted with selected clients to identify effective and efficient means of communicating FFS study findings to users. We asked four overarching questions: (1) Who needs fuel reduction information? (2) What information do they need? (3) Why do they need it? (4) How can it best be delivered to them? Participants identified key users of FFS science and technology, specific pieces of information that users most desired, and how this information might be applied to resolve fuel reduction and restoration issues. They offered recommendations for improving overall science delivery and specific ideas for improving delivery of FFS study results and information. Workshop participants repeatedly stressed that different levels of information were needed from the FFS study: some kinds of managers needed relatively general kinds of information, whereas others needed more detailed information. PI's are exploring ways to further advance the project and provide deliverables.

- **Fire Effects Monitoring and Inventory System (FIREMON)**

<http://frames.nbii.gov/firemon/>

FIREMON is an agency independent plot level sampling system designed to characterize changes in ecosystem attributes over time. The system consists of a sampling strategy manual, standardized sampling methods, field forms, Microsoft Access® database, and a data analysis program. FIREMON is a desktop application created for computers running Windows 98, ME, 2000 or XP operating systems. The system was developed by the USDA Forest Service, Missoula Fire Sciences Laboratory in cooperation with USGS, the National Park Service, and Systems for Environmental Management. Funding was provided by the JFSP. FIREMON was migrated from US FS Missoula Fire Sciences Lab and it was the first partner site on FRAMES. FIREMON is being combined with the NPS funded Fire Ecology Assessment Tool into a new monitoring tool called FFI. FIREMON will still be supported but further development and updates may be suspended.

- **Fire Ecology Assessment Tool (FEAT) / FIREMON Integrated (FFI) - <http://frames.nbii.gov/ffi>**

FFI is a monitoring software tool designed to assist managers with collection, storage and analysis of ecological information. It is being constructed through a complementary integration of the Fire Ecology Assessment Tool (FEAT) and FIREMON. The National Interagency Fuels Coordination Group is the sponsoring group. The National Park Service is the managing partner.

FEAT and FIREMON both facilitate fire ecology monitoring and have similar procedural characteristics and database architecture. Their integration results in an enhanced monitoring tool that eases data collection, and supports cooperative, interagency data management and information sharing. FFI supports scalable (site specific to landscape level) monitoring for land management agencies at the field and research level.

FFI provides data entry and storage, summary reports, analysis tools, Geographic Information System (GIS), Personal Digital Assistant (PDA) and Protocol manager modules. The field sampling procedures facilitate data collection. While most

## Partner Sites

sampling procedures are focused on fire effects, FFI incorporates Protocol Builder, a component that lets users define their own sampling protocol, allowing FFI to be used for other natural resource applications including wildlife monitoring. The FFI data migration tool will move FEAT and FIREMON data in to the new system.

FFI employs a client-server architecture that is scalable from desktop to server installation supporting simultaneous multiple user access. The system is designed to work on Windows XP® operating systems. Data is stored in a SQL Express 2005 database and accessed with SQL and dotNet code. ESRI Arc® products are used for GIS functionality. The system is designed for the varying IT requirements of the USFS, NPS, BLM, BIA and FWS. Much of the coordination between the developers and testers of the FFI were conducted through a collaboration server community on FRAMES. This community, The Fire Ecology Community, is discussed elsewhere.

- **Fire History Analysis and Exploration System (FHAES)** - <http://frames.nbii.gov/fhaes/>

The goal of the FHAES project is to enhance and/or redevelop components of FHX2, a DOS based software program originally developed by Henri Grissino-Mayer to analyze chronologies of fire scars developed from tree-ring data, so that they are web-based, user-friendly, and easily accessible to a broad range of users on the Internet. The FHAES working group [Elaine Kennedy Sutherland (1), Henri Grissino-Mayer (2), Wendy Gross (3), Michael Hartman (3), Elena Velasquez (4), Connie Woodhouse (5), and Peter Brown (6)] is an informal collaboration of researchers that is coordinating the redesigning effort. The revised system (now renamed FHAES: Fire History Analysis and Exploration System) is being written in platform-independent, open source software (for example, Java and JFreeChart), but to control costs and maintain a reasonable launch schedule some of the original PASCAL executable code will be retained. The new system is structured around a central graphical user interface that calls out to other separate components. These components (data entry and file management, graphics, statistical analysis, climate relationships) have been or are being written by different individuals and contributed to the effort. The programmer writing the central interface is ensuring that the components are compatible.

FHAES will use FRAMES to link components developed and maintained by different groups, and to deliver information about the project as well as distribute the software. The site will be hosted by FRAMES and managed by NOAA's National Climatic Data Center's Paleoclimatology Branch. FHAES also has an intranet site that is used to collaborate and coordinate between developers, researchers, and users.

- **Fire Regime Condition Class (FRCC)**  
<http://frames.nbii.gov/frcc/>

FRCC is an interagency, standardized tool for determining the degree of departure from reference condition vegetation, fuels and disturbance regimes. A growing body of research shows that a century or more of fire exclusion and other practices have negatively impacted many ecosystems. Some lands are now in poor ecological condition, whereas other landscapes are still functioning in a natural state. In the simplest definition, a fire regime describes the basic "personality" of fire for a given vegetation type. Although fire frequency and severity are the most commonly used descriptors, many other aspects have been studied, such as fire spread patterns, fire seasonality, and post-fire patch dynamics.





## Partner Sites

The FRCC system uses two sets of descriptors that, when combined, can be used to diagnose condition class. The first set of factors measures vegetation composition and structure changes. The second set measures possible changes in fire frequency and severity. FRCC also uses a Fire Regime Classification system of five broadly defined Fire Regimes. Simply put, FRCC determines how similar a landscape is to its natural or historical regime. Fire Regime Condition Classes are broken down into three categories, 1, 2, and 3.

FRCC 1 contains vegetation, fuels, and disturbances characteristic of the natural regime. FRCC 3 contains vegetation, fuels, and disturbances uncharacteristic of the natural regime. FRCC 2 is in between the two. So, essentially a landscape with an FRCC of 1 is fairly similar in vegetation and in disturbance regimes to the historical or natural regime. A landscape in Condition Class 1 has key ecosystem components intact, such as large old trees and soil characteristic of that site. A landscape with an FRCC of 3 means the land is not very similar to its nature regime in terms of its vegetation or disturbance or both. Land with an FRCC of 3 has lost key ecosystem components; an example could be the loss of characteristic large trees due to uncharacteristic wildfires that occurred in uncharacteristic fuels. Assessing FRCC can help guide management objectives and set priorities for treatments. FRCC managers are using FRAMES to deliver information about FRCCs and also to register users for training.

- **National Interagency Fuels Technology Team (NIFTT)**

<http://frames.nbii.gov/niftt>

It is the goal of each fire management program within each agency to assist in the effort to ensure public and firefighter safety in reducing risks to communities while improving and maintaining ecosystem health. Collaboration and cooperation among federal and non-federal organizations as well as within communities has further empowered this fire management purpose. Fuel treatments are one component of a fire management program. Treatments may be planned and implemented within the wildland urban interface community as well as outside the community in the surrounding ecosystem. There are four types of hazardous fuels reduction treatments which support fuels and fire management purposes including mechanical, prescribed fire, wildland fire use, and other treatments.

The The National Interagency Fuels Coordination Group (NIFCG) was established under the guidance and direction of the Fire Directors of the Bureau of Land Management, the Bureau of Indian Affairs, the National Park Service, USDA Forest Service, and the Fish and Wildlife Service; the Chief of the Forest Service, and the Directors of the named Department of the Interior (DOI) Bureaus and the Deputy Commissioner of the Bureau of Indian Affairs with the common purpose of reducing risks to communities while improving and maintaining ecosystem health.

The **National Interagency Fuels Technology Team** (NIFTT) is sponsored by NIFCG to coordinate, develop, and transfer consistent, efficient, and science-based fuel and fire ecology assessment technologies. Specifically, NIFTT will - through development of a strategic approach - provide guidance, training, and application tools for the implementation of these technologies. Two examples include coordinating product implementation and associated technology transfer through the development of a fuel's fire behavior hazard measure and coordinating research results from Forest Service, Interior, and Joint Fire Science, among others. Core team members include agency, TNC, and private consultant fire and landscape ecologists; software developers; project coordinators; and support staff. The team is currently focusing on the technology transfer component of the national LANDFIRE

## 2007 Accomplishments: CONTENT

### Notices

Project. LANDFIRE is a multi-partner mapping project that will generate consistent, comprehensive maps and data describing vegetation, fire, and fuel characteristics across the United States. For more information on NIFTT's contribution to the project, please visit the LANDFIRE website. NIFTT is using FRAMES to deliver information about NIFTT tools, as well as for NIFTT training registration (including LANDFIRE and FRCC training). A collaboration server space, the NIFTT Working Group, is also being used on FRAMES.

- **Northern Rockies Climate & Fire (NRCF): Fire Regimes and Climate Drivers in the Northern Rockies**

[http://frames.nbii.gov/portal/server.pt?open=512&objID=287&mode=2&in\\_hi\\_userid=2&cached=true](http://frames.nbii.gov/portal/server.pt?open=512&objID=287&mode=2&in_hi_userid=2&cached=true)

The Joint Fire Science Program funded the USDA Forest Service Rocky Mountain Research Station and the University of Idaho to identify the climate drivers of regional fire and fuel dynamics in the Northern Rockies in the past, present, and future.

Climate is a major driver of regionally synchronous fires in many regions of the US. Regional fire events, like those that occurred in the Northern Rockies in 1910, 1988, 1994, 2000 and 2002, typically occurred during years when drought was similarly extensive, and account for the majority of area burned.

During such years, the threats to people and their property are highest, because fires during these years can quickly overwhelm our ability to suppress them. Furthermore, regional fire events play a critical role in governing ecosystem dynamics at broad scales. Predicting the climate conditions under which these ecologically and socially important regional fire years occur would have major benefits for fire management in the US.

The Joint Fire Science Program has funded this 3-year research project to identify the climate drivers of regional fire and fuel dynamics in the Northern Rockies in the past, present, and future. We will identify regional fire years from two sources: multicentury tree-ring reconstructions and multidecadal fire atlases. The principal investigators are using FRAMES to deliver information about this project.

### Notices

Notices within FRAMES provide users with information about upcoming conferences, meetings, jobs, and other events. There are 8 notice types listed below. In FY 2007, 71 notices were added to FRAMES.

5 call for papers  
8 conference or symposium  
23 general  
9 jobs  
3 meetings  
2 request for proposals  
14 trainings  
7 workshops  
71 Total Notices

As with cataloged records, notices may also be categorized and sorted by subject and geographic areas, and by partner site.



## 2007 Accomplishments: USERS & SERVICES

### Users

Users of the FRAMES portal include those individuals who have login accounts on the system and perform a variety of tasks such as community management and participation as well as content development. During FY 2007, FRAMES increased its user base by 148 new users for a total of 407 users. See Figure 6 below.

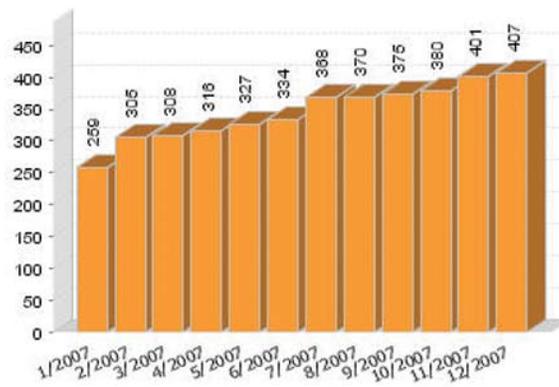


Figure 6. FRAMES Users 2007

Figure 7. GIS Field Specialist



Photography by Karen Wattenmaker

## 2007 Accomplishments: USERS & SERVICES

### Services - Training

Training on FRAMES portal technology continued to be an important aspect of project implementation in 2007. Several activities were completed this year, including:

- January 17-19 Boise, ID. Presentation: Community management for Wildland Fire Use for approximately 55 users.
- March 26-28 Destin, FL. At vendor display showed 8 people community management
- April 24-25 Missoula, MT. Demo, including community management for Information Resource Management (IRM) Working Group for approximately 18 users.
- May 31 Boise, ID. Demo, for Forest Service Research Development and Application Office staff.
- July 11 WebEx with NOAA staff.
- July 13 Moscow, ID. Demo with UI faculty and staff for 8 people.
- July 23-27 Denver, CO. Comprehensive portal training conducted by USGS/NBII staff for content managers, administrators, and remote portlet developers for 15 people.
- August 22 Moscow, ID Presentation and community management to Moscow Forest Science Lab for 18 people.
- September 13 Asheville, NC Demo at Gap Analysis Conference.
- September 26 Missoula, MT Demo for Forest Service Research Development and Application Office staff.
- October 12 Moscow, ID Demo for University of Idaho staff.
- October 24 Boise, ID Demo for AmericaView for 12 people.
- December 5 Boise, ID Demo for Boise National Forest staff.
- December 17 WebEx with TNC on community management for 10 people.

