Final Report Project #03-4-1-02
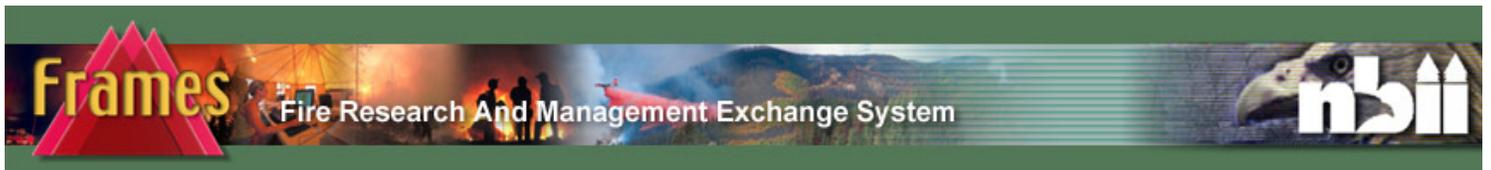
of

An Expert System and New Web Interface for Tools on the Fire Research And Management Exchange System

http://frames.nbii.gov/

May 6, 2005

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Final Report: An Expert System and New Web Interface for Tools on the Fire Research And Management Exchange System (FRAMES)

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Abstract

The goal of the Fire Research And Management Exchange System or FRAMES is to make wildland fire data, metadata, tools, and other information resources easy to find, access, distribute, compare, and use. This is an ambitious and far reaching goal that will be attained incrementally. Presently, the development of FRAMES has two focus areas: infrastructure and content. The Joint Fire Science Program (JFSP) funded project, "An Expert System and New Web Interface for Tools on the Fire Research And Management Exchange System (FRAMES)" developed both infrastructure and content. A top priority for FRAMES is to provide a comprehensive cataloging and distribution system for wildland fire tool users and tool providers. The purpose of the FRAMES Tools Project is to develop this system. The tools project was originally conceptualized to be a 4 phased project of which funding for "An Expert System and New Web Interface for Tools on FRAMES" was phase III. This is the final report for this phase. Unexpected results and unforeseen consequences are as much a part of developing and implementing informatics technologies as they are any research project. In order to provide context for the JFSP funded project, this report will (1) provide an overview of the development of the FRAMES website (2) review the FRAMES Tools Project (3) review the accomplishments and deficiencies of the JFSP funded project, and (4) review strategies or next steps for moving forward. A no cost-extension to this 1-yr project was granted and allowed us to complete this project and to exceed our original objectives. FRAMES continues to attract additional funding from JFSP and other sources. The products from this project have brought us much closer to the goal stated above. As FRAMES grows, matures, and provides the wildland fire community a single secure access point to well-organized critical information and primary applications, we will create a collaborative environment for fire research and management professionals that will eliminate redundancy, reduce costs, and promote increased productivity and efficiency.

Overview of FRAMES Development

Background

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) conference in 1999 (Sampson and Gollberg 2000). Afterwards, 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. FRAMES submitted proposals to JFSP in 2000 and again 2001, but did not receive funding. In policy documents, at conferences, and workshops, users (including fire managers, researchers, technicians, students, policy-makers, private landowners, and others) of wildland fire technology and

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information resources continued to express a desire to be able to easily find, access, distribute, compare, and use these resources.

Beginning in 2002, the construction of FRAMES began. Funding from 2002 until now has supported two developmental areas: infrastructure[3] and content[4]. The dictionary (American Heritage Dictionary 2000, p. 927) defines infrastructure as "an underlying base or foundation especially for an organization or system." Infrastructure development with respect to wildland fire informatics management includes the costs to design, implement, update, and maintain the technology and personnel necessary for the delivery of wildland fire content. Content development includes those costs necessary to find, describe, input, update, and maintain wildland fire-related content.

Infrastructure Development

The current online Content Management System (CMS) design for FRAMES includes three types of content resources that are cataloged: data, documents, and tools. These resources can either be browsed or searched (*see* below). In order to provide reliable and comparable information about these resources, FRAMES has implemented metadata standards for describing data, documents, and tools. For all data, FRAMES is using a metadata standard based on the Federal Geographic Data Committee (FGDC) content standard (FGDC 2000). For documents, the FRAMES standard is based upon the US Geological Survey's National Biological Information Infrastructure (NBII) modification to the Dublin Core Standard (NBII 2002). Because there is no existing tools metadata standard, FRAMES developed a standard that includes elements of FGDC and Dublin Core. This standard can be mapped to either the FGDC or NBII Dublin Core.
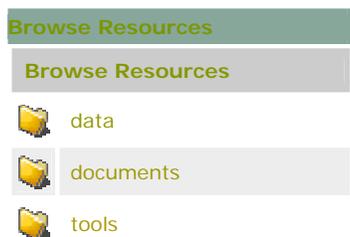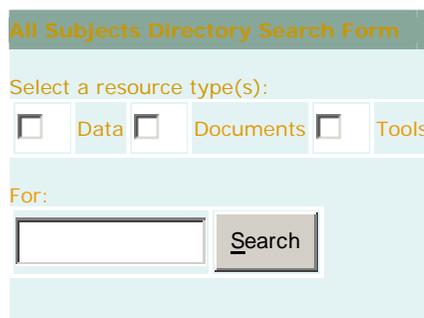

Figure 1. Browse Resources

Figure 2. Search Resources

As two JFSP funded projects[5] to aggregate content (to be included in FRAMES) moved forward, it became evident that there are other useful categories of content resources: programs and projects. Another wildland fire content resource that continues to proliferate is websites. Currently, FRAMES is developing a resources database schema incorporating metadata models[6] for data, documents, tools, programs, projects, and websites. All FRAMES metadata models will map to the FGDC and Dublin Core standards, and will be compatible with NBII. The goals of this new metadata relational database are (1) to provide better metadata management across resource types (2) maintain resource category field relationships across metadata models (3) provide one time entry for metadata elements that span resource

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[3] Infrastructure Development – Funding that has resulted in the current version of the FRAMES website has come from USDA Forest Service, Rocky Mountain Research Station, Fire Sciences Lab; the Joint Fire Science Program; and Congressional earmarks.

[4] Content Development – Funding for FRAMES content has come from the Joint Fire Science Program and the National Park Service through the Cooperative Ecosystem Studies Unit (for Fire Regime Condition Class online training).

[5] JFSP 03-4-2-06: A regional information node for fire science in the Pacific Northwest - FIREHouse (David Peterson, PI) and 04-4-1-34: An internet based portal for Fire Science and Management in the Southern Region (Penelope Morgan, PI)

[6] *See* Appendix A. "Metadata Models for Documents (15), Programs, Projects, Tools, and Websites." *See* FGDC 2000 for data standard.

Finally, as FRAMES has begun to contact and work with others involved in providing wildland fire information resources (e.g., Fire Effects Information System (FEIS), the Tall Timbers Research Station (TTRS) the Wildland Fire Lessons Learned Center, the Program Office of the National Wildland Fire Coordinating Group (PMO-NWCG), and LANDFIRE), we have observed opportunities for cost savings through better coordination that will minimize duplication of effort and increase efficiency in a variety of informatics areas. FRAMES is actively researching opportunities to consolidate efforts amongst these content providers, especially with respect to document management, keywords, and thesauri.

Content Development

FRAMES content development has run parallel path with infrastructure development. There are two primary efforts to gather content that will be housed in FRAMES. Both are JFSP funded projects.

Dave Peterson et al's "A regional information node for fire science in the Pacific Northwest" which has since become known as the FIREHouse project was awarded funding at the same time FRAMES was awarded funding for the project that this report is the subject of. JFSP requested that Peterson et al and Morgan et al collaborate. This collaboration also first brought FRAMES and NBII together. Staff from both projects continue to meet in person and on conference calls. Through this collaboration, FRAMES began to develop the first of a network of geographic portals based upon the National Wildfire Coordinating Group's (NWCG) Geographic Area Coordinating Centers (GACCs). In geographic area portals content is (1) aggregated specifically for fire management in a geographic region (2) content providers are often similarly geographically based and (3) content specific to or most used by a geographic area may reside in that area. Content collected from Peterson et al will become the foundation for the FRAMES Northwest Portal. Tools currently collected by these investigators are included now in FRAMES and we will begin to incorporate additional content from FIREHouse later this year.

The other primary effort to gather content that will be made accessible through FRAMES is the JFSP funded, "An Internet Based Portal for Fire Science and Management in the Southern Region." Similar to FIREHouse and the Northwest Portal, deliverables from JFSP and National Fire Plan (NFP) funded projects are being catalogued and will become the foundation for the Southern Fire Science Portal. In addition, existing regional contributors of wildland fire content are working together to provide better access to their deliverables, to add value to their resources by being part of a bigger collective, and to look for ways to integrate technologies and consolidate efforts. The Tall Timbers Research Station (TTRS), USDA Forest Service Southern Research Station, The Nature Conservancy (TNC), NBII, and FRAMES form the core group.

The FRAMES Tools Project

The content resources, documents and tools, are currently cataloged on FRAMES and data are in the process of being cataloged. Of these three resources, a desire to provide common access to tools has been a primary focus.

Table 1. FRAMES Resource Definitions

Data	Documents	Tools
Data are information resulting from measurement, analysis, or modeling organized for subsequent analysis.	Documents are narrative based information sources, such as articles, books, and correspondence.	A tool is a device that modifies or transforms input in a significant way to produce output.

At the beginning of 2003, through an agreement with the USDA Forest Service's Fire Sciences Lab in Missoula, MT, the popular Fire Management Tools Online Website (FMTO) was moved to FRAMES and was the primary content for the first version of the FRAMES website. The move of FMTO to FRAMES and the creation of the original website at www.frames.gov marked the end of Phase I of the Tools Project. The FRAMES Tools Project was originally conceptualized to be a 4 phased project of which the subject of this final report, "An Expert System and New Web Interface for Tools on the Fire Research And Management Exchange System (FRAMES)" was Phase III. Phase III was both an infrastructure and content development project.

Table 2. Summary of 4 Phases of FRAMES Tools Project

Phase #	Brief Description of Phase	Phase Status
Phase I	FRAMES website goes online; assume responsibility for managing Fire Management Tools Online website (FMTO); and update current tools on FMTO.	April 2002 – January 2003 Matched funding
Phase II	Workshop to determine how best to improve tool delivery. Use this information to construct a new FRAMES Tools Database that replaces FMTO. Triple number of tools on site.	December 2002 – October 2003 Matched funding
Phase III	Workshop with tool users and providers. Their input used to develop tool ID Card, expert system, and web interface.	September 2003 – August 2004 Dependent on JFSP funding
Phase IV	Identify tools according to geographic area and construct a series of scalable maps that are tool specific.	February 2004 – January 2004 Not included in this proposal

No Cost Extension Request

In July 2003 we submitted a request to JFSP for a no cost extension. In that request we reported that we were unable to meet our original July 2004 deadline for completion due to (1) delay in funding availability to begin project (2) timeline coordination conflicts resulting from a JFSP request to collaborate with Peterson et al. and (3) barriers for implementing our tools project design. Regarding item #3, JFSP and the PMO-NWCG had each raised concerns about FRAMES ability to meet information technology (IT) directives from the Office of Management and Budget (OMB) that affect all federal agencies with respect to information resource planning and the delivery of information resources to federal employees. Additionally we reported that we ran into difficulty finding a programmer that we could afford with sufficient skills to implement our design. We suggested that a formal relationship with NBII could be a solution to #3.

FRAMES and NBII

In an effort to resolve federal partner security and other federal information technology (IT) related concerns, in the fall of 2004 FRAMES moved its web servers from the University of Idaho in Moscow, Idaho to the Center for Biological Informatics (CBI) at the Federal Center in Denver, CO. CBI is a part of NBII within the US Geological Survey. When FRAMES moved, so did its web address. The new web address is: http://frames.nbii.gov/. With NBII's help, FRAMES is meeting all federal IT requirements.

NBII is a leader in biological information management. NBII links diverse, high-quality biological databases, information products, and analytical tools. FRAMES and NBII's goals are compatible and we are sharing expertise, technical capabilities, and we are leveraging our resources to deliver wildland fire content (FRAMES) and biological content (NBII)[7]. NBII has made and continues to make significant

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[7] *See* Appendix B. (1) "Building a Partnership to Web Deliver and Manage Wildland Fire Data, Tools, and Information." This document describes the benefits of a partnership between FRAMES and NBII. In addition to describing roles and responsibilities between the partners, the document also outlines an initial statement of work that was used to make the transition from FRAMES at the University of Idaho to a new version of the FRAMES website using portal technology supplied

investments in information technology to develop their site. They are sharing the technology (approx. $2 million dollar investment) with FRAMES and, by extension, with the entire wildland fire community. FRAMES portal development is rapidly progressing as a result of this collaboration. Additionally, to assure interoperability between the two systems, FRAMES and NBII are currently sharing two staff positions[8] and splitting the costs in half.

The relationship with NBII has presented new opportunities and challenges for FRAMES. The net effect is extremely positive. FRAMES can provide a variety of services (see footnote #8) to wildland fire professionals at a bargain in terms of costs, effort, and maintenance. NBII has purchased software from Plumtree, arguably the leader in enterprise portal technology and architecture[9]. Plumtree customers include Boeing, Ford Motor Company, Mazda, Pratt & Whitney, NASA, Johnson & Johnson, Proctor & Gamble, Chevron Texaco, Halliburton, Starbucks, Staples, Department of Defense, and Fannie Mae Foundation to name a few. NBII was an early client of Plumtree and secured a contract that is not a user based license. What this means is that there is no limit to the number of users who access content through NBII using Plumtree software. FRAMES was fortunate to secure an agreement with NBII while this opportunity was still available and can pass it on to FRAMES users. Although there are costs associated with purchasing updates and new Plumtree software, there will not be additional restrictions and fees based upon concurrent use of Plumtree portal software.

Grant Objectives and Deliverables

Expectations change in research as hypotheses are tested, results collated, and findings reported. This is no less true in developing and implementing informatics technologies. With respect to the FRAMES Tools Project, and objectives and deliverables of this grant, some modifications were made based upon (1) the capabilities and limitations of the Plumtree software (2) design differences based upon user group differences between NBII users and FRAMES users (3) synergistic affects of content development projects on infrastructure development (4) bureaucratic limitations within USGS/NBII for implementing desirable functionality and (5) coordinating efforts with NBII and weighing short- and long-term solutions to #'s 1, 2, 3, and 4[10].

The project objectives for this grant were to:
1. Gather information from tools users and providers to,
2. Develop a tool ID card.
3. Develop an expert rule-based system.
4. Develop a Web interface that will help potential tool users navigate to the tool or tools that are applicable, accessible, and comprehensible for their need or needs

Additional objectives were to:
- Easily and quickly direct users to the fuels and fire management tool(s) best suited to their particular need(s), requirements, and capabilities.
- Provide information for users to compare and evaluate alternative tools.
- Develop a mechanism for tool user(s) to provide direct feedback to the tool provider(s).

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by NBII. (2) The document, "FRAMES Design and Implementation" is a recent progress report submitted to Bob Keane (USDA Forest Service). This document is available on request. It goes into more detail about the FRAMES design.

[8] One staff position is a programmer who is currently working on a database design for FRAMES and NBII. The other position is a content manager and trainer who works with FRAMES and NBII content providers to help them manage their content.

[9] As defined by the Portals Community (2004), an enterprise portal is a web site and services that improve the access, processing, and sharing of structured and unstructured information within and across the "enterprise." Enterprise portals also incorporate roles, processes, workflow, collaboration, content management, data warehousing and data shopping, applications, and other business functions of the enterprise.

[10] For more information on FRAMES please contact Greg Gollberg at (208) 885-9756 or gollberg@uidaho.edu.

- Provide a mechanism for tool users and tool providers to each rate the tools they use or create, summarize that information, and make it available to other potential tool uses and providers.

Deliverables for this project included:

- 120-plus tools contained within the new FRAMES Tools Database
- Potential tool users will have four options for locating tools including (1) FRAMES Tools Search Engine, (2) a scrollable document where tools are alphabetically listed, (3) a scrollable document where the tools are listed by category, or (4) via the expert system where a series of interactive question and answer web pages will lead potential tool users to the tool that best suits their need or needs.
- If similar tools exist, users will have options for further comparison and evaluation through ID cards and topic-oriented discussion groups, notice pages, surveys, and questionnaires where users and providers can exchange and pass on information about specific tools.
- By the end of Phase III we will provide a new series of web pages available to tool providers that will make it easier for them to add their tools to the FRAMES Tools Database.
- We will attempt to survey all known tools and produce a report that will list what tools are available according to geographic categories.