Several of these training opportunities required the involvement of USGS/ NBII employees. Their knowledge and expertise of the system helped reach approximately 188 people from various organizations and agencies in FY2007.

Through training and individual assistance, 10 new content managers have been added to the FRAMES cadre.

**Figure 8. FRAMES Portal Development Workshop July 23-27, 2007**

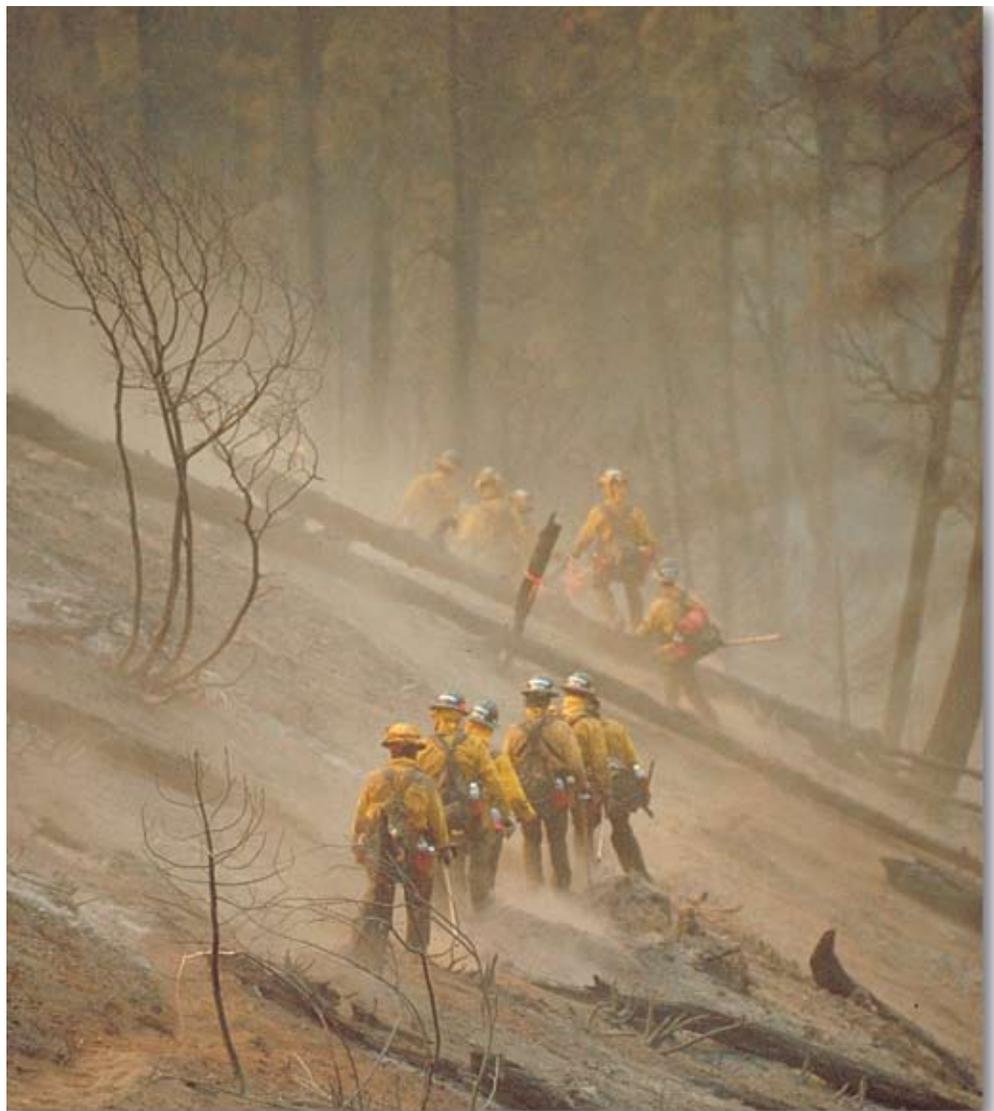


## Services - Website Hosting

In a continually challenging technical environment that requires federal and other organization websites to meet high security standards and federal requirements, FRAMES offers a website hosting service. In 2007, FRAMES hosted 8 websites for the following partners (described in more detail in the previous Partner Sites section). Partners contributed 91 cataloged records this year.

- Assessing the Causes, Consequences and Spatial Variability of Burn Severity
- Fire and Fire Surrogates (FFS) Study
- Fire Ecology Assessment Tool (FEAT) / FIREMON Integrated (FFI)
- Fire Effects Monitoring and Inventory System (FIREMON)
- Fire History Analysis and Exploration System (FHAES)
- Fire Regime Condition Class (FRCC)
- National Interagency Fuels Technology Team (NIFTT)
- Northern Rockies Climate & Fire (NRCF): Fire Regimes and Climate Drivers in the Northern Rockies

**Figure 9. Clean Up**



Photography by Karen Wattenmaker

## Services - Collaboration / Communities

One of the valuable features of the Portal technology involves the ability to create communities. These communities provide users with an opportunity to work in a collaborative environment to share documents, hold discussion threads, and develop tasks and timelines and many other features. FRAMES offers this service to any groups involved in fire related projects that need a secure login environment that enables a distributed team of people to work collaboratively in an efficient manner. In 2007, FRAMES provided community services to the following groups. Some of the communities have relationships with partner sites, subject areas, or geographic areas, while others are currently stand alone communities in collaboration server:

**Table 3. FRAMES Intranet Communities added in 2007**

Collaboration Server Community	Related Public Community(ies)	Communities Managed By
AirFire	Emissions and Smoke Subject Area	USFS
Boreal Fire History	Fire History Subject Area	FRAMES Staff
FHAES Working Group	Fire History Subject Area	NOAA Paleoclimatology Branch
Fire Ecology	FIREMON & FFI: Ecological Monitoring Utilities Partner Sites	USFS & NPS
FRAMES Development	FRAMES Home and others	FRAMES Staff and Partners
FRAMES Governance	None	FRAMES Staff and Interim Steering Committee
Idaho National Fire Plan	None	FRAMES Staff
NIFTT Working Group	NIFTT Home and FRCC Home Partner Sites	Interagency Team
Paleo Development	Fire History Subject Area and FHAES Partner Site	NOAA Paleoclimatology Branch
Partners File Sharing	None	FRAMES Staff and Idaho Department of Lands
Portal Training	None	FRAMES Staff
SFP Working Group	Southern Fire Portal Geographic Area	FRAMES Staff and Interagency Team
Wildland Fire Use	None	FRAMES Staff and Interagency Team

In 2007, the new collaborations server communities that FRAMES is providing services and support for are the following:

- AirFire Community** – the Atmosphere and Fire Interactions Research Team (AirFire; <http://www.fs.fed.us/pnw/airfire/>) of the USDA Forest Service, Pacific Northwest Research Station, Pacific Wildland Fire Sciences Lab (PWFSL) has recently initiated development of an AirFire partner website on FRAMES. Following the development of the partner website, AirFire will coordinate the development of the Emissions and Smoke Subject Area website. Development of both the partner website and subject area website will be facilitated by the AirFire collaboration server community. Eleven new user accounts have been created for this community and community members have been set up with Announcement, Document Sharing, Calendar, Discussion and Task capabilities. Additionally, the PWFSL Information Technology Specialist has started working through the FRAMES content manager portal technology software training, which should eventually enable AirFire to provide much of it's own IT support within the FRAMES portal.

## Services - Collaboration / Communities

- **Boreal Fire History Community** – the Boreal Fire History collaboration community has been developed for community members to share files and information relating to the JFSP project “Compiling, Synthesizing and Analyzing Existing Boreal Forest Fire History Data in Alaska.” Seven new user accounts have been created for this community, and community members are currently using Document Sharing (in part for sharing datasets), Calendar and Task capabilities, and have access to Announcement and Discussion capabilities. Community members are spread across multiple agencies and universities, and a FRAMES collaboration community has streamlined file sharing and facilitated project planning.
- **Fire Ecology Community** – Recently the FFI public homepage came online on FRAMES, but prior to that a Fire Ecology Community was established using collaboration server functions on the FRAMES intranet for FFI developers. FFI developers (predominantly from Missoula, MT and Boise, ID) coordinated their efforts within the Fire Ecology Community. Developers are using Task Management, Calendar (for workshops), Document sharing, and Discussions. Beta testing has also been coordinated in the Fire Ecology Community. Thirty-eight user accounts currently exist for this community.
- **FRAMES Governance Community** – This community was set up specifically for the FRAMES Interim Steering Committee, the new partnership between University of Idaho, University of Montana, and the USFS Rocky Mountain Research Station including the Fire Sciences Lab in Missoula, MT and the Research, Development, and Applications (RD&A) unit in Boise, ID and FRAMES Staff and NBII Support. This site is expressly for these parties to use as FRAMES moves from research project to implementation as a national program.
- **Idaho National Fire Plan Community** – This community is currently under development. Idaho has developed an extensive network of individuals and groups actively working on wildfire mitigation. Included are county emergency staff, planning and zoning officials, county commissioners, rural fire chiefs, state, federal, and tribal fire managers, interest groups, community leaders, and citizens. We have chosen counties as the key level for managing wildfire mitigation. Each county has developed their own County Wildfire Protection Plan (CWPP) and most counties have active interagency county working groups. The Idaho State Fire Plan Working Group and the National Fire Plan staff have facilitated communication throughout this statewide community. The goal of this community through FRAMES is to establish a systematic network of communication within counties, across counties, and out to state and federal agencies.
- **Paleo Development Community** – Is used by the NOAA Paleoclimatology Branch staff and their constituents to share documents, etc. among their group and it has been using to demo and test material related to the National Integrated Drought Information System (NIDIS) that is being built by the National Climatic Data Center (NCDC).
- **Partners File Sharing** – This community was recently set up for new FRAMES partners, so that they can share documents before they have a community of their own set up.
- **Portal Training Community** – This community is currently under construction. The Portal Training Community will be the community that first time users with a login will be directed to. It will contain all self-contained training materials that are relevant to the portal. The initial design will target first time users who are interested in the collaboration services available on the FRAMES intranet.

## Services - Consulting & Product Development

- **Wildland Fire Use Community** – Was developed this year to accommodate the interagency Wildland Fire Use Modules. Fire plays a critical role in wildlands by recycling nutrients, regenerating plants and by reducing high concentrations of fuels that contribute to disastrous wildland fires. Land managers recognize the role that wildland fire plays in ecosystems and through careful planning, can manage naturally occurring fires, such as lightning ignitions, for resource benefits. The Fire Use Module (FUM) Program has developed teams of experienced and trained fire personnel and whose mission is to develop and provide national self-sufficient, multi-skilled fire professionals with a primary commitment to fire use operations and planning. This community is a mechanism for these modules to communicate amongst themselves and out to natural resource managers.

### Services – Consulting and Product Development

FRAMES also supplies consulting services for a variety of applications and services the portal can provide. Although our focus is using the portal to better provide a mechanism for researchers and managers to jointly be engaged in science delivery and technology transfer, we can also assist with distance education needs for wildland fire and natural resource professionals. Two other activities that FRAMES is beginning to explore are web-enabling popular computer programs (i.e., models) and systems integration. Portal technology lends itself to connecting legacy and other information systems together to add value and improved performance for users. With regards to web-enabling tools, FRAMES is undertaking to bring the popular First Order Fire Effects Model (FOFEM) into the portal environment. This project began in 2007 and is expected to be complete in 2008.

FRAMES is also very interested in working with others to leverage investment and provide value added services to wildland fire and other professionals. A recent collaboration with the **National Integrated Drought Information System (NIDIS)** – <http://www.drought.gov> is likely to be beneficial to both FRAMES and NIDIS.

As of November 1, 2007, NIDIS, led by NOAA, was created in response to extended drought conditions over the past decade. NIDIS coordinates use of the Portal for drought risk assessment and management among its federal, state, tribal and local partners. The goal of NIDIS is to improve the ability to understand and respond to climate change, natural disasters, and global environmental issues through better observation, data, analysis, models, and basic social science research. The FRAMES and NBII Portals were a role model, and provided much advice in getting the NIDIS portal started. The NIDIS - FRAMES collaboration will serve the users of both communities. Future collaboration includes federated searches and sharing of portlets between the two portals, especially since they are both built upon the same BEA Aqualogic platforms.

Another effort that FRAMES was recently involved with was the 2007 USDA Forest Service Fire Strategic Program Area (SPA) peer review. FRAMES provided technician time and server space in support of this effort. As part of the review, thousands of publications were entered into a reference database that was provided online for the reviewers. FRAMES provided data entry support for the review, as well as server space to post digital copies of hundreds of the publications. Records for the publications identified through the Fire SPA review will be integrated into the overall FRAMES system in Fiscal Year 2008.