Project Accomplishments and Deficiencies

FRAMES Website – Home page content

The latest version of the FRAMES website is online at http://frames.nbii.gov/. This is the Home of the public site. All information resources including metadata records for data, documents, and tools; and (where applicable) access to the actual data, document, or tool is available here. Users who manage content and who may use a variety of other FRAMES services will go here to login. For example, a logged in user may either add or edit an information resource. Once they are through, their change will automatically appear in "What's New in FRAMES Home" on the FRAMES Home page. Also, available on the FRAMES Home page are notices that can be posted as a logged in user.

Notices for all FRAMES Subject Areas and Projects

Event	Notice Type	Start Date	Deadline
Call for Papers - Sixth Symposium on Fire and Forest Meteorology **Canmore, AB, Canada**	Call for Papers	N/A	June 15, 2005
Fire in Eastern Oak Forests: Delivering Science to Land Managers **Columbus, Ohio**	Call for Papers	N/A	October 15, 2005
CANCELLATION - FIREMON Workshop 2005 **University of Montana & Lubrecht Experimental Forest, Missoula, MT**	Workshop	April 22, 2005	N/A
Short Courses in Fire Management and Ecology **Boise, Idaho**	Workshop	April 25, 2005	N/A
FRAMES WEBSITE OUTAGE - May 14 and 15th **Denver, CO**	General	April 28, 2005	N/A
Fire Behavior and other courses - Spr/Sum 2005 **Ontario, Oregon**	Training	May 3, 2005	N/A

View All…

Figure 3. Notices Portlet on the FRAMES Homepage

There are 8 types of notices[11] that logged in users can post at the site including: call for papers[12], conferences, general, job, meeting, requests for proposals, training, and workshop.
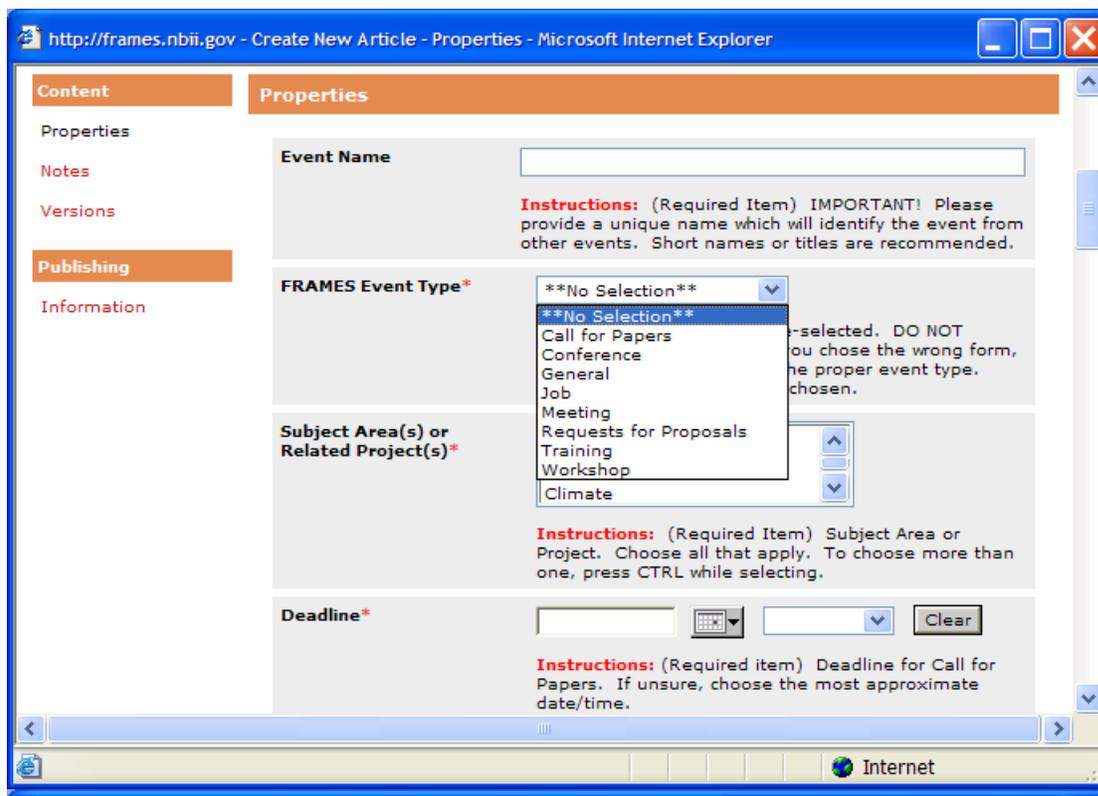

Figure 4. Notices Forms for posting a notice

On the FRAMES Home page, new projects can be added in "Project Areas." This space highlights projects that are housed at FRAMES. "Links of Interest" point visitors to other valuable wildland fire websites. Finally, the footer at the bottom of the page directs visitors to information (1) "About FRAMES" (2) to a list of FRAMES Partners (3) provides an easy way to "Contact Us" and supply feedback or comments about the site (4) the FRAMES "Disclaimers & Privacy Statements" (5) a description about "Accessibility" of the site regarding Section 508 of the Americans with Disabilities Act and (6) information about the Freedom of Information Act (FOIA) and how to contact USGS with a FOIA request.

FRAMES Website – Navigation

First, there are a few basic concepts to be aware of when navigating in the FRAMES portal (*see* footnote #8 for the definition of an enterprise portal). In the portal there are Communities, Projects, and Portlets. Plumtree and NBII define these terms as follows:

> **Portlets:** A portlet is a miniature website or web service formatted to fit into a specific space within a page in the portal. Portlets can be static or interactive. An example of a static portlet is an informational space, where text and/or graphics are displayed to convey an idea, knowledge, or data. An example of an interactive portlet is a database front-end, where a user can input information or retrieve data, such as statistics, resources, or information. Both types of portlets can come in a myriad of display formats--all uniquely customized for the user, the content, and the thematic need of the community. (Note: On

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[11] *See* Appendix C. Notice - Forms and Fields.
[12] *See* Appendix D. Example of a Call for Papers Notice.

the FRAMES Home page the Welcome to FRAMES!", "Notices for all FRAMES Subject Areas and Projects", and "What's New in FRAMES Home" boxes are examples of portlets.)

Community: A virtual workspace for collaboration, communication, and information dissemination/collection. Organized by a theme or topic, communities are "sites" within a portal that are customized to target information, tools and/or services to the specific needs of the user base. Access to the community can be open or restricted, based on the nature of the material and/or the structure of the portal. (Note: On the FRAMES Home page, when you click on any of the "Subject Areas" (e.g., FRAMES Home, All Subjects, Administration, etc.) you entering a community. For example, in the community "Administration" there are the following community pages: Administration Home, Search, Add/Edit Resource, Events, and Discussion).

Project: A project is created by a community or user group within the portal. A project is a focused workspace where members can collaborate on finite objects around a central theme, such as tasks, documents, calendars, announcements, and discussions. Projects support task management, such as document versioning, group calendars, and discussion lists, among some of the activities. Projects can be open or restricted, based on the nature of the project and/or the structure of the portal.

(Plumtree; Kallas 2005)

The FRAMES Home page is a comprehensive list of publicly available information resources (e.g., metadata and the actual data, documents, and tools accessible through "Browse Resources" or "What's New"). The Home page also has a comprehensive list of all notices. However, information resources and notices may also be categorized according to "Subject Areas." There are currently 26 different subject areas and one all subjects. Subject area navigation always appears on the left of FRAMES web pages. Each subject is a community in the portal. For example, all fire behavior tools and notices that are related to the subject Fire Behavior are accessible through the Fire Behavior Home page. It is important to note that content (i.e., resources and notices) can be listed in multiple subject areas. Subject Areas are simply a means categorize content using terms that are commonly used in the wildland fire community. Many, but not all, subject areas correspond with the National Wildfire Coordinating Group's Business Areas. Subject Areas are not set in stone and may change over time.

Community pages for Subject Areas are currently being revised, but each subject area home page will soon have the following: Introduction portlet (has the title of the subject area, the definition of the subject area, and a brief overview of other pages in the community); Notices portlet (lists all notices that have been created for the subject); What's New portlet (lists newly posted or updated information resources for the subject); Browse subject area resources portlet (all information resources for the subject); and subject area links portlet (import links to off-site websites that are related to the subject area).