## 2007 Accomplishments: MARKETING

### Presentations

In 2007, two fact sheets were developed to provide information about FRAMES and highlight accomplishments (dated August 2007 and updated November 2007). Additionally, a conference booth backdrop display was developed by Bill Hubbard and Elizabeth Jahn (University of Georgia Southern Regional Extension Forestry Office). Other Southern Fire Portal marketing materials were produced as well including a brochure, bookmark, and several posters.

### Presentations

Table 4. FRAMES Presentations

Date	Venue	Description
October 2006	FRAMES Interim Steering Committee. Washington, DC	FRAMES Oral Presentation (Greg Gollberg, UI)
October 2006	U.S. Forest Service Region 8 Prescribed Fire Meeting. Johnson City, TN	SFP Poster presentation (Dave Brownlie, FWS and Shelaine Curd-Hetrick, NBII SAIN / Ila)
October 2006	Organization of Fish and Wildlife Information Managers (OFWIM) Conference. Minneapolis, MN	FRAMES, SFP, and NOAA Oral Presentation (Greg Gollberg, UI and Wendy Gross, NOAA)
November 2006	Third International Fire Ecology and Management Congress. San Diego, CA	SFP Oral Presentation (Ron Masters, TTRS Director of Research, and Kevin Roberson, TTRS Fire Ecologist)  FRAMES Oral Presentation (Greg Gollberg, UI)  SFP Poster Presentation (Cynthia Fowler, FS; Chris Szell, TNC; Greg Gollberg, UI; and Shelaine Curd-Hetrick, NBII-SAIN / Ila)  FRAMES Exhibit with FRAMES materials distribution and online FRAMES demonstration (Bill Hubbard, SREF; FRAMES team members)  FFI short course (Duncan Lutes (FS), Nate Benson (NPS), MaryBeth Keifer (NPS), John Caratti(SEM), Pam Sikkink (SEM) Austin Streetman (Spatial Dynamics), Carter Barnes (SD) Kim Johnson (SD)
November 2006	The Sixth Longleaf Alliance Regional Conference. Tifton, GA.	SFP Poster Presentation (Kevin Hiers, Joseph W. Jones Ecological Research Center)
January 2007	Fire Use Module Workshop. Boise, ID	FRAMES Oral Presentation (Greg Gollberg, UI)
February 2007	FRAMES Interim Steering Committee Meeting. Washington, DC	FRAMES Oral Presentation

## Presentations

Date	Venue	Description
March 2007	2nd Fire Behavior and Fuels Conference. Destin, FL	<p>SFP Oral Presentation (Bill Hubbard, SREF)</p> <p>SFP Poster Presentation (Chris Szell, TNC; David Brownlie, FWS; Shelaine Curd-Hetrick, NBII-SAIN / Ila; Greg Gollberg, UI; Kevin Hiers, JWJERC; Bill Hubbard, SREF; Ron Masters, TTRS; Ken Outcalt, USDA FS; Jen Pollock, NBII; Fred Rascoe, NBII-SAIN/Ila; Kevin Robertson, TTRS)</p> <p>FRAMES/FIREHouse poster (Diana Olson, USDA FS; Paige Eagle, UW; David L. Peterson, USDA FS; Jen Pollock, NBII; Jennifer Allen, NPS; Randi Jandt, BLM; Jennifer Hrobak, BLM; Gary Schmunk, BLM; Karen Murphy, USFWS; Ann McCauley, UI; Mike Tjoelker, UW)</p> <p>FRAMES Exhibit with FRAMES materials distribution and online FRAMES demonstration (Bill Hubbard, SREF; FRAMES team members)</p> <p>FFI Oral Presentation and Poster, Duncan Lutes (FS), Nate Benson (NPS)</p>
April 2007	NWCG Information Resource Management Working Team Meeting. Missoula, MT	FRAMES Oral Presentation
April 2007	Emerging Issues Along Urban/Rural Interfaces II. Atlanta, GA	SFP materials distribution (Bill Hubbard, SREF)
April 2007	U.S. Fish and Wildlife Service, Southeastern Region, Fire Management Officer's Workshop. Orlando, FL	<p>SFP Oral Presentation (Dave Brownlie, USFWS)</p> <p>SFP Poster Presentation (Dave Brownlie, USFWS)</p> <p>SFP materials distribution (Dave Brownlie, USFWS)</p>
May 2007	National Forest Landowners Association Conference. Charleston, SC	SFP materials distribution (Bill Hubbard, SREF)
June 2007	Southern Group of State Foresters. Oklahoma City, OK	SFP materials distribution (Bill Hubbard, SREF)
June 2007	EastFIRE Conference, Fairfax, VA	FFI Oral Presentation and Poster, Duncan Lutes (FS)
September 2007	National GAP Analysis Program. Asheville, NC	<p>FRAMES Oral Presentation (Greg Gollberg, UI); SFP Oral Presentation (Shelaine Curd-Hetrick, NBII-SAIN/Ila)</p> <p>SFP materials distribution (Shelaine Curd-Hetrick, NBII-SAIN/Ila, Greg Gollberg, FRAMES, Jennifer Pollock USGS NBII)</p>

## 2007 Accomplishments: MARKETING

### Success Stories

Date	Venue	Description
September 2007	Organization of Fish and Wildlife Information Managers (OFWIM) Conference. Shepherdstown, WV	SFP materials distribution (Shelaine Curd-Hetrick, NBII-SAIN / Ila, Jennifer Pollock, USGS NBII)
September 2007	International Multiproxy Paleofire Database Decision Support Tool Development Workshop	FRAMES Oral Presentation (Greg Gollberg, UI); FHAES Oral Presentation (Wendy Gross, NOAA)

### Success Stories

In 2007 there are two general markers of FRAMES success 1) how much the partner sites have expanded their content and activity, which is evidenced in part from the trended increase of logged in accounts from 85 in 2006 to over 400 as of this writing (see Figure 11 below) and 2) the general increase of traffic on the FRAMES site (see Figure 10 below) since we were able to track usage in 2006.

Figure 10. Traffic on FRAMES 2006 - October 2007

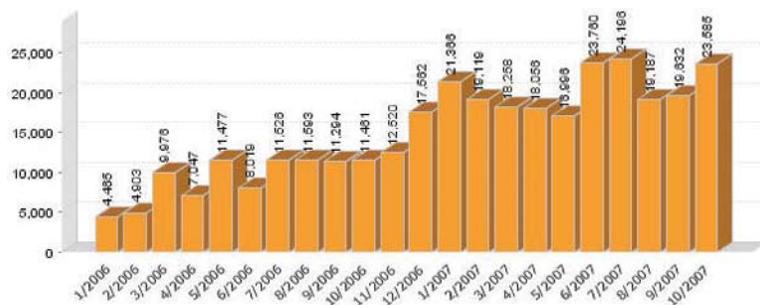
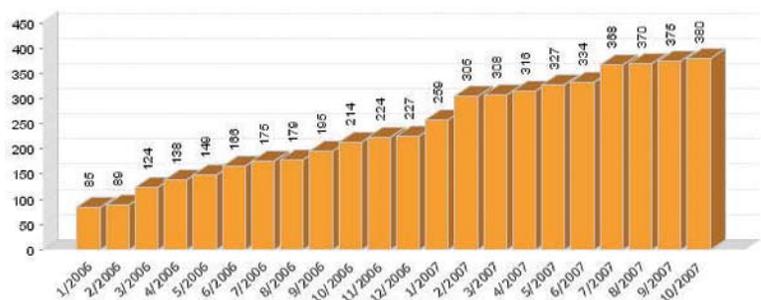


Figure 11. Logged IN User Accounts 2006 - October 2007



Although our Resource Catalog Database (RCD) is under construction and we completed the beta test of the Online Catalog Tool, and Versions 1.0 of each are expected to be released early in 2008, our existing though limited system of cataloged records has seen considerable activity in 2007 as well. Hits to cataloged resources have increased 160 percent over 2006.

## 2007 Accomplishments: MARKETING

### Partnerships

The list below shows the diversity of partners who are part of FRAMES. Many organizations are connected through partner sites hosted by FRAMES and through Intranet Collaboration Communities.

#### **National Interagency Fuels Technology Team (NIFTT) Partners**

Bureau of Land Management (BLM)  
National Park Service (NPS)  
USDA Forest Service (FS)  
The Nature Conservancy (TNC)  
FS Missoula Fire Science Lab  
Systems for Environmental Management (SEM)  
US Department Of Interior (DOI) Bureau of Indian Affairs (BIA)  
US Geological Survey (USGS)  
US Fish and Wildlife Service (FWS)

#### **Fire and Fire Surrogates Project (FFS) Partners**

USDOJ  
University of California, Berkeley  
University of California, Davis  
FS Rocky Mountain Research Station  
FS Region 5  
USGS  
FS International Programs  
NPS  
NPS, Redwood NP  
NPS, SEKI  
Auburn University  
FS Southern Research Station  
FS Forest Products Laboratory  
Colorado State Forest Service  
J. W. Jones Ecological Research Center  
FS Missoula Fire Science Lab  
University of Montana  
FS Pacific Northwest Research Station  
Colorado State University  
Quincy Library Group  
University of Idaho  
FS Pacific Southwest Research Station  
California Department of Forestry and Fire Protection  
University of Arizona  
Oregon State University  
Yosemite National Park

#### **Fire History Analysis and Exploration System (FHAES) Partners**

National Oceanic and Atmospheric Administration (NOAA) Paleoclimatology Branch  
FS Rocky Mountain Research Station  
Laboratory of Tree-Ring Science  
Rocky Mountain Tree-Ring Research  
University of Arizona





## Partnerships

### **Assessing Burn Severity Partners**

University of Idaho  
FS Rocky Mountain Research Station  
FS Remote Sensing Applications Center (RSAC)  
Joint Fire Science Program (JFSP)

### **Idaho – National Fire Plan Partners**

Idaho National Fire Plan Coordinator (shared USFS and IDL employee)  
Idaho Department of Lands  
Idaho Bureau of Homeland Security  
Idaho State Fire Marshal  
Idaho Department of Commerce and Labor  
Idaho Governor's Office of Species Conservation  
Nez Perce Tribe  
Coeur d'Alene Tribe  
Resource Conservation and Development Councils  
Idaho Fire Chief's Association  
Idaho Association of Counties  
USDI Bureau of Indian Affairs  
USDI Bureau of Land Management  
USDI Fish & Wildlife Management  
USDI National Park Service  
USDA Forest Service

### **Northern Rockies Climate and Fire Partners**

University of Idaho  
FS Missoula Fire Science Lab  
Aldo Leopold Wilderness Research Institute  
JFSP

### **Fire Effects Monitoring and Inventory Protocol (FIREMON) Partners**

FS Missoula Fire Sciences Lab  
USGS  
Systems for Environmental Management  
JFSP

### **Fire Ecology Assessment Tool (FEAT)/FIREMON Integrated (FFI) Partners**

National Interagency Fuel Coordination Group  
NPS  
FS Fire and Aviation Management  
Systems for Environmental Management  
Spatial Dynamics

### **AirFire Partners**

FS  
NOAA  
Pacific Northwest Research Station

# Partnerships

## Fire Research And Management Exchange System (FRAMES) Partners

FS Missoula Fire Science Lab  
 JFSP  
 USGS / NBII  
 FS Fire and Environmental Research Applications (FERA)  
 FS  
 FWS  
 National Association of State Foresters (NASF)  
 National Center for Landscape Fire Analysis  
 Cooperative Ecosystem Studies Unit (CESU)  
 FS Rocky Mountain Research Station  
 BLM  
 USGS/NBII Center for Biological Informatics (CBI)  
 Tall Timbers Research Station (TTRS)  
 NPS  
 FS Southern Research Station  
 FS Pacific Southwest Research Station  
 TNC  
 BIA  
 NOAA Paleoclimatology Program  
 FS Northeast Research Station  
 University of Idaho (UI)  
 University of Montana (UM)  
 University of Washington (UW)  
 Oregon State University (OSU)  
 BLM-Alaska Fire Service  
 Forest Encyclopedia Network (FEN)  
 National Fire Plan (NFP)  
 Southern Regional Extension Forestry (SREF)

Figure 12. FRAMES Partners and Sponsors



## 2007 Accomplishments: INFRASTRUCTURE

### Financial Support

When we talk about FRAMES infrastructure we mean the underlying technological foundation that supports the management and movement of information, communication, and tools that are on FRAMES servers hosted and maintained by the USGS NBII in Denver, CO. The build-out of FRAMES includes 1) a data, document, and tool repository, 2) consolidation, visualization, and web-based analytical capabilities of spatial data in a Geographic Information Systems (GIS) framework, 3) linked spatial and non-spatial databases, 4) a framework for managing and accessing remote sensing data, 5) a model management system, 6) web-enabled communications and collaboration, and all of this 7) in a platform that provides for customization based upon user, community, and agency needs. The BEA portal technology AquaLogic suite provides the software foundation to build out a system that is secure, flexible, extensible, and capable of serving information and services to a diverse number of users.