You will also note below the banner for the subject area a line that contains: Subject Area Home | Search | Add/Edit Resource | Events | Discussion. "Subject Area Home" always takes you back to the opening subject are page. "Search" is a custom search engine[13] for metadata of resources (currently data, documents, and tools) within the subject area. "Add/Edit Resource" is a temporary form for adding or editing the resource metadata in a subject category. A more comprehensive cataloging input tool for adding / editing resource metadata will be developed at a later date. "Events" and "Discussions" are only available to logged in users who are also members of the subject area's community. For them, the "Events" page is a calendar portlet with scheduled events of potential interest to those members of the community. Registered community members may also post an event. A logged in user who is a member of a particular community may also participate in threaded discussions related to the subject area.

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[13] *See* Appendix E Search Results and Metadata.

Subject Areas		Fuels	
All Subjects		Hazard and Risk	
Administration		Intelligence	
Aviation		Logistics	
Climate		Mapping	
Communications		Models	
Economics		Monitoring and Inventory	
Emissions and Smoke		Outreach	
Fire Behavior		Planning	
Fire Ecology		Prescribed Fire	
Fire Effects		Regulations and Legislation	
Fire History		Restoration and Rehabilitation	
Fire Occurrence		Safety	
Fire Prevention		Weather	

Figure 5. FRAMES Subject Areas

FRAMES Website – Tools

Number of Tools:

To date, there are 108 records of metadata (using the FRAMES tools metadata model) for tools at the FRAMES website[14]. There are an additional 105 records for documents that are related to these tools. Sources for catalogued tools were the (1) FMTO (2) FIREHouse project (3) NWCG-PMO Wildland Fire Applications Inventory (4) National Fire and Aviation Management Web Applications[15] (5) USDA Forest Service Fire Applications Support (6) tool provider submissions (7) FRAMES staff web research and (8) "An Inventory of Models, Tools, and Computer Applications for Wildland Fire Management" (MacGregor 2004). We examined 244 potential tools and considered creating metadata records for them.

Table 3. Tools Inventory

Cataloged Tools	Catalog Differently	Subset	Insufficient Information	Retired	To be cataloged	Total
108	12	6	79	32	7	244

Of the 244, we determined that 12 should be cataloged as an information resource other than a tool (e.g. document, project, or website). Because FRAMES is developing a resources database schema incorporating additional metadata models, we decided to catalog these 12 resources at a later date. We found 6 potential tools to be already described within the context of one or more tools. There were 79 potential tools that we could not find sufficient information to complete mandatory fields in our metadata model. We believe that some of these tools are retired and some of them are legitimate active tools. Additional research is required to determine which. We confirmed 32 tools to be retired and are no longer supported. Finally, we began to identify additional tools to be cataloged at a later date. There are 7 more tools that will be added.

During the course of examining the 244 potential tools, the FRAMES team identified 322 other resources (i.e., documents, projects, programs, and websites) that can be cataloged. We hope to complete cataloging these resources by the end of the year.

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[14] *See* Appendix F. Tools Summary.
[15] FAMWEB/NWCG

Tools metadata[16] is the same thing as what was referred to in the grant proposal as an ID card. For each of the 108 currently cataloged tools there is a metadata record. The metadata record contains all of the pertinent information about the tool and provides a link to the tool.[17] The formal structure of the metadata allows for comparison of tools and also provides options for searching. Metadata relationships between tools and other types of resources -- including data, documents, projects, programs, and website metadata --let us connect the dots between related information. For example, programs may contain projects (and each may have a website). Projects may contain data, documents, tools, and web pages. There may be data and documents that pertain to a tool. All of these relationships can be maintained and consistently described through the metadata standard. From a user's perspective, if a person is looking for general information about fire behavior, they can find all the documents about fire behavior and as they peruse documents metadata, they can follow links from a given record to a specific project or program that deals with fire behavior. Or, if a user has a specific interest in a particular tool, they can immediately access supporting documents or data if they exist. Metadata relationships between resource types allow users to find specific content from multiple pathways.

Prior to the development of the tools metadata model, a survey[18] was developed in collaboration with social scientists at University of Idaho to determine customer satisfaction with users of tools on Fire Management Tools Online (FMTO). Questions in the survey were divided into three categories (1) questions about the FMTO website (2) questions about the information for each tool on FMTO and (3) general questions about tools. The survey was administered during the Northern Rockies Fire Behavior Workshop in 2003. The survey was also made available temporarily on the original FRAMES website (www.frames.gov). Although the sample size was too low to merit statistical analysis, the responses we did receive were instructive and guided the development of the tools metadata model.

Another survey was being developed for online delivery to tool developers, but unfortunately both surveys were put on hold after the FRAMES website moved under the umbrella of USGS/NBII. Federal regulations prohibit such surveys. A process exists where surveys can be administered under strict guidelines[19]. FRAMES has reassessed the use of surveys and customer feedback systems (like are used by eBay) and wishes to implement them. As described in our proposal, we want to develop a simple rating system whereby tool users can express their satisfaction or dissatisfaction with a tool. We believe that this would be useful information for potential tool users. We have discussed such a system with our federal NBII partners. They have promised their assistance, but unfortunately other priorities have precluded their assistance to date.[20]

Metadata is the foundation that FRAMES is built upon. We cannot stress enough how important it is. A great deal of effort has been spent and continues to be spent on developing metadata standards that will meet the needs of the wildland fire community, but are also nationally and internationally acceptable. FRAMES collaboration with NBII has been instrumental at both the national and international levels. Connecting all the dots (and crossing all the T's with respect to multiple standards) is an ongoing effort that FRAMES and NBII are working on. The goal is to have compatibility between the FRAMES' effort to catalog all wildland fire related information and NBII's effort to catalog biological resources, and to

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[16] *See* Appendix G. "Farsite Metadata Record" as an example of the display of a tools metadata record.

[17] The tool may be stored with FRAMES (link in the metadata record is internal to FRAMES) or managed at the location of the tool provider (the link in the metadata record is to an offsite web page).

[18] *See* Appendix H. "Fire Management Tools Online (FMTO) Survey."

[19] *See* Appendix I. USGS Policy on Information Collection.

[20] The intent in our proposal was to provide a mechanism for direct feedback to the tool provider. In the portal we can create communities based upon individual tools or classes of tools that researchers, managers, etc, can subscribe to and begin threaded discussions. However, we need to market this service and find content managers willing to be facilitators.

connect the dots where they exist between the two. As mentioned previously, FRAMES is designing a metadata relational database. NBII is also redesigning their database and both will be compatible. The FRAMES database will include additional resource metadata: programs, projects, websites, and a more sophisticated system that describes documents in a commonly accepted bibliographic standard. This comprehensive effort will provide dramatic results in time and will take time,[21] but FRAMES is moving forward now and will be continuing to add tools to the site the rest of this year. Finally, it is important to note that we are cataloging more information about individual tools than we are displaying at this time. We are currently developing a new style sheet[22] for displaying XML[23] or HTML including documents and tools metadata more comprehensively. The XML schema for tools is available upon request.

Table 4. Project Objectives Summary

Project Objective	Summary
Gather information from tools users and providers	Surveyed tool users in a workshop and on-line; tool providers were contacted individually.
Develop a tool ID card	Information from surveys contributed to the development of a metadata model (ID card). Surveys also indicated a preference for linking tools, data, and documents.
Develop an expert rule-based system	A rule-based system that establishes relationships between resource types (i.e., data, documents, tools, projects, programs, and websites), subject areas, and geographic areas is defined and partially implemented, but is not yet automated. Current Plumtree software prohibits the implementation of this system.
Develop a Web interface	Using portal technology in cooperation with USGS-NBII, a web interface was designed and implemented.
Easily and quickly direct users to the proper fuels and fire management tool	Subject area communities, browse resources, and a custom resources search engine helps users find tools quickly.
Provide information for users to compare and evaluate alternative tools	Individual tools can be compared and evaluated through the standardized tool metadata record.
Develop a mechanism for tool user(s) to provide feedback to the tool provider(s)	As logged in users, tool developers and / or users can form tool user / developer communities that are either tool specific or specific to a category of tools. Portal functionality for communities include: community announcements, calendar, tasks, document management and sharing, discussions, and messaging.
Provide a mechanism for tool users and tool providers to rate tools	Federal regulations prohibit the use of solicited surveys; however, some information gathering is permitted with strict guidelines. With NBII's assistance FRAMES will continue to explore this possibility.[24]

Table 5. Project Deliverables Summary

Project Deliverable	Summary
120-plus tools	Currently 108 tools plus an additional 105 supporting documents are available.
Four options for locating tools including (1) Tools Search Engine, (2) a scrollable document where tools are alphabetically listed, (3) a scrollable document where the tools are listed by category, or (4) expert system	(1) Customized search engine for tools, documents, and data. (2) All tools can be viewed alphabetically through "Browse Resources." (3) Tools can be viewed by Subject Area through "Browse Resources." Tools can also be searched by subject area. (4) Rule oriented expert system designed, but not fully automated.
If similar tools exist, users will have options for further comparison and evaluation through ID cards and topic-oriented discussion groups, notice pages, surveys, and questionnaires	Tools can be compared and evaluated through the standardized tool metadata record. Discussion groups and notices are available, but not surveys and questionnaires at this time.
Provide web pages for tool providers to add their tools to FRAMES	System to submit tools on-line in place, but not to automatically generate a viewable metadata record. A fully automated system is being designed.
Attempt to survey all known tools and produce a report that will list what tools are available according to geographic categories	244 tools were surveyed using 7 sources of information. Only a very few of these tools were designed specifically for a geographic area; however, a mechanism to record spatial coordinates for tools was implemented in the metadata model.

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[21] FRAMES will be completing the design phase of this project this summer. The design will be reviewed by NBII and other non-federal collaborators. Funding for pursuing this effort to implementation is not yet secured.

[22] In word processing and desktop publishing, a style sheet is a file or form that defines the layout of a document. Style sheets are useful because you can use the same style sheet for many documents. (Webopedia.com 2005).

[23] Short for *Extensible Markup Language,* was designed especially for Web documents. It enables the definition, transmission, validation, and interpretation of data between applications and between organizations (Webopedia.com 2005).

[24] *See* Appendix I. USGS Policy on Information Collection.

Project Websites:

FRAMES has begun another new service for the wildland fire community. FRAMES will host project websites. We define projects[25] as temporary endeavors to achieve specific goals. Projects produce products, which may include tools, data, or documents. FRAMES will give project managers and content managers the tools they need to manage information about their project on FRAMES. We can either relocate existing sites to FRAMES or set up new sites.

For our first project website we are relocating FIREMON, the Fire Effects Monitoring and Inventory Protocol to FRAMES. FIREMON is now on FRAMES and we are in the process of moving the

Figure 6. FIREMON on FRAMES

FIREMON User Registration Database to FRAMES. After we move the database, the existing FIREMON website at the USDA Forest Service Fire Sciences Lab in Missoula, Montana will be taken off line. The time involved to move FIREMON to FRAMES included the following: Approximately one week to duplicate a first draft of the site in FRAMES. After comments were received from FIREMON content managers, it took another day to make modifications to the site. We have arranged to have an online training session with 4 content managers and expect to have follow-up training after the initial training. We estimate the amount of time for the initial and follow-up training to total 12 – 14 hours. Monthly follow-up support could average 4-8 hours per month.

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[25] As contrasted to projects, programs sponsor and facilitate projects to achieve a broad goal. Programs are typically sponsored or administered by existing organizations and government agencies.

Content management functions provided to the FIREMON content managers include a welcome or introductory portlet, FIREMON Notices portlet, FIREMON Quick Links portlet,[26] "About Fire Effects Monitoring…" portlet, FIREMON Contacts portlet, Browse FIREMON Resources portlet, a FRAMES login portlet,[27] and a FIREMON Partners and Sponsors portlet[28]. Additional portlets can be constructed as necessary.
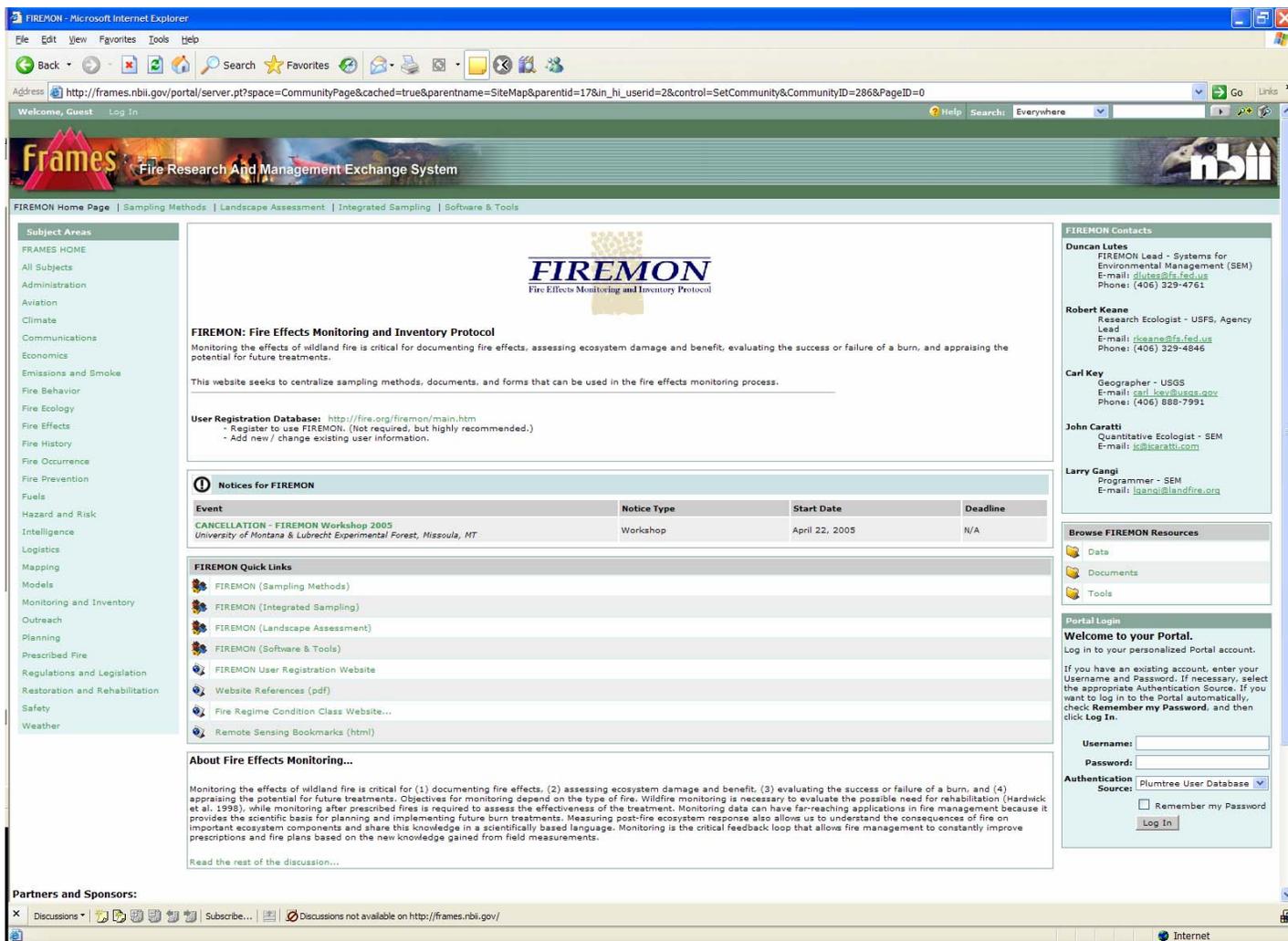
Figure 7. The FIREMON Website

In addition to FIREMON, we are helping construct two JFSP funded project websites that content managers will maintain on FRAMES. The 03-1-1-07: Climate drivers of fire & fuel in the Northern Rockies: Past, Present & Future and 03-2-1-02: Assessing the Causes, Consequences and Spatial Variability of Burn Severity: A Rapid Response Proposal project web pages will soon be moved to FRAMES. Each of these project websites will give the content providers the tools they need to post information about their project through FRAMES. In addition FRAMES will begin to work directly with

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[26] The Quick Links portlet is a fast way for the FIREMON content managers to direct users to the most important information on the site.

[27] The FRAMES login portlet allows FIREMON content managers to access and manage their content directly from the FIREMON Home page. If the FIREMON Content Managers want to grant others access to content or services that are associated with the FIREMON community the can gain access here. FRAMES login portlets are scattered throughout the FRAMES site. Registered users can login from any of them.

[28] The FIREMON Partners and Sponsors portlet is below the screen snapshot in Figure 7.

the project content managers to make sure that their data, documents, and tools are cataloged on FRAMES and that their deliverables are linked to the metadata records.