Currently, FRAMES infrastructure is concerned with two aspects: development and maintenance. The table below is a compilation of infrastructure activities in 2007.

**Table 5. FRAMES Infrastructure**

<b>Infrastructure Maintenance Activities in 2007-2008</b>	<b>Infrastructure Development Activities in 2007-2008</b>
FRAMES Staff and NBII: site maintenance and partner support	FRAMES Staff and NBII: Update of FRAMES navigation
USGS / NBII: Licensing of portal software	FRAMES Staff / OSU / NBII: Resource Catalog Database (RCD) Version 1.0
USGS / NBII: Security and accessibility / 508 compliance	FRAMES Staff / OSU: Online Catalog Tool Version 1.0
USGS / NBII: Software upgrades	FRAMES Staff / Partners / NBII: Style guide
FRAMES Staff / NBII: Server replacement	Partners / NBII: Thesaurus
	FRAMES / OSU / NBII: Visualization of RCD records
	FRAMES / OSU / NBII: Search

### Financial Support

The FRAMES project involves many sponsors and partners to promote the distribution of wildland fire research and information to a broad community. In 2007, the primary source of funding came from a congressional earmark through the Forest Service that enabled FRAMES to continue building the system. However, the FRAMES project also received additional funding and in kind services from many partner organizations previously listed that enabled it to grow substantially this year (See Appendix B for a chronology of FRAMES funding).

In the coming years, FRAMES anticipates moving from a project to a program and many steps are being taken to help move in that direction. As of this writing a 2008 appropriations bill is pending that includes funding for FRAMES through another congressional earmark. Future reports will document efforts to secure base funding and cease funding FRAMES with earmarks.

## 2007 Accomplishments: GOVERNANCE & MANAGEMENT

### Staffing

In 2007, in addition to the Idaho State Board of Education FTE for the FRAMES Project Manager position, a new FTE for a FRAMES Program Manager position was created and both positions were filled. A new temporary help FTE position for Content Support was created and filled; and two part-time temporary help positions for Portal Technical Support and Content Support were created and filled. These positions were through the University of Idaho. However, throughout the year numerous people contributed to and supported FRAMES who were not UI staff or partners. Although some people listed below were funded either in full or partially by FRAMES, many were not. In particular, much of the support from staff at NBII was in kind contribution. The following list illustrates the breadth and diversity of support in 2007.

#### ***FRAMES Staff and Administration at the University of Idaho (UI), College of Natural Resources (CNR)***

- Steven Daley Laursen, Dean CNR, UI Moscow, ID
- Penny Morgan, FRAMES Principal Investigator, CNR, Forest Resources Department (FOR), UI Moscow, ID
- Greg Gollberg, FRAMES Program Manager, CNR, FOR, UI Moscow, ID
- Diana Olson, FRAMES Project Manager, FS employee during the reporting period, located at USDA FS – Pacific Wildland Fire Sciences Lab, Seattle, WA
- Ann McCauley, FRAMES Content Support, University of Idaho employee located at USDA FS – Pacific Wildland Fire Sciences Lab, Seattle, WA
- Heather Heward, Fire Use Module Liaison, CNR, FOR, UI Moscow, ID
- Paige Eagle, FRAMES Portal Technical Support, University of Washington employee located at USDA FS – Pacific Wildland Fire Sciences Lab, Seattle, WA
- John Black, FRAMES Graphics and Web Design, CNR, FOR, UI Moscow, ID
- Lynn Wells-Tanimoto, FRAMES Content Support, CNR, FOR, UI Moscow, ID

#### ***Professional Fire Training at the University of Idaho***

- Chad Hoffman, 401 Series Coordinator CNR, FOR, UI Moscow, ID
- Morgan Pence, NIFTT Training USDA Forest Service, Moscow, ID

**Figure 13. Partners and Staff Training**



#### ***FRAMES Development***

- Sherry Pittam, FRAMES Infrastructure OSU / NACSE, Corvallis, OR
- Wilson Mbugua, FRAMES Infrastructure OSU / NACSE, Corvallis, OR
- Chris Moore, FRAMES Infrastructure OSU / NACSE, Corvallis, OR
- Dan Phillips, USGS / NBII Database / Cataloging Tool Project Lead, Reston, VA
- John Amburn, USGS / NBII Database Programmer, Reston, VA

## 2007 Accomplishments: GOVERNANCE & MANAGEMENT

### Planning

#### **NBII Staff / Support / Administration**

- Jennifer Pollock, USGS / NBII Project Liaison, Denver, CO
- Jean Freaney, USGS / NBII FRAMES Technical Lead, Oakridge, TN
- Janice Gordon, USGS / NBII Portal Developer, Denver, CO
- Julie Recker, USGS / NBII Portal Developer, Denver, CO
- Brad Williams USGS / NBII Portal Developer, Denver, CO
- Greg Twitchell, USGS / NBII FRAMES Portal Administrator, Reston, VA
- Ray Carlino, USGS / NBII Computer Specialist and Systems Administrator

#### **Southern Fire Portal**

- Shelaine Curd-Hetrick, IIa / NBII-SAIN FRAMES SFP Content Manager
- Terri Killeffer, IIa / NBII-SAIN FRAMES Database Administrator
- Fred Rascoe, IIa / NBII-SAIN FRAMES Content Specialist
- Chris Szell, TNC FRAMES Content Specialist

### Governance and Management: Planning

In 2007, a FRAMES Strategic Plan 2007-2012 was completed and signed by the FRAMES Interim Steering Committee (see below). Please see Appendix C for a copy of the Strategic Plan and a Summary of the plan. The next step in the planning process is to develop an implementation plan that will 1) conduct a comparative analysis of governance models for implementing FRAMES as a program, 2) produce a charter, 3) produce an alternatives analysis, 4) produce a functional design document, and 5) produce a project plan document. FRAMES staff is currently collaborating and cooperating with two other planning efforts: National Wildland Fire Enterprise Architecture (NWFEA) program to conduct a wildland fire system assessment and Joint Fire Science Program (JFSP) funded assessment of tools. Both of these efforts are likely to have an impact on FRAMES planning. Depending on funding, FRAMES implementation planning could begin in 2008.

Also moving forward is an effort to establish a “Wildland Fire Decision Support – Science Partnership” that includes the University of Idaho and FRAMES in Moscow, Idaho; University of Montana and the National Center for Landscape Fire Analysis in Missoula, Montana; US Forest Service Rocky Mountain Research Station’s Missoula Fire Sciences Laboratory, and the Research Development and Applications Unit based in Boise, Idaho. The establishment of such a partnership would be an important part of the FRAMES planning process.

Finally, FRAMES staff also participated in the development of a strategic plan for the USGS / NBII Pacific Northwest Information Node (PNWIN).

**Table 6. FRAMES Interim Steering Committee**

Mark Beighley	Director, Office of Wildland Fire Coordination, US DOI
Erik Berg	Assistant Program Coordinator, Terrestrial, Freshwater, and Marine Ecosystems, USGS
Mike Hilbruner	National Program Leader Fire Systems Research, USDA FS
Kate Kase	National Program Coordinator for Biological Informatics, USGS / NBII
Steven Daley Laursen	Dean, College of Natural Resources, University of Idaho
Susan Stewart	Fire Ecology Specialist, Fire and Aviation Management, USDA FS
Tom Zimmerman	Manager, Research Development and Application Unit, RMRS, USDA FS

## FRAMES Projects & Initiatives: 2007 and Beyond

The following table is a list of projects and initiatives. Projects such as established partner sites are ongoing. Other projects are proposed to begin in 2008, 2009, and 2010. This list is not prioritized, but is only a general guideline and is likely incomplete. We maintain a dynamic projects spreadsheet from which this list was derived, but the spreadsheet is always the most current version. The table is merely a summary of the information contained on the spreadsheet. Fields included are:

### **Functional Areas** – within the FRAMES site

1. FRAMES
2. Subject Areas
3. Geographic Areas
4. Partner Sites

### **FRAMES Strategic Plan Goals**

1. Provide Content and Increase Content Utility
2. Expand Services and Increase User Base
3. Increase Name Recognition and Program Awareness
4. Maintain and Upgrade the Infrastructure
5. Ensure Financial Support
6. Provide Responsive Governance and Management

### **Lead**

FS: Forest Service  
FRAMES: Fire Research And Management Exchange System  
IA: Inter Agency  
IDL: Idaho Department of Lands  
NBII: National Biological Information Infrastructure  
NOAA: National Oceanic and Atmospheric Administration  
NPS: National Park Service  
OSU: Oregon State University  
TBD: To Be Determined  
TNC: The Nature Conservancy  
TTRS: Tall Timbers Research Station  
UI: University of Idaho  
USGS: US Geological Survey

**Project Title** – working name of the project.

**Description** – very brief, two words or less description of the kind of project.

**Timeline** – when the project might begin or when it began; plus how long it might last.

**Support** – a very general 3 level system of projecting support (both financial and staff commitment required).

NOTE: Table 7 was last compiled on December 16, 2007.



# Projects

**Table 7. FRAMES Projects 2006-2010**

FA	FSPG	Lead	Project Title	Description	Timeline	Support
4	1, 2, 3	TNC	The Nature Conservancy (TNC) Tools	2 Tools	2008 ?	Medium
1	5, 6	FRAMES	2007-8 Project Plan	Admin Infrastructure	Ongoing	Low
1	4	FRAMES	Annual Training for FRAMES staff and partners	Admin Infrastructure	Ongoing	Medium
1	5	FRAMES	Budgeting (planning alternatives based on funding)	Admin Infrastructure	Ongoing	Low
1	1, 4	FRAMES	Compile survey needs for FRAMES and submit to OMB.	Admin Infrastructure	2008-2009	High
1	3	IA	Develop FRAMES brochure	Admin Infrastructure	2008-2009	Low
1	3	IA	Develop FRAMES display	Admin Infrastructure	2008-2009	Medium
1	5, 6	IA	Develop nation-wide implementation plan	Admin Infrastructure	2008-2010	Low
1	3	IA	Develop outreach / marketing plan	Admin Infrastructure	2008-2009	Medium
1	4	FRAMES / NBII	FRAMES IT Support Tracking	Admin Infrastructure	Ongoing	Low
1	5, 6	IA	Governance	Admin Infrastructure	Ongoing	Low
1	1, 4	NBII	ISO Metadata Standard / Metavist F.S.	Admin Infrastructure	2008 and On	Low
1	1, 3, 6	FRAMES	JFSP-Carnegie Mellon Planning	Admin Infrastructure	2008-2009	Low
1	5, 6	FRAMES	National Wildland Fire Enterprise Architecture (NWFEA) Planning	Admin Infrastructure	2007-2008	Low
1	1, 4	FRAMES / NBII	Security and accessibility / 508 compliance	Admin Infrastructure	2008 and On	Low
1	5, 6	TBD	Staff - Content Developer 1	Admin Infrastructure	2008 and On	High
1	5, 6	TBD	Staff - Content Developer 2	Admin Infrastructure	2008 and On	Medium
1	5, 6	TBD	Staff - Content Manager	Admin Infrastructure	2008 and On	Medium
1	5, 6	TBD	Staff - Coordinator for Idaho National Fire Plan project	Admin Infrastructure	2008 and On	Low
1	5, 6	FRAMES	Staff - Office Coordinator	Admin Infrastructure	2008 and On	High
1	5, 6	FRAMES	Staff - Portal Developer and Programmer	Admin Infrastructure	2008 and On	High

# Projects

FA	FSPG	Lead	Project Title	Description	Timeline	Support
1	5, 6	FRAMES	Staff - Program Manager	Admin Infrastructure	2008 and On	High
1	5, 6	FRAMES	Staff - Project Manager	Admin Infrastructure	2008 and On	High
1	3, 5, 6	NBII	Staff - USGS / NBII representative to RD&A and FRAMES	Admin Infrastructure	2008-2009	Low
1	5, 6	FRAMES	Strategic plan revision	Admin Infrastructure	2008 and On	Low
1	1, 4	FRAMES	Upgrade style guide	Admin Infrastructure	2007 and On	Low
3, 4	1, 2, 3	FRAMES	Alaska Fire Effects References Database	Cataloging	2008	Low
3	1, 2, 3	FRAMES	Alaska Fire Portal	Cataloging	2008 and On	Medium
1	1, 4	FRAMES	Catalog Resource Visualization; format of displaying cataloged records	Cataloging	2008	Medium
1	1, 4	FRAMES / NBII	Connect NBII image library to FRAMES RCD	Cataloging	2008	Medium
1	1, 4	FRAMES	Develop map search capabilities for FRAMES, including SA, GA, and PS; connected to RCD	Cataloging	2009	Medium
1, 3, 4	1, 2, 3	FS	Encyclopedia of Southern Fire Science	Cataloging	2008 and On	Low-Medium
1	1	FRAMES	Existing Catalog Records	Cataloging	2008	Low
1	1, 2	FRAMES	FIREHouse content import	Cataloging	2008	Medium
1	1, 5, 6	FRAMES	JFSP-Carnegie Mellon (additional tools)	Cataloging	2008	Unknown
FA	FSPG	Lead	Project Title	Description	Timeline	Support
1	1, 2	FRAMES	Missoula Fire Lab projects (Bob Keane)	Cataloging	2008 and On	Low
1	1, 2	FRAMES	Moscow FSL projects (Andy Hudak)	Cataloging	2008 and On	Low
1	1, 2	FRAMES	Moscow FSL projects (Dennis Ferguson)	Cataloging	2008 and On	Low
1	1, 2	FRAMES	Moscow FSL projects (Pete Robichaud)	Cataloging	2008 and On	Low
1	1, 2	FRAMES	Moscow FSL projects (Terry Jain)	Cataloging	2008 and On	Low
1	1	FRAMES	New Catalog Records	Cataloging	2008 and On	Medium
3	1, 2, 3	FRAMES	Northwest Fire Portal	Cataloging	2008 and On	Medium

# Projects

FA	FSPG	Lead	Project Title	Description	Timeline	Support
1	1, 2	FRAMES	Pacific Wildland Fire Sciences Laboratory projects	Cataloging	Ongoing	Low
1	1, 4	FRAMES	Search Function; new simple and advanced search based upon RCD	Cataloging	2008	Medium
3	1, 2, 3	FRAMES	Southern Fire Portal	Cataloging	Ongoing	Low-Medium
1, 3, 4	1, 2, 3	TTRS	Tall Timbers Research Station Fire Ecology Database	Cataloging	2008 and On	Low-Medium
1	2, 4	FRAMES / NBII	Thesaurus	Cataloging	2009 and On	Medium
1, 4	1, 2, 3	FRAMES	USFS Fire Strategic Program Area references db import	Cataloging	2008	Medium
4	1, 2, 3	FRAMES	USGS Fire Research and GeoMac	Cataloging	2008 and On	Low
2	1, 3	NOAA	Fire History Subject Area	Content	Ongoing	Low
2	1, 2, 3	FRAMES	Review Subject Areas and combine or reduce	Content	2008	Low
4	1, 2, 3	NOAA	National Integrated Drought Information System (NIDIS)	Cooperate	Ongoing	Low
4	1, 2, 3	FS	Fire Effects Information System (FEIS)	Integrate	2008 ?	Medium
1	1, 2, 4	FRAMES	Development Community	Intranet	Ongoing	Low
4	1, 2, 3	IDL / FS	Idaho National Fire Plan	Intranet	2008 and On	Medium
4	1, 2, 3	IA	Wildland Fire Use	Intranet	Ongoing	Low
4	1, 2, 3	NOAA	Paleo Development Community (IMPD)	Intranet Only	Ongoing	Low
1	1, 2, 3, 4	FRAMES / NBII	Availability of FRAMES Records on NBII	IT Infrastructure	2008 and On	Low
1	4	FRAMES / NBII	BEA / USGS-NBII Upgrade 0000107	IT Infrastructure	2008	Low
1	1, 2, 4	FRAMES	Conduct user usability studies to test FRAMES navigation, RCD, and cataloging tool	IT Infrastructure	2008 and On	Medium
1	1, 2	FRAMES	Create communities and projects as needed in collaboration server	IT Infrastructure	2007 and On	Low
1	1, 4	FRAMES	Custom Application / Portlet Maintenance	IT Infrastructure	Ongoing	Low
1	1, 4	FRAMES	Database / Content Crawler	IT Infrastructure	2008	Medium

# Projects

FA	FSPG	Lead	Project Title	Description	Timeline	Support
1	1, 4	FRAMES	FRAMES public website redesign	IT Infrastructure	2007 and On	Medium
1	1, 4	FRAMES	FRAMES website consistency	IT Infrastructure	2007 and On	Low
1	4	FRAMES / NBII	Hardware upgrade or replacement	IT Infrastructure	2008 and On	Medium
11	1, 4	FRAMES	Help / Tutorials for various aspects of the portal	IT Infrastructure	2007 and On	Medium
1	4	FRAMES / NBII	Portal and other BEA licensing	IT Infrastructure	Ongoing	Medium
1	1, 4	FRAMES	Replace the Knowledge Directory (KD) View – (link from All Resources Tab)	IT Infrastructure	2008-2009	Low
1	1, 4	FRAMES	Review and upgrade site navigation	IT Infrastructure	2008 and On	Medium
1	1, 4	FRAMES	Rewrite Browse Portlet	IT Infrastructure	2008	Low
FA	FSPG	Lead	Project Title	Description	Timeline	Support
1	4	FRAMES / NBII	Software / portal upgrades	IT Infrastructure	2008 and On	Medium
2	1, 2, 3	FS	Emissions and Smoke Subject Area	New Content	2008 and On	Low
1	1, 2	FRAMES	Notice Posting	New Content	Ongoing	Low
2	1, 2, 3	Contractor	Social Sciences Subject Area	New Content	2008 and On	Low
3	1, 2, 3	FRAMES	Eastern Fire Portal	New GA	2009 ?	Medium
4	1, 2, 3	FS	AirFire	New Intranet	2008 and On	Low
4	1, 2, 3	IA	Alaska National Fire Plan	New Intranet	2008 and On	Medium
3	1, 2, 3	FRAMES	Alaska Wildland Fire Coordination Group - Research Committee	New Intranet	2008 and On	Low
2	1, 2, 3	FRAMES	Boreal Fire History	New Intranet	2008 and On	Low
2	1, 2, 3	FRAMES	Fuels Subject Area	New Intranet	Ongoing	Low
4	1, 2, 3	IA	Ichuaway 2008 Experimental Fires (formerly Core Fire Science Caucus)	New Intranet	2008 ?	Low
4	1, 2, 3	IA	National Association of Counties	New Intranet	2008	Low
4	1, 2, 3	IA	National Coalition of Prescribed Fire Councils	New Intranet	2008 ?	Low
FA	FSPG	Lead	Project Title	Description	Timeline	Support
2	1, 2, 3	FS	Digital Photo Series (DPS)	New Project	2009 ?	Medium

# Projects

FA	FSPG	Lead	Project Title	Description	Timeline	Support
2, 4	1, 2, 3	IA	Fire Program Analysis (FPA)	New Project	2010 ?	High
2, 4	1, 2, 3	IA	Fire Stats (from NIFC, NICC)	New Project	2009 ?	Medium-High
4	1, 2, 3	USGS	Geospatial One-Stop	New Project	2009 ?	Low
4	1, 2, 3	Contractor	Jason Greenlee Reference Database	New Project	2009 ?	Medium
2, 4	1, 2, 3	FS / USGS	LANDFIRE	New Project	2010 ?	High
2, 4	1, 2, 3	FS	NEXUS	New Project	2009 ?	Low
1, 4	1, 2, 3	IA	Pilot to develop a prescribed fire and smoke tracking system for Georgia and possibly North Carolina	New Project	2008-2009 ?	High
2, 4	1, 2, 3	NOAA	RAP Real-time Weather Data	New Project	2010 ?	Medium-High
2, 4	1, 2, 3	IA	Remote Automated Weather Stations (RAWS)	New Project	2009 ?	Medium-High
2, 4	1, 2, 3	IA	Resource Ordering & Status System (ROSS)	New Project	2010 ?	High
4	1, 2, 3	FS	TreeSearch	New Project	2009 ?	Medium
4	1, 2, 3	TBD	Wildand Fire Use (Resource Order and Status System)	New Project	2010 ?	High
2, 4	1, 2, 3	FS	Wildland Fire Situation Analysis (WFSA)	New Project	2009 ?	Medium-High
3	1, 2, 3	IA	Build out the rest of the Geographic Areas	New Projects	2008 and On	High
1, 2, 4	1, 2, 3, 4	FS	Intelligent Decision Services planning tool	New Tool	2008-2009	Low-Medium
1	1, 2, 4	FRAMES	Online Cataloging Tool Version 1.0	New Tool	2007-2008	Medium
1	1, 2, 4	FRAMES	Online Cataloging Tool Version 2.0	New Tool	2008-2009	Medium
1	1, 4	FRAMES	Re-engineer Notice Posting Tool	New Tool	2008	Medium
1	1, 2, 4	FRAMES	Resource Catalog Database (RCD) Version 1.1	New Tool	2007-2008	Medium
1	2, 4	FRAMES	Upload Tool for documents; places PDF's, Word docs, etc. on FRAMES and provides URL	New Tool	2008	Medium-Low
2, 4	1, 2, 3	FS	AirFire	New Website	2008 and On	Low

# Projects

FA	FSPG	Lead	Project Title	Description	Timeline	Support
3	1, 2, 3	FRAMES	Alaska Wildland Fire Coordination Group - Research Committee	New Website	2008 and On	Low
4	1, 2	FS	Fire Enhanced Runoff and Gully Initiation Model (FERGI)	New Website	2008 and On	Low
4	1, 2, 3	IA	Wildland Fire Use	New Website	2008 and On	Low
4	1, 2, 3	FS	CONSUME	Tool	2009 ?	High
4	1, 2	FS	Fire Enhanced Runoff and Gully Initiation Model (FERGI)	Tool	2008 and On	Low
4	2	FS	FIREMON	Tool	2008-2009 ?	Medium
4	1, 2	FS	First Order Fire Effects Model (FOFEM)	Tool	2008	Medium
4	1, 2, 3	IA	Alaska National Fire Plan	Website Move	2008 and On	Medium
4	1, 2, 3	IA	Idaho National Fire Plan	Website Move	2008 and On	Medium
4	1, 2, 3	TNC	TNC Global Fire Initiative	Website Move	2008 ?	Medium
4	1, 2	UI	An Innovative Technology Transfer Approach	Website Only	Ongoing	Low
4	1, 2	UI	Burn Severity	Website Only	Ongoing	Low
4	1, 2, 3	OSU	Fire and Fire Surrogates (FFS)	Website Only	Ongoing	Low
4	1, 2, 3	IA	Fire Regime Condition Classes (FRCC)	Website Only	Ongoing	Low
4	1, 2	UI	Northern Rockies Climate and Fire	Website Only	Ongoing	Low
4	1, 2, 3	FS / NPS	FEAT (Fire Ecology Assessment Tool) / FIREMON Integration (FFI)	Website P & I	Ongoing	Low
4	1, 2, 3	FS	Fire Effects Monitoring and Inventory Protocol (FIREMON)	Website P & I	Ongoing	Low
4	1, 2, 3	NOAA	Fire History Analysis and Exploration System (FHAES)	Website P & I	Ongoing	Low
4	1, 2, 3	IA	National Interagency Fuels Technology Team (NIFTT)	Website P & I	Ongoing	Low



FRAMES 26 Subject Areas

The screenshot shows the FRAMES Home page in a Windows Internet Explorer browser. The page title is "FRAMES Home - Windows Internet Explorer" and the address bar shows "http://frames.nbi.gov/portal/server.pt". The page features a navigation bar with "FRAMES Home", "Subject Areas", "Geographic Areas", "All Resources", and "Partner Sites". The "Subject Areas" menu is expanded, listing 26 categories: Administration, Aviation, Climate, Communications, Economics, Emissions and Smoke, Fire Behavior, Fire Ecology, Fire Effects, Fire History, Fire Occurrence, Fire Prevention, Fuels, Hazard and Risk, Intelligence, Logistics, Mapping, Models, Monitoring and Inventory, Outreach, Planning, Prescribed Fire, Regulation and Legislation, Restoration and Rehabilitation, Safety, and Weather. The main content area displays an announcement about the "Service of the Forest Stations in Oregon, 2007 and 0-60 AM 05, 12/20/2007" and a section for "Fire Research and Management". A sidebar on the left contains "Business Resources" (data, documents, projects, tools, webpages) and "Fire History Quick Links". A table at the bottom lists "New Notices Recently Posted to FRAMES" with columns for Event, Notice Type, Start Date, and Deadline.

FRAMES Fire History Subject Area

The screenshot shows the FRAMES Fire History Subject Area page. The page title is "Fire History" and the address bar shows "http://frames.nbi.gov/portal/server.pt". The page features a navigation bar with "FRAMES Home", "Subject Areas", "Geographic Areas", "All Resources", and "Partner Sites". The "Subject Areas" menu is expanded, listing 26 categories: Administration, Aviation, Climate, Communications, Economics, Emissions and Smoke, Fire Behavior, Fire Ecology, Fire Effects, Fire History, Fire Occurrence, Fire Prevention, Fuels, Hazard and Risk, Intelligence, Logistics, Mapping, Models, Monitoring and Inventory, Outreach, Planning, Prescribed Fire, Regulation and Legislation, Restoration and Rehabilitation, Safety, and Weather. The main content area displays a section for "FIRE HISTORY" with the text "The study of how often fires have occurred in a given geographical area." and a photo of a fire. A sidebar on the left contains "Browse Fire History Resources (3)" (data, documents, projects, tools, webpages) and "Fire History Quick Links". A table at the bottom lists "Notices for Fire History" with columns for Event, Notice Type, Start Date, and Deadline. A section titled "What's New in Fire History" lists recent resources with columns for Resource and Added.