Next Steps

The two previously mentioned short term strategic areas relevant to FRAMES are infrastructure and content development. FRAMES success depends on the ability to develop infrastructure and content that supports the informatics needs at the intersection between wildland fire research and management. And the two must continue to progress in conjunction with one another. With funding, the following outline describes a series of next steps.

Infrastructure Development

- Obtain OMB approval and implement on-line surveys and rating system.
- Construct FRAMES resources meta-database.
- Construct on-line cataloging tool for resource providers.
- After database is constructed, develop and implement advanced searching functions.
- Evaluate the next version of Plumtree portal software and take advantage of new capabilities of adaptive portlet technology for resource comparison.[29]
- With NBII and others purchase Plumtree Analytics Server. The Plumtree server provides metrics of usage and reporting capabilities for community traffic, portlet usage, document downloads, discussion postings, searched keywords, user turnover, log-ins, system response time, and visit duration.
- Continue to refine website usability.
- Continue to work with NBII to assure systems compatibility and interoperability.
- Reinstitute the FRAMES Advisory Committee.
- Obtain funding to continue infrastructure and content development. Expand staff as necessary to meet objectives.[30]

Content Development

- Continue to populate FRAMES Home and Northwest and Southern Fire Science Geographic Portals with data, documents, and tools.
- Continue to solicit project managers and principal investigators regarding FRAMES website hosting and content management services.
- Develop process for managing permissions and workflow for community managers.
- Develop content management procedure and protocol for FRAMES Subject Managers and other community managers.
- In sequence with resources meta-database construction populate system with program, projects, and websites metadata.
- Look for opportunities with Fire Effects Information System (FEIS), the Tall Timbers Research Station (TTRS) the Wildland Fire Lessons Learned Center, the National Wildland Fire

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[29] If the next version of the Plumtree software supports it; implement an automated expert system for users to find specific FRAMES resources.

[30] Currently, FRAMES staff includes a full-time project manager (UI Employee); full-time programmer (UI Employee); half-time programmer (USGS/FRAMES); half-time content developer, manager and trainer; part-time FRCC project coordinator (UI Employee); part-time FRCC animations specialist, interface design, and graphics artist (UI Employee); and part-time FRCC flash programmer (contractor). To expedite the work listed above we would like to have the two USGS employees move from half-time to full-time status and also hire one more content manager on a half-time basis.

Coordinating Group (NWCG), LANDFIRE, USDA Fire Laboratories, The Nature Conservancy, Government Printing Office, and others for sharing content, reducing duplicative efforts, consolidating records, integrating technologies, employing standards, and other mechanisms for adding value to wildland fire content.

- Continue to work towards developing a wildland fire thesaurus for FRAMES and others. The thesaurus will also be integrated into the NBII biocomplexity thesaurus.
- Solicit and train community managers for the 26 Subject Areas and collaborate with parties interested in obtaining funds to populate subject areas with content.
- Continue to look for partners to build additional geographic portals.
- Identify news services that provide fire related stories.

Additional strategic areas include administration, funding, and marketing. A strategic plan that considers infrastructure, content, administration, funding, and marketing is desirable and necessary if FRAMES is to get long-term support from the federal wildland fire community. NBII has promised to help develop a strategic plan, but FRAMES needs all of its partners to be involved. A potential next step for FRAMES is to secure a charter through the Wildland Fire Leadership Council (WFLC) and to produce a FRAMES strategic plan.

FRAMES needs commitments from both the wildland fire research and management communities. For example, there needs to be a commitment from the research community to make their deliverables available through FRAMES. The most basic commitment from the researcher is to submit and maintain a metadata record for each information resource (i.e., data, document, tool, and website). Then the metadata record needs to be linked to the actual data, document, tool, or website which can be stored at FRAMES or elsewhere. We believe that funders such as JFSP play the essential role in institutionalizing such a system. From the management community the commitment is to include FRAMES in training materials; take advantage of the services that FRAMES offers for collaboration; be content users, contributors, and managers; and to provide feedback for improving a system that is meant to serve their needs.

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Appendix A

Metadata Models for Documents (15), Programs, Projects, Tools, and Websites

	Documents	Book	Book Series	Book Section	Conference Proceedings	Conference Proceedings Paper	Journal Article	Correspondence	Dissertation	Thesis	Newspaper article	Magazine article	Report	Webpage	Slide show	Poster	Programs	Projects	Tools	Websites
attributes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
name	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
abbreviation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
alternate_id	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
contributor	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
publication_date	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
brief_description	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
full_description	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
status	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
keyword	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
spatial_domain	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
time_period_of_content	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
related_resources	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
use_constraints	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
edition		x	x	x									x							
language	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
series		x		x	x	x							x							
location_in_parent				x		x	x					x								
extent_of_work		x		x		x	x		x	x	x	x	x	x						
copy		x	x	x	x	x	x	x	x	x	x	x	x		x	x			x	
date_of_access		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
date_of_conference					x	x														
location_of_conference					x	x														
conferenece_proceedings_title						x														
date_of_correspondence								x												
periodical_title							x				x	x								
volume_id							x													
issue_id							x													
section											x									
column_number											x									
presentation_date															x	x				
venue															x	x				
version																			x	
input																			x	
output																			x	
suggested_use																			x	
suggested_user																			x	
change log																			x	
source_code_language																			x	
development_computer																			x	
min_computer_requirements																			x	
rec_computer_requirements																			x	
other_requirements																			x	
bug																			x	
support																			x	
online_link														x						x

Appendix B
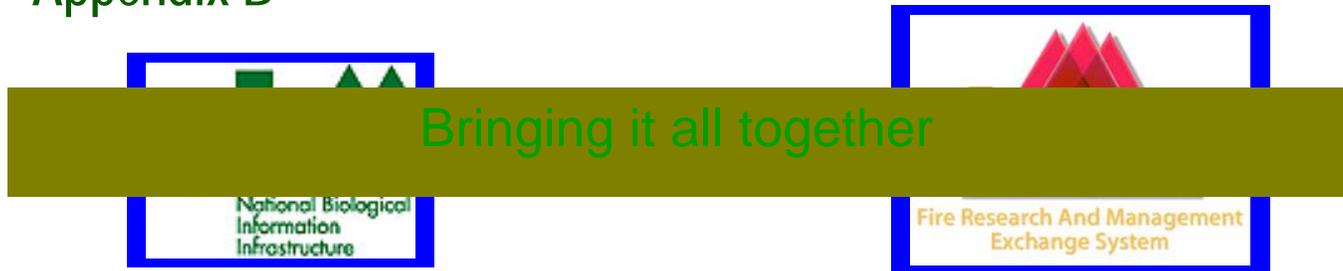
Bringing it all together

National Biological Information Infrastructure

Fire Research And Management Exchange System

Building a Partnership to Web Deliver and Manage Wildland Fire Data, Tools, and Information

Fire Research And Management Exchange System (FRAMES) and the National Biological Information Infrastructure (NBII)

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Introduction

The proliferation of fire technology, research, data, and publications across the fire community makes the process of identifying and synthesizing the best available fire science into fire management challenging and sometimes impossible. Even with the increasing ease of delivering valuable tools and information useful for fire planning in digital formats, they exist across dozens of websites and locations. Ultimately, the best available science will fail to be incorporated into the wildland fire management and policy decision making process.

The National Biological Information Infrastructure (NBII) program and the Fire Research And Management Exchange System (FRAMES) are in a unique position to address this issue. The NBII program demonstrates leadership in biological information management by linking diverse, high-quality biological databases, information products, and analytical tools. Led by the University of Idaho, FRAMES is being designed to aggregate and make more accessible the variety of tools and other information resources that are critical to wildland fire and fuels management. Together, FRAMES and NBII can demonstrate the value of connecting tools, information, and people for the wildland fire community.

Benefits of the Partnership

Currently, FRAMES and NBII received a grant from the Joint Fire Science Program (JFSP) in April 2004 to develop a Southern Fire Portal to provide access to data, metadata, tools, publications, and other information available throughout the region. The programs are also involved in the Pacific Northwest Portal project. As these projects go forward, FRAMES and NBII have an excellent opportunity to share expertise and technical capabilities.

Benefits to FRAMES
- Share the costs for infrastructure maintenance and for some content development.
- Biological information content beneficial to the wildland fire community.
- Increased funding opportunities through leveraging assets.
- Increased user base and partners through collaboration with biological community.
- Information management expertise and infrastructure resources that can help FRAMES achieve its goals.
- Help FRAMES navigate through federal IT requirements (i.e., OMB circulars).
- Fill the role as the federal cooperating agency who will host FRAMES.