## APPENDIX B

FRAMES Funding Report 2002-2007				
Projects funded in 2002	Date	Funded by	UI Amount	Partners
Fire Research And Management Exchange System (FRAMES)	27-Jun	RMRS, Missoula Fire Lab	\$30,000	
<b>Projects funded in 2003</b>				
A New Wildland Fire Tools Database and Security Protocols for FRAMES	9-Jun	RMRS, Missoula Fire Lab	\$40,000	
FRAMES Infrastructure Expansion Project I	9-Jun	Congressional Earmark	\$199,000	
An Expert System and New Web Interface for Tools on FRAMES	4-Nov	JFSP	\$99,475	
<b>Projects funded in 2004</b>				
Development of a Training Course for FRCC Assessment	25-Feb	NPS Pacific NW-CESU	\$39,230	
Development of a Training Course for FRCC Assessment		NPS Pacific NW-CESU	\$73,794	
A Continuation of the FRAMES Infrastructure Expansion Project I	22-Mar	Congressional Earmark	\$197,000	
An Information Portal for Fire Science and Management in the Southern Region	1-Jun	JFSP	\$117,509	\$380,254
<b>Projects funded in 2005</b>				
FRAMES Infrastructure Expansion Project II	16-Aug	Congressional Earmark	\$97,000	\$100,000
Provide access for FERGI into the FRAMES portal	31-Jul	RMRS, Boise Aquatics Lab	\$2,000	
<b>Projects funded in 2006</b>				
FRAMES Infrastructure Expansion Project III	29-Mar	Congressional Earmark	\$129,170	\$214,830
Development of a 5-year Strategic Plan for FRAMES	11-Jul	NFP		\$20,000
		USGS/NBII		\$20,000
Development of a Training Course for FRCC Assessment	?	NPS Pacific NW-CESU	\$20,000	
<b>Projects funded in 2007</b>				
Maintenance and Development of FRAMES	25-Jun	Congressional Earmark	\$223,950	\$124,050
<b>Totals</b>			<b>\$1,268,128</b>	<b>\$859,134</b>
			<b>Total Combined</b>	<b>\$2,127,262</b>

## APPENDIX C

### Summary of the FRAMES Strategic Plan 2007-2012

FRAMES: Technology in Support of Wildland Fire Research and Management

The Fire Research And Management Exchange System (FRAMES) supports wildland fire and natural resource professionals and policymakers through an on-line informatics system. FRAMES utilizes enterprise portal technology to promote science delivery and technology transfer at a national level. Resources including data, documents, tools, notices, and web pages are publicly available through <http://frames.nbii.gov/>. FRAMES can host resources, link to them through its cataloging system, or provide a common view of resources (e.g., databases) that are remotely distributed. Access to these resources and other content can be customized for logged in users. Logged in users create and edit content that may or may not be publicly available. A suite of collaborative services including document management and sharing, threaded discussions, project and task management, and calendars are available to content developers and other logged in users. FRAMES is a collaborative effort to produce an integrative system for connecting the tools, information, and people who are part of the enterprise of wildland fire research and management.

The University of Idaho and the US Geological Survey's National Biological Information Infrastructure program (NBII) has led the development of FRAMES with guidance and support USDA Forest Service (FS), Joint Fire Science Program (JFSP), Bureau of Land Management (BLM), National Park Service (NBP) and other federal, state, and private agencies and organizations. Since 2003, FRAMES has received funding and in-kind support from many including the FS, USGS / NBII, JFSP, BLM, NPS, National Interagency Fuels Technology Team (NIFTT), Fire Regime Condition Class (FRCC) Working Group, National, US Fish and Wildlife Service, Tall Timbers Research Station (TTRS), The Nature Conservancy (TNC), and congressional earmarks. Funding has supported three areas of development: content, infrastructure, and services. Infrastructure and content development has been emphasized with some effort spent on developing services. In 2006 there was a dramatic increase in portal traffic, logged in users, content added, partners sites hosted by FRAMES, and the use of available services. Today, FRAMES is at a crossroads between prototype and an operational system for fire informatics. This transition presents new opportunities and challenges that require additional guidance and planning.

Beginning in 2007 and for each subsequent fiscal year, a FRAMES Project Management Plan will be developed by FRAMES staff, partners, and USGS/NBII personnel that will be reviewed by members of the FRAMES Interim Steering Committee (FISC). The FISC will continue to fill this role until such time as a permanent governance structure is established for FRAMES. Each annual plan will seek to further five-year goals established in the FRAMES Strategic Plan.

#### FRAMES Five Year Strategic Goals

1. Provide Content and Increase Content Utility. Develop a rich and usable base of content that is useful to wildland fire and natural resource professionals and policymakers.
2. Expand Services and Increase User Base. Identify opportunities to work with wildland fire and natural resource professionals (i.e., managers, practitioners, and researchers) to develop customized services that are complementary with FRAMES informatics architecture and that target their common technology transfer and science delivery needs.
3. Increase Name Recognition and Program Awareness: Develop marketing materials for outreach and cultivate relationships with agencies and potential FRAMES users and contributors.
4. Maintain and Upgrade the Infrastructure. Build a technological infrastructure that can support wildland fire and fire-related informatics.
5. Ensure Financial Support. Determine staffing requirements and develop a sustainable system of financial support to ensure that FRAMES remains viable.
6. Provide Responsive Governance and Management. Establish a long-term plan for governance and accountability for the management and implementation of FRAMES.

FRAMES makes the following commitments to the larger community of fire policymakers, managers, researchers, and practitioners. We will be mission centered. We will continuously stay focused on our core mission, goals, and strategic actions. We will focus on excellence and undertake all activities at the highest levels of distinction. We will stay current on developments in the fire community and informatics. We will be strategic in our partnerships. We will seek to measure our progress and work with sound metrics, learn from the results, and seek improvement as a result.

## Members of the FRAMES Interim Steering Committee (FISC)

Mark Beighley	Director, Office of Wildland Fire Coordination, US DOI
Erik Berg	Assistant Program Coordinator, Terrestrial, Freshwater, and Marine Ecosystems, USGS
Mike Hilbruner	National Program Leader Fire Systems Research, USDA FS
Kate Kase	National Program Coordinator for Biological Informatics, USGS / NBII
Steven Daley Laursen	Dean, College of Natural Resources, University of Idaho
Tim Sexton	Fire Use Program Manager, USDA FS
Tom Zimmerman	Manager Research, Development, and Applications (R,D&A) Program, RMRS USDA FS

## Team Meeting



# FRAMES Strategic Plan

2007 - 2012



Fire Research and Management Exchange System

**Technology in Support of Wildland Fire Research and Management**

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<http://frames.nbii.gov>

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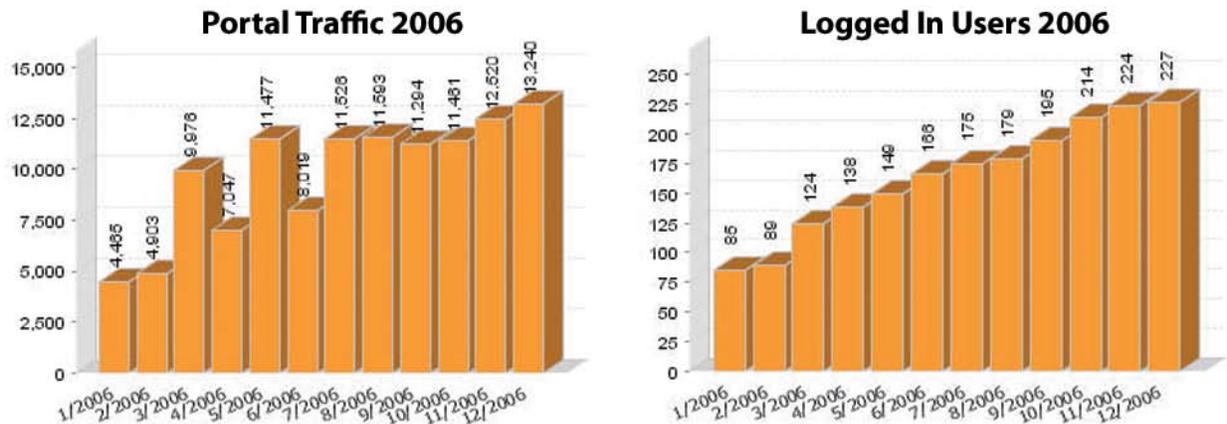
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## I. BRIEF HISTORY

The Fire Research And Management Exchange System (FRAMES) began in 2002 at the University of Idaho with funding from the USDA Forest Service's Missoula Fire Lab. The need for a system that catalogs and organizes wildland fire tools, data, and documents was identified during a workshop at the first Joint Fire Science Program (JFSP) at the Crossing the Millennium: Integrating Spatial Technologies and Ecological Principles for a New Age in Fire Management conference in 1999 (Sampson and Gollberg 2000). FRAMES was proposed to be an effective mechanism for ongoing information and technology transfer and exchange between the wildland fire management and research communities, and their publics. Beginning in 2003, after the popular USDA Forest Service's Fire Management Tools Online (FMTO) was moved into FRAMES and updated, a pilot project to develop and implement a proof of concept design for a wildland fire information system began in earnest.

From 2003-2005, FRAMES was engaged primarily with 3 projects 1) the design of a wildland fire portal, a secure web site and services that improves access, processing, and sharing of structured and unstructured information; 2) the design of a system for cataloging wildland fire and related natural resource research deliverables and other valuable information resources; and 3) the development of the Southern Fire Portal. In 2004, a partnership was formed between the University of Idaho and USGS / NBII and in 2005 FRAMES began migrating into NBII and implementing the wildland fire design for a portal using technology acquired by NBII. Beginning in 2005 and continuing, FRAMES has begun hosting partner sites including the Fire Effects Monitoring and Inventory Protocol (FIREMON / USDA FS), Fire History Analysis Exploration System (FHAES / NOAA), Fire Regime Condition Class (FRCC / Interagency), National Interagency Fuels Technology Team (NIFTT / Interagency), and several JFSP funded projects including the Fire and Fire Surrogates Study (FFS). FRAMES is also providing collaborative services for FEAT / FIREMON integration, the Fire History community (i.e., national fire history researchers coordinated by NOAA's Paleoclimatology Program), FHAES Working Group, NIFTT Working Group, and Southern Fire Portal Working Group. In 2007, FRAMES will begin a pilot project to provide information services for wildland fire use modules.

In 2006, there was a dramatic increase in activity at FRAMES, both on the public website and at the secure website that requires a login. On the public site there were approximately 5000 hits per month in January and by December there were over 13,000. As of January 2006 there were 85 power users with accounts on FRAMES and by December there were 227. These trends are recorded by the portal and are graphed below. In addition, FRAMES is also hosting 5 federal websites.



## II. PURPOSE OF THE PLAN

This strategy guides the growth and development of FRAMES between 2007 and 2012. The plan was developed jointly by the U.S. Geological Survey, the U.S. Forest Service, and the University of Idaho. The Keystone Center facilitated the process which was informed by interviews, surveys, and deliberative discussions among fire experts, partners, and stakeholders in federal, state, and private organizations (See Details from FRAMES Phone Interviews and Online Survey in Appendix, Pages 1-12). This strategy incorporates their comments, concerns, and needs. The strategy charts the programmatic and technological actions needed to advance FRAMES beyond its current status as a pilot project towards implementation of a national program for wildland fire informatics. The actions described include organizational directions, finances, and governance. The strategy is a framework and springboard rather than a specific blueprint. All strategies are intentionally broad and no strategy survives fully intact after prolonged contact with reality. The strategy will therefore be amended as needed.

Wildland fire professionals are the experts on what their information and data-sharing needs are. For this reason, the first step in the strategic planning process for FRAMES was to reach out to researchers, practitioners, and managers across the country to

get their input on what information is needed, how it could best be provided, and how to integrate the fire community around a common source of information, and what role FRAMES could play in addressing these issues. Toward this end, in the fall of 2006, facilitators from The Keystone Center conducted 11 telephone interviews with researchers and managers to elicit their views. Then, based on the input gathered in these interviews, Keystone created and launched an Internet survey, which was sent to hundreds of individuals throughout the wildland fire community. 97 surveys were returned.

After careful analysis and review, Keystone summarized the common themes, priorities, and concerns that emerged from the interviews and surveys. The FRAMES planning committee then used this input as the basis for crafting the goals and strategies in the plan. Early drafts of the plan were distributed to interview participants and survey respondents to see if it corresponded to their own views and needs and to those of the larger wildland fire community. Several individual comments and suggestions were provided in response to the draft, and these were addressed accordingly.