Benefits to NBII
- Share the costs for infrastructure maintenance and for some content development.
- Wildland fire content beneficial to the biological community.
- Increased funding opportunities through leveraging assets.
- Increased user base and partners through collaboration with wildland fire community.
- New portlet development to provide better access to natural resources information.
- Complements NBII's goals and objectives.
- Collaborate with respected experts in the wildland fire community who are associated with FRAMES (e.g., advisory committee, principal investigators, and other federal and state partners).
- Recognition for helping the wildland fire community provide a consistent, reliable, and holistic view of the federal fire program.

The partnership between FRAMES and NBII can promote much more than a technology linkage. Much of wildland fire science relates to natural resources and by connecting FRAMES and NBII, both programs

can leverage the wealth of biological and natural resources data and information contained within them and redistribute those value-added resources throughout the U.S.

Roles and Responsibilities

FRAMES
- Administrative agent for the FRAMES project
- Work with the wildland fire research and management communities to help them meet their technology transfer and information technology (IT) needs
- Act as a liaison between the wildland fire communities and NBII
- With NBII assistance work to meet OMB and other federal IT requirements (including Section 508 of 1998 Rehabilitation Act)
- With NBII assistance follow the capital planning and investment control (CPIC) process
- Seek independent funding for FRAMES content
- Develop functionality areas to support wildland fire information and technology transfer
- Responsible for FRAMES content
- Collaborate with NBII on funding to support IT infrastructure for FRAMES/NBII
- Provide server hardware
- Split the cost with NBII to hire a programmer (FRAMES 50% in FY05)
- Allow access to relevant FRAMES content within NBII queries
- Provide technical support for PNW and Southern Fire Portal projects to incorporate into NBII Portal (Greg Gollberg, University of Idaho, Lead)
- Collaborate with NBII to provide project management/proposal process for JFSP/NBII
- Collaborate with NBII to develop a geographically based wildland fire portal system

NBII
- Federal sponsoring agency for FRAMES architecture
- Assist FRAMES meet OMB and other federal IT requirements (including Section 508 of 1998 Rehabilitation Act)
- Assist FRAMES with the capital planning and investment control (CPIC) process
- Provide space for and maintenance of hardware and provide Internet connectivity
- Provide FRAMES with access to development environment for current edition of Plumtree Software
- Provide in house training for 3 FRAMES programmers on NBII Portal technology
- Split the cost with FRAMES to hire a programmer/administrator (50% - NBII, 50% - FRAMES)
- Collaborate with FRAMES on funding to support IT infrastructure for NBII/FRAMES
- Allow access to relevant NBII content for FRAMES
- Provide administrative (e.g., contracting, travel, and reporting) support for PNW and Southern Fire Portal projects
- Provide technical support for PNW and Southern Fire Portal projects to incorporate into NBII Portal
- Collaborate with FRAMES to provide project management/proposal process for JFSP/NBII
- Collaborate with FRAMES to develop a geographically based wildland fire portal system

Short Term Tasks for August 1 2004 through December 31 2004 (see attached chart)

- Identify FRAMES functionality needs and develop a plan to create them
- Identify Plumtree licensing restrictions with respect to FRAMES users
- FRAMES to purchase a FRAMES developmental server to be housed and maintained at NBII
- FRAMES to purchase a FRAMES two portal servers to be housed and maintained at NBII
- Establish DNS (frames.nbii.gov)
- Hire 1 programmer/administrator after October 1 2004. This person will be based in Denver, both the cost and the programmers time will be shared by both NBII and FRAMES (50% each). This position should be budgeted as a full time FRAMES programmer/administrator in near future
- NBII will help set priorities and goals for prototype to help show both Portal capabilities and specific fire data
- Develop "prototype" FRAMES system on FRAMES servers using Plumtree software. The tasks will be shared by 2 FRAMES developers and NBII programmers
- Demonstrate system to wildland fire community, NBII will be available for demos
- Specific demonstrations include the kickoff meeting for the Southern Fire Portal project October 17-18 2004 and the Joint Fire Science Program Technology Transfer workshop on October 18-21 2004 in Athens, Georgia.
- Re-evaluate the results of the prototype and determine a long term goal and statement of work
- Host fire training site in Denver on FRAMES server
- At end of task period, the demonstration "prototype" site will show functionality with Portal (including but not limited to custom searching, look and feel, and collaboration capabilities)
- Demonstrate FRAMES site to the NBII Program Office and discuss long term opportunities for collaboration.
- Develop next steps document and recommendations by December 31, 2004

Short Term Estimated Costs for August 1, 2004 through December 31, 2004

- $20,000 Development and portal servers (FRAMES funding)
- $64,000 FRAMES staff time for development (FRAMES funding)
- $35,000 for 3 months ($17,500 FRAMES and $17,500 NBII); ($140,000 for 1 year; $70K FRAMES and $70K NBII) to hire programmer
- $2000 Travel for FRAMES programmers to Denver, CO for training (JFSP funding)
- $1500 Travel for NBII staff to demo the prototype (50% JFSP, 50% NBII funding)
- $800 NBII staff responding to technical questions about Plumtree Portal (NBII funding)

Estimated Total Costs August 1 to December 31, 2004 = $123,300

ID	Task Name	Who	Start	Finish
1	Plumtree overview in Denver	FRAMES / NBII	8/10/2004	8/11/2004
2	Identify Plumtree licensing restrictions with respect to FRAMES users	NBII	8/10/2004	8/11/2004
3	Identify functionality needs; develop plan to create them	FRAMES / NBII	8/10/2004	8/27/2004
4	Delivery of developmental server	FRAMES	8/20/2004	8/27/2004
5	Set-up spare developmental server	NBII	8/17/2004	8/17/2004
6	Option to attend Plumtree Odyssey conference and obtain training	FRAMES / NBII	8/19/2004	8/27/2004
7	Place order for 2 portal servers	FRAMES	8/20/2004	8/20/2004
8	Establish DNS (frames.nbii.gov)	NBII	8/20/2004	8/30/2004
9	Recreate Homepage graphics on developmental server	FRAMES	8/23/2004	9/6/2004
10	Transfer static content to new Homepage	FRAMES	8/23/2004	9/6/2004
11	Implement site search on new Homepage	FRAMES	8/23/2004	9/6/2004
12	Set-up 2 portal servers	NBII	9/13/2004	9/17/2004
13	Matt & Merrick Plumtree eLearning Enterprise Web 5.0 Foundations	FRAMES	9/20/2004	10/1/2004
14	Set priorities and goals for prototype	FRAMES / NBII	8/16/2004	10/8/2004
15	Complete XML schema for remaining metadata models	FRAMES	8/16/2004	10/8/2004
16	Collect and store priority tools on developmental server	FRAMES	8/16/2004	10/8/2004
17	Transfer remaining tools from FMTO to developmental server	FRAMES	9/13/2004	10/8/2004
18	Move FRCC training to Homepage	FRAMES	10/4/2004	10/8/2004
19	Redirect to new Homepage	FRAMES	10/8/2004	10/8/2004
20	Demo new website in Athens, Georgia at Southern Portal meeting	FRAMES	10/18/2004	10/21/2004
21	Host new FRAMES Website	NBII	10/8/2004	12/31/2004
22	Revisit option to hire programmer	FRAMES / NBII	10/1/2004	10/29/2004
23	Plumtree training, Southern portal, and JFSP tech transfer meetings	FRAMES	10/11/2004	10/22/2004
24	Re-evaluate prototype and determine new statement of work	FRAMES / NBII	10/25/2004	12/31/2004
25	Create custom user registration	FRAMES	10/25/2004	12/17/2004
26	Create "add" and "edit" tools	FRAMES	10/25/2004	12/17/2004
27	Implement Subject categories (keyword) browse/search	FRAMES	10/25/2004	12/31/2004
28	Demo prototype with expanded portal functionality to NBII Program Office	FRAMES / NBII	12/17/2004	12/31/2004

Notice - Forms and Fields

	Call for Papers Form	Conference and Symposium Form	General Form	Job Form	Meetings Form	Requests for Proposals Form	Training Form	Workshop Form
Start Date & Time:		x	x		x		x	x
End Date & Time:		x	x		x		x	x
Deadline:	x		x	x		x		
Event Name:	x	x	x	x	x	x	x	x
Location:	x	x	x	x	x	x	x	x
Audience:	x	x	x	x	x	x	x	x
Description:	x	x	x	x	x	x	x	x
Hosted by:	x	x	x		x		x	x
Sponsored by:	x	x	x		x	x	x	x
Schedule:		x	x		x		x	x
Speaker(s):		x			x		x	x
Fees / Tuition:	x	x	x		x		x	x
Website:	x	x	x	x	x	x	x	x
Contact Information:	x	x	x	x	x	x	x	x
Instructor(s):							x	x
Instructions:	x	x	x	x	x	x	x	x
Funding Agency or Institution:						x		
Agenda:		x			x		x	x
Lodging:		x			x		x	x
Directions:		x			x		x	x
Other:	x	x	x	x	x	x	x	x
Job Type				x				
Duties / Responsibilities:				x				
Requirements / Qualifications:				x				
Grade:				x				
Salary:				x				
Other Compensation:				x				

NOTE: A red "x" is a mandatory field. A black "x" is optional.