### **III. DOCUMENT ORGANIZATION**

The plan is short and succinct so that it can be easily used by a variety of stakeholders and audiences. More extended and detailed information is appended. Even more is available from:

Greg Gollberg  
FRAMES Project Manager  
University of Idaho, College of Natural Resources Moscow, Idaho 83844-1133  
Phone: (208) 885-9756; Fax: (208) 885-6226  
Website: <http://frames.nbii.gov/>

## IV. MISSION

Fire Research And Management Exchange System (FRAMES) supports wildland fire and natural resource professionals and policymakers, by promoting and facilitating information and technology sharing, exchange, collaboration, and development through a state-of-the-art clearinghouse and web portal. The FRAMES portal uses informatics<sup>1</sup> technologies to help eliminate redundancy, reduce costs, and promote increased productivity and efficiency for the professionals responsible for wildland fire and fire-related research and management.

## V. VISION

FRAMES is a national wildland fire informatics system and clearinghouse that organizes, synthesizes, evaluates, distributes, tracks use, and measures the efficacy of wildland fire and fire-related information and technological resources. FRAMES provides collaborative services for the development, management, and revision of these resources. Its primary users are researchers, who provide the scientific basis for wildland fire management, and wildland fire and natural resource managers / practitioners, who need state-of-the-art research, information, tools, and data to assist their daily efforts.

FRAMES,

- employs informatics technologies to add value to research deliverables through their better integration into the daily operations of wildland fire and natural resource management;
- is an instrument for information sharing and exchange as well as tools development, refinement, and utilization between the research and management communities;
- is a repository for core fire science deliverables and other research funded by entities such as the Joint Fire Science Program (JFSP), the National Fire Plan (NFP), and fire and fire-related research that is produced by many individuals and entities including Forest Service Laboratories, USGS Research, state institutions, and others;
- is an integrative technology for providing common access to and connecting other external systems and databases;
- can be a conduit for outreach by these communities to stakeholders and the public;
- is a platform for administering and providing on-line training opportunities;
- simplifies information management and access by being responsive to customer needs, leveraging collaborative partnerships, integrating resources and technologies, and cost-sharing;
- helps support legislative and administrative wildland fire and fire-related policies.

## VI. WHY FRAMES?

Half the battle of providing the best science is accumulating it under one roof.

Tim Swedberg, JFSP Communications Director

Together, researchers, managers, private landowners, and policymakers are all engaged in an iterative process of public / private lands management. With respect to wildland fire, natural resource research and management communities are partners with tribal, state, and local representatives and citizens in the enterprise to reduce fire risk to communities and the environment. Because of the range of affected stakeholders, documents such as the federal 10-Year Comprehensive Strategy, "A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment," recognize the ongoing need for a collaborative approach and information sharing across "a geographically diverse group of people." Research helps provide the scientific and technological foundation for reducing the risk of wildland fire. However, the sheer volume of wildland fire and fire-related research (including data, documents, tools, and websites) makes the two-step process of identifying and synthesizing the best available fire science into policy and decision making challenging and sometimes impossible. Research deliverables are widely distributed, difficult to find and compare, and oftentimes poorly documented. FRAMES is the only web-based system and clearinghouse designed specifically to get the spectrum of research data, documents, tools, and other information resources into the hands of managers, practitioners, and other interested and affected parties.

In addition, FRAMES

- provides a system for denoting if data, documents, tools, projects, and web pages are peer-reviewed;
- provides additional services<sup>2</sup> in support of science delivery and technology transfer; and

<sup>1</sup> "Informatics" is the collection, classification, storage, retrieval, and dissemination of recorded knowledge - from the Center for Biological Informatics at <http://biology.usgs.gov/cbi/informatics/>.

<sup>2</sup> Services that FRAMES can provide to researchers and managers include: 1) giving their project, data, documents, tools, web pages (i.e., information resources) a permanent home; 2) a consistent system for managing a record of their information resource, link the record to the actual resource (data, document, tool, or web page), link resources to one another, and publish them in the FRAMES portal; 3) either hosting resources or providing common access to them if they are located on another server; 4) providing simple and advanced searching of resources; 5) hosting of websites and ensuring that they are compliant with OMB information technology requirements and other IT-related federal laws; 6) developing new online visualization or analytic tools for users of fire data, databases, and other information resources; 7) providing a data management system including online data input; 8) providing a collaborative, secure space for resource develop-

- contributes to the implementation of related strategic plans including the U.S. Geological Survey's National Biological Information Infrastructure's goal of creating thematic information nodes that "provide national coordination for issues that are pervasive in all or many regions, and have a high level of importance to the nation;"<sup>3</sup> and 2) the U.S. Forest Service's research and development goal to "develop and facilitate use of knowledge and tools that policymakers, wildland fire managers, and communities use to plan for their jobs, to do their jobs, and to learn from what they have done." (USDA Forest Service, January 2005)

Information management is a crucial element of any successful enterprise. Federal managers implement policies and follow regulations on public lands that are intended to sustain ecosystem health while promoting societal goals of public safety and protecting property. Research helps provide the scientific and technological foundation for management of wildland fire and hazardous fuels, as well as for ecosystem restoration and rehabilitation. For researchers and managers to be successful, wildland fire professionals need to benefit from each other's expertise and skills. FRAMES is being designed specifically as a wildland fire informatics management system and clearinghouse that uses cutting edge enterprise portal technologies that are employed by many Fortune 500 companies to meet their corporate information needs. As they do for the private sector, these technologies can help eliminate redundancy, reduce costs, and promote increased productivity and efficiency for professionals working on fire, fuels, and other natural resource concerns. FRAMES provides quality informatics services, consolidates access, and links critical resources including data, databases, models, and other tools in an effort to interconnect information resources, tools, and people. It also helps researchers, managers, and practitioners by providing better access to information resources, which they currently get from disparate sources such as email, conferences, academic journals, and agency websites.

FRAMES provides infrastructure in the form of portal technology (software), servers and storage (hardware), and technology support (staff) for FRAMES users. FRAMES users (See Table 1 in Appendix, Page 19) are wildland fire and natural resource professionals and policymakers. FRAMES contributors and partners (See Table 2 in Appendix, Page 20) are content providers, primary users, and supporters.

The role of contributors is to:

- add and edit content in FRAMES;
- provide feedback and administrative or technical support;
- use FRAMES resources and notices; and
- use FRAMES collaborative services to develop new content.

In addition to these activities, partners also:

- provide funding and
- are actively involved in FRAMES development and governance.

## VII. KEY ASSUMPTIONS AND DRIVERS

1. Wildland fire management is a shared domain of interest by policymakers, resource managers, scientists, practitioners, and the public at large. Management and research are symbiotic endeavors that will always be relatively costly and challenging.
2. Wildland fire and natural resource managers do not fully know what they do not know and have little time to find out. Hence they are not good "shoppers" or "consumers" of state-of-the-art information.
3. Researchers do not fully know what information, tools, and metadata fire managers, natural resource managers, and policymakers require to do their jobs. Consequently, researchers are not always good "providers" of information that is immediately relevant and pragmatically useful to managers and practitioners.
4. Currently, there is no systematic approach to collecting, storing, providing access, and tracking to research deliverables and other valuable information resources useful to managers, practitioners, and other affected parties. A comprehensive informatics system can help create an environment where the flow of information and collaboration is maximized and duplicative efforts and other inefficiencies are minimized.
5. Salient information about fire science and fire management exists, but is not always available in digital form and is disbursed across a range of unlinked data sets, resource material collections, and websites. There is actually a great deal of information available, but it is difficult to find and compare, oftentimes poorly documented, sometimes redundant, cumbersome to access in terms of time and money, and changes as fire science advances.
6. The responsibility for managing wildland fire is disbursed across many different agencies and organizations. There are numerous centers of excellence for both researching and managing wildland fire, but the centers do not have good mechanisms for pooling, exchanging, and using up-to-date data and data management tools.

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ment and staging for public access to resources; 9) providing common access ("look and feel") to distributed databases; 10) hosting and web-enabling databases; 11) designing and delivering online training; and 12) posting notices about conferences, jobs, meetings, workshops, etc.

3 "Strategic Plan for the USGS National Biological Information Infrastructure," page 7.

7. The partner organizations that support FRAMES are committed to its growth and success as a needed intermediary and broker of reliable, high quality information. They will actively work and collaborate to nurture and grow FRAMES over the next 5 years.

## **VIII. FIVE-YEAR STRATEGIC GOALS**

### Overview

Since 2003, funding and in-kind support has supported three areas of development: content, infrastructure, and services, with the emphases on infrastructure and content development. The FRAMES Advisory Committee and the partners described above have shaped the basic functions that FRAMES provides (See Table 3 in Appendix, Page 21).

Beginning in 2006 and for each subsequent fiscal year, a FRAMES Project Management Plan will be developed for review by the FRAMES Interim Steering Committee (FISC, See Strategic Goal #6 below). The project management plan documents FRAMES activities and provides a budget for each fiscal year. The FRAMES Working Project Plan 2006-2007 was developed based upon the current developmental status, strategic planning interviews, and the online survey (See Details from FRAMES Phone Interviews and Online Survey in Appendix, Pages 1-12).

We anticipate that the emphasis will shift during the implementation of the Strategic Plan. Although infrastructure development will continue, it will play less of a role. Infrastructure maintenance will become increasingly important, and the emphasis will shift to content, services, and accountability. The first four of the following goals are indicative of this shift. They are ranked in order of priority. The fifth and sixth goals (Financial Support and Governance, respectively) are equally crucial to the success and adoption of FRAMES.

### **Programmatic Goals**

1. Provide Content and Increase Content Utility. Develop a rich and usable base of content that is useful to wildland fire and natural resource professionals and policymakers.
2. Expand Services and Increase User Base. Identify opportunities to work with wildland fire and natural resource professionals (i.e., managers, practitioners, and researchers) to develop customized services that are complimentary with the FRAMES informatics architecture and that target their common technology transfer and science delivery needs.
3. Increase Name Recognition and Program Awareness: Develop marketing materials for outreach and cultivate relationships with agencies and potential FRAMES users and contributors.
4. Maintain and Upgrade the Infrastructure. Build a technological infrastructure that can support wildland fire and fire-related informatics.

### **Organizational Goals**

1. Ensure Financial Support. Determine staffing requirements and develop a sustainable system of financial support to ensure that FRAMES remains viable.
2. Provide Responsive Governance and Management. Establish a long-term plan for governance and accountability for the management and implementation of FRAMES.

## **IX. THREE-YEAR STRATEGIC ACTIONS (BY GOAL)**

### Overview

Strategic actions are based upon the current and projected levels of FRAMES funding for years 1-3. A change in funding or reprioritization of goals from the FISC (See below) could result in a modification to goals and strategic actions. Another assumption of these goals and strategic actions is that the FRAMES Working Project Plan 2006-2007 will remain largely intact and that the project deliverables will become available in accordance with the project completion dates. This particularly assumes that current infrastructure development projects are complete prior to the implementation of the project management plan. Finally, it is important to remember that the FRAMES architecture consists of a public portal (See Figure 1. The FRAMES Home Page in Appendix, Page 13) where all content is commonly accessible and a secure portal (See Figure 2. My FRAMES in Appendix, Page 14) for content development and exchange, especially between wildland fire and natural resource professionals.

# PROGRAMMATIC GOALS

## Strategic Goal #1 – Provide Content and Increase Content Utility

### Current Situation

In FRAMES, “Resources” are information and technological products that can be cataloged as data, documents, tools, projects, programs, or webpages (See Table 4. FRAMES Resources and Resource Subtypes in Appendix, Page 22). Resources are catalogued using internationally accepted metadata standards that can be related (e.g., data inputs required for a tool), and are searchable. Resources can also be sub-categorized by subject area, geographic area, and partner site (See Table 5. FRAMES Functional Areas and Figures 3, 4, and 5 in Appendix, Page 23). As of December 7, 2006, there are 719 cataloged records that span 26 subject areas, three geographic areas, and 6 partner sites.<sup>4</sup> Wildland fire and natural resource professionals may have access to develop content through collaborative services provided in the FRAMES intranet (See Figure 6. SFP Working Group in Appendix, Page 18). Content can then be published to the public website for common access.

### Strategic Actions

- Increase geographic content.
  - First priorities are existing geographic areas: Northwestern US, Southern US, and Alaska
  - Identify and pursue opportunities to expand into other geographic areas
- Increase subject area content.
  - First priorities for subject area content
    - Fuels management
    - Fire behavior
    - Environmental effects of fuels treatments
  - First priorities for kinds of content
    - Information and technology transfer
    - Relevant publications, technical reports, and other written research documents
    - Peer-reviewed data, documents, and tools
- Increase number of individuals and agencies who contribute content.
- Implement a system to assess quality assurance & quality control (QA / QC) across FRAMES. Especially assess the cataloging system. User satisfaction across user types needs to be monitored, evaluated, and appropriate steps taken to meet changing needs and expectations. As part of QC, implement user-based evaluation of content with respect to discovery, utility, and expectations.
  - Year 1: Develop a plan for the evaluation system
  - Year 2: Get administrative approval for the evaluation system
  - Year 3: Build infrastructure for the evaluation system
  - Year 4: Begin receiving user evaluations

### Metrics for Accountability

- Number of duplicate records in catalog database.
- Number of data and tools posted on FRAMES and where found (i.e., subject areas, geographic areas, and partner sites).
- Number of registered users and the diversity of uses they make of FRAMES (by subject area, geographic areas and partner sites).
- Number of non-registered users and the diversity of uses they make of FRAMES (by subject area, geographic area and partner sites) on public website.
- Number of individual and agency contributors.
- Number of evaluations received through evaluation system.

## Strategic Goal #2 – Expand Services and Increase User Base

### Current Situation

To date, FRAMES has focused on 1) building a system for cataloging resources, and 2) cataloging resources. This effort, of necessity, has been research-centric. FRAMES will continue to build upon the resources foundation. In addition, FRAMES

<sup>4</sup> The number of records are expected to increase dramatically after an on-line cataloging tool (Version 1.0 available spring 2007) will make it possible for researchers and designated staff to catalog (add & edit) their deliverables.

will create complimentary services that can assist in the real world decision-making process and will engage managers and policymakers, as well as researchers to achieve this end.

### **Strategic Actions**

- Expand efforts to work with both managers and practitioners to address real-world fire problems and issues by developing tools and services that meet their requirements.
- In addition to having FRAMES staff posting notices, cultivate content managers and train them to post notices of relevant events.
- Provide secure space for users (i.e., managers, practitioners, researchers, and others) to develop products and content.
- Host relevant websites for users.
- Enable contributor and partner tools and databases for distribution through FRAMES.
- Help contributors and partners integrate their information systems while using the FRAMES portal technology to leverage and integrate functionality.
- Provide consulting services for users, contributors, and partners.
- Provide tools to facilitate collaboration between researchers, managers, and practitioners.
- Develop a strategy for utilizing analytic tools within the portal to monitor use patterns of FRAMES.

### **Metrics for Accountability**

- A measurement of manager / practitioner and researcher satisfaction with FRAMES navigation and functionality derived from usability studies.
- Numbers of notice postings by subject area, geographic area, and partner sites, plus the diversity of postings.
- Number of users who take advantage of secure space, tools/database enabling, and systems integration.
- Number of external websites hosted.
- Number of projects where FRAMES staff fills a consulting role and amount of funds generated through consulting.
- Number of users accessing tools to assist in researcher/practitioner collaboration.
- Numbers of users and a descriptive narrative of patterns of use of the public site at <http://frames.nbii.gov/> (i.e., hits by functional areas, resources, and notices).

## **Strategic Goal #3 – Increase Name Recognition and Program Awareness**

### **Current Situation**

Following the completion of much of the work outlined in the FRAMES Working Project Plan 2006-2007, FRAMES will have a solid informatics foundation from which to expand content and services. As the online cataloging tool becomes available, FRAMES will assist researchers with cataloging their deliverables; however, the emphasis of content and service development will begin to shift from a perspective that is research-centric to one that is centered on management and practitioners. In order to fully engage the appropriate professional research, management, and practitioner communities and grow the FRAMES program, a marketing strategy will be pursued to increase name recognition and program awareness.

### **Strategic Actions**

- Develop new marketing materials and submit articles about FRAMES to publications that FRAMES users are likely to read.
- Market the utility of FRAMES through current contributors, partners, and their networks to solicit additional contributors and partners.
- Develop strategy to identify and market FRAMES to additional potential users.
- Garner increased political support from agencies, user constituencies, and Congress.
- Identify and publicize success stories.
- Outreach at conferences and other fire-related events.

### **Metrics for Accountability**

- Materials available (brochures, posters, etc.) for use at conferences, workshops, and meetings.
- Number of new users accessing content and adding content.
- Level of partner funding.
- Federal, state, and private involvement with FRAMES development and maintenance.
- Number of FRAMES-related presentations and materials distributed at conferences and other events by FRAMES staff and partners.

- Number of new users with FRAMES accounts.

## **Strategic Goal #4 – Maintain and Upgrade the Infrastructure**

### **Current Situation**

Prior to the development of this strategic plan, the emphasis of the FRAMES project has been to develop an architecture that will support the informatics needs of the wildland fire and natural resource communities. This proof-of-concept needed a solid infrastructure<sup>5</sup> that was sustainable yet flexible enough to meet new user requirements. Through the University of Idaho and USGS /NBII, FRAMES uses BEA (formerly Plumtree) portal technology and a combination of institution and agency staff, contractors, and others to maintain and build upon the existing infrastructure foundation. In order to provide up-to-date services to the wildland fire community infrastructure, development will continue; however, this development will be driven by FRAMES partners and the FISC (See below).

### **Strategic Actions**

- Solicit comments and suggestions from FRAMES contributors and partners (See Table 2. FRAMES Contributors and Partners in Appendix, Page 20) for improving FRAMES functions and services. This input will be incorporated into the annual project management plan.
- Develop a pricing and administrative structure for estimating costs, providing timelines, and staff for managing individual partner projects (e.g., website hosting and development, analytic tools and other portlet development, systems integration, etc.).
- Determine annual operating costs and prepare annual FRAMES project management plan and budget in consultation with FRAMES staff, FISC, and partners.
- Expand institutional skills and expertise in FRAMES portal administration and development.
- Prepare FRAMES Annual Report.

### **Metrics for Accountability**

- Number of comments and suggestions collected and collated by user group (i.e., manager, practitioner, researcher, etc.) and type (i.e., functional area in FRAMES).
- Record of projects in progress or completed, plus compilation of complaints and tributes.
- Training courses attended by FRAMES support staff and contractors.
- Number of trained content managers.
- An approved annual Project Management Plan.
- Annual Report submitted on time.

## **ORGANIZATIONAL GOALS**

### **Strategic Goal #5 – Ensure Financial Support**

#### **Current Situation**

To date, funding and in-kind support has come from USDA Forest Service, US Geological Survey's National Biological Information Infrastructure (NBII), Joint Fire Science Program (JFSP), National Interagency Fuels Technology Team (NIFTT), Fire Regime Condition Class (FRCC) Working Group, National Park Service, Bureau of Land Management, US Fish and Wildlife Service, Tall Timbers Research Station (TTRS), The Nature Conservancy (TNC), National Oceanic & Atmospheric Administration (NOAA) and congressional earmarks. Congressional earmarks have been used primarily to fund infrastructure development, maintenance of the FRAMES website and portal, marketing, training (i.e., staff and content managers) and some content acquisition and incorporation. Other funding has been used almost exclusively for content acquisition and incorporation. Congressional earmark funding is likely not a sustainable source of core funding and should be replaced with some level of institutional funds. (See Next Steps, below.) Core funding can and should be augmented by project funding, which will be the primary growth mechanism for increased content and services in FRAMES.

USGS/NBII portal technology provides new options for technology transfer and science delivery projects. Although a project may

<sup>5</sup> FRAMES infrastructure includes both the technology (i.e., hardware and software) and human resources (i.e., administrative and technological support) necessary to maintain and upgrade a system that provides content and services for the wildland fire enterprise.

include a cataloging component (e.g., a data or document collection), they may also be geared towards systems integration (e.g., providing common access to distributed databases), synthesis (e.g., aggregation of all resources according to a specific need or by subject or geographic area), or the development of custom services (e.g., online visualization tools, analytic tools, or reporting capabilities). Online training is another option that can be a component of a technology transfer or science delivery project.

A mix of core funding to support and maintain the USGS / NBII / FRAMES portal will continue to be necessary, as will project funding for the stability and growth of content, systems integration, synthesis, custom services, and online training.

## Strategic Actions

- Over the next five years, determine and maintain the appropriate level of staffing.
- Over the next five years, leverage portal technology and pursue project funding in an effort to provide content, deliver tools, and provide other services that meet agency or other identified needs.
- Continue to pursue core funding to support FRAMES. Possible long-term options for core funding include:
  - U.S. Geological Survey (through the Department of the Interior)
  - U.S. Forest Service (through the Department of Agriculture)
  - Wildland Fire Leadership Council (through the Department of the Interior and the Department of Agriculture)
  - National Fire and Aviation Executive Board (NFAEB)
  - National Wildfire Coordinating Group (NWCG)
  - National Fire Plan
  - Joint Fire Science Program (JFSP)
  - University of Idaho, or other institution, to become a university-based center or institute
  - A combination of one or more of the above

## Metrics for Accountability

- Staffing requirements addressed in a comprehensive 5-year FRAMES Project Plan and incorporated into annual project planning documents.
- Established source of core funding.
- Established mechanism for administering projects and project funding.
- Change in ratio of core funding to project funding over time.
- Growth in funding commensurate with projects and content growth.

## Strategic Goal #6 – Provide Responsive Governance and Management

### Current Situation

Early in the development of FRAMES, an advisory committee was established to guide the long-term development of FRAMES (See Table 6. 2003 FRAMES Advisory Committee in Appendix, Page 23). The FRAMES Advisory Committee put FRAMES on the path that led to the partnership with USGS / NBII and ultimately the development of site as it is today. We would not be where we are without their counsel and support. We sincerely appreciate their early efforts. As FRAMES moves beyond a proof-of-concept and from an emphasis on development into implementation, it will require a permanent home and governance. In order to shepherd this process along, the Advisory Committee will be disbanded and a FRAMES Interim Steering Committee or FISC (See Table 7. Draft Roles and Responsibilities of the FISC in Appendix, Page 23) will be established that is comprised of the current partners and others who have a financial or other interest in FRAMES.

### Members of the FRAMES Interim Steering Committee (FISC)

Mark Beighley	Director, Office of Wildland Fire Coordination, US Department of the Interior (DOI)
Erik Berg	Assistant Program Coordinator, Terrestrial, Freshwater, and Marine Ecosystems, USGS
Mike Hilbruner	National Program Leader Fire Systems Research, USDA FS
Kate Kase	National Program Coordinator for Biological Informatics, USGS / NBII
Steven Daley Laursen	Dean, College of Natural Resources, University of Idaho
Tim Sexton	Fire Use Program Manager, USDA FS
Tom Zimmerman	Manager Research, Development, and Applications (R,D&A) Program, RMRS USDA FS

## Strategic Actions

- Create a FISC to help guide the development of FRAMES in accordance with the Strategic Plan and the annual project management plans.
- With guidance and assistance from the FISC, develop a 5-year governance plan for FRAMES.
- Identify criteria for evaluating possible administrative homes for FRAMES.
- Identify a permanent administrative home for FRAMES. Possible options include:
  - Wildland Fire Leadership Council (WFLC). This option allows both the Department of the Interior and the Department of Agriculture to be directly involved in FRAMES. Due to the involvement of high-level officials, this option potentially offers FRAMES a lot of visibility and credibility. Although this option offers a strong role to researchers, participation of wildland fire managers and practitioners may need to be actively cultivated.
  - National Fire and Aviation Executive Board (NFAEB). Under NFAEB, FRAMES would be accountable directly to the federal fire managers and through them to all parties affected by wildland fire.
  - National Wildfire Coordinating Group (NWCG). Under this option, FRAMES could become a project of the fuels group, which already has a standing NWCG charter. The fuels group, like other issue groups in NWCG, has participants from a variety of sectors and topical areas. This option allows for diverse perspectives to be brought to bear on FRAMES. Although agency staff is actively involved in NWCG, participation by researchers may need to be cultivated.
  - Joint Fire Science Program (JFSP). This option allows participation by agency staff and managers, as well as researchers. Because there are a variety of projects associated with JFSP, this option could facilitate the growth of FRAMES content by encouraging people to post the data, findings, etc. from their JFSP-funded projects on FRAMES. FRAMES could be housed under the governing board or one of the staff offices. Additional funding may need to be cultivated to ensure long-term viability of this option.
  - Hybrids. USGS acts as fiscal home and NBII as the technical home for FRAMES. An appointed interagency governing board is responsible for the program and sets priorities. A program manager reports to the board. Staff, including a project manager and other technical and support staff, reports to the program manager.
- The FISC reviews and approves the annual project management plan.

## Metrics for Accountability

- Presence and active involvement of a FISC.
- Development of appropriate planning documents.
- Establishment of memorandums of understanding (MOU's) between the institutions that are providing staffing and other support.
- Location of FRAMES in new permanent administrative home.
- Annual project management plans developed and implemented.

## X. COMMITMENTS

1. Mission Centered. We will continuously stay focused on our core mission, goals, and Strategic Actions and not be distracted from them.
2. Excellence. We will undertake all activities at the highest levels of excellence. We prefer not to take on tasks that we cannot do well.
3. Competent. We will stay current on developments in the world of wildfire and the use of informatics.
4. Collaborative. We will be strategic in our partnerships with others.
5. Quantification. We will seek to measure our progress and work, to learn from the results, and to seek improvement as a result.
6. Accountable. We will be fully responsible for our work and own up to the inevitable mistakes we will make.

# Frames