Appendix D

Example of a Call for Papers Notice

Appendix E

Search Results and Metadata

All Subjects Home | Search | Add/Edit Resource | Events | Discussion

All Subjects Directory Search Form

Select a resource type(s):

☐ Data ☐ Documents ☑ Tools

For:

| Behaveplus | Search |

→ Search Term

All Subjects Directory Search Results

Search Results

Results For: **'Behaveplus'**
Displaying Results 1 through 1 of

→ Results

1 BehavePlus ver. 2.0

The BehavePlus fire modeling system is a PC-based program that is a collection of models that describe fire and the fire environment.

All Subjects Meta Data Record Results

Tool Name: BehavePlus 2.0

Contributors:

- **Collin Bevins**
  Program design, Program development, Version 2 users guide
- **Don Carlton**
  Version 1 users guide, Online help system
- **Deb Tirmenstein**
  Program tester, Document editor
- **Joe Scott**
  Online help for fire models added in version 2.
- **Miguel Cruz**
  Portuguese translation for the language menu option
- **Pat Andrews**
  Project manager, System design, Program testing, Tutorial development, Version 2 users guide
- **Rob Seli**
  Tutorial development, Editing and formatting of version 2 users guide, Online help
- **Dave Custer**
  Tutorial editing and formatting
- **Joint Fire Science Program**
  Funding and material support
- **USDA Forest Service, Fire and Aviation Management**
  Funding and material support
- **USDA Forest Service, Rocky Mountain Research Station, Fire Behavior Research Work Unit**
  Funding and material support
- **Systems for Environmental Management**
  Funding and material support

← Metadata

Date made available (month/day/year): 7/11/2003

Description (brief):
The BehavePlus fire modeling system is a PC-based program that is a collection of models that describe fire and the fire environment.

Progress: complete Update: unknown

Inputs:	Outputs:
• fuel model	• rate of spread
• fuel moisture	• fireline intensity
• midflame wind speed	• flame length
• slope	• direction of maximum spread
• wind direction	• heat per unit area
	• size of safety zone
	• size of area burned
	• size of fire perimeter
	• maximum spotting distance
	• crown scorch height
	• probability of tree mortality
	• ignition probability
	• point source fire shape

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- contained fire shape
- fire characteristics chart
- wind-slope-spread direction diagram

Suggested use:	Suggested user:
- prescribed fire planning - projecting the growth and behavior of ongoing fires	- Land manager - Fire manager - Fire behavior analysts

Minimum computer system requirements:

Hardware

OS / Software

- processor:
  unknown
- memory:
  32 MB (10 MB free)
- storage:
  readable/writable (NaN MB)
- display:
  Minimum 800 x 600 pixels, 256 color Recommend 1024 x 768 pixels, 64K (16-bit) color
- audio:
  none
- network:
  none

- os:
  Windows 2000 ®, Windows NT ®, Windows XP ®, Windows Me ®, Windows 98 ®, Windows 95 ®
- software:
  Adobe ® Acrobat Reader is required to view the on-line PDF help files.

Other requirements:

- Familiarity with fuels, weather, topography, wildfire situations, and associated terminology.

Support:

- Forest Service Fire and Aviation Management Help Desk
  Call or email questions regarding this software.
  telephone: (800) 253-5559
  email: fire_help@dms.nwcg.gov

- E-mail the developers
  Directly email the people responsible for developing and maintaining BehavePlus.
  email: behaveplus@fire.org

- Update email list
  Be notified via email of updates to this software
  http://fire.org/mason/nav.cgi?pages=behaveplus2&=21

- Report a bug in this software
  Notify the developers of an issue with this software by filling out an online form describing a problem. Before reporting problems, make sure that it has not already been reported by visiting the list of known bugs at:
  http://fire.org/mason/nav.mas?pages=behaveplus2&mode=20
  http://fire.org/mason/nav.cgi?pages=behaveplus2&mode=17

- Suggestion form
  Online form for making suggestions to the developers for improving the program.
  http://fire.org/mason/nav.cgi?pages=behaveplus2&mode=18

Fire.org
http://www.fire.org

- copy:
  http://fire.org/cgi-bin/redirect.cgi?URL=http://www.montana.com/sem/downloads/behaveplus/bp_2_0_2.exe
  file type: Windows executable 15276.013 kb
  fees: none
- copy:
  http://fire.org/behaveplus/download/bp_2_0_2.exe
  file type: Windows executable 15276.013 kb
  fees: none

unknown

The license requires that a postcard depicting a scene of your local area sent to: Systems for Environmental Management P.O. Box 8868 Missoula, MT 59801

XML metadata Schema available here: http://159.189.176.141/xml/frames/tools/tools.xsd
Metadata author available at: merrick@merrickrichmond.com

Disclaimer and Privacy Statement   Accessibility

Appendix F

Tools Summary

#	RESOURCE	ACRONYM	STATUS	SOURCE
1	545d and 545e	545	To be added	NWCG
2	555	555	To be added	NWCG
3	Air CHIEF	Air CHIEF	Retired	NWCG
4	Aircraft Data Manager System	ADaM	In Dispatch Utilities	NWCG/MacGregor
5	Aircraft Incident Reporting System	AIRS	Insufficient information	NWCG
6	Aircraft Information Management System ver. 2.6	AIMS V2.6	Cataloged Tool	NWCG
7	Aircraft Use Database	ACUSE	Retired	NWCG
8	Aircraft Utilization	AUS	Insufficient information	NWCG
9	Alaska Chugach National Forest Fire Weather Index (CAN) Fire Danger Pocket Card	FDRPC	Cataloged Tool	Web
10	Alaska Fire Service Fire Weather Database	AFS-FWD	Cataloged Tool	NWCG
11	ALLOCATE	ALLOCATE	Insufficient information	NWCG
12	APPROVE	APPROVE	Insufficient information	NWCG
13	Atlas GIS	N/A	Catalog as a Website	NWCG
14	Automated Fire Situation Report ver. 2.04.13	AUTO209	Cataloged Tool	NWCG
15	Automated Forest Fire Information Retrieval and Mgmt System	AFFIRMS	Retired	NWCG
16	Automated Lightning Detection System - Data General	ALDS-DG	Retired	NWCG
17	Automated Lightning Detection System - IAMS	ALDS-IAMS	Retired	NWCG
18	Automated Lightning Mapping System ver. 2.4	ALMS V2.4	Cataloged Tool	NWCG/MacGregor
19	Automated Lightning Mapping System ver. 3.0	ALMS V3.0	Cataloged Tool	NWCG/MacGregor
20	Automated Real-Time Mapping System	ARMS	Retired	NWCG
21	Automated Resource Order System	AROS	Retired	NWCG
22	Automated Storage Conversion and Distribution System	ASCADS	Insufficient information	NWCG
23	Aviation Management Information System ver. 7.0	AMIS V7.0	Cataloged Tool	NWCG/MacGregor
24	BAR-CODE Program	BAR-CODE	Insufficient information	NWCG
25	BehavePlus ver. 2.0.	BEHAVEPlus V2.0	Cataloged Tool	NWCG/MacGregor
26	Biome-Biogeochemical Cycles	Biome-BGC	Cataloged Tool	University of Montana
27	BIOPAK ver. 2.5.0	BIOPAK V2.5.0	Cataloged Tool	NWCG
28	BlueSky	N/A	Cataloged Tool	FIREHouse
29	Burn Data Base	BDB	Insufficient information	NWCG
30	C and R	C & R	Insufficient information	NWCG
31	Cache Inventory System	CIS	Retired	NWCG
32	California All Incident Reporting System	CAIRS	Catalog as a Website	NWCG
33	California Fire Economics Simulator ver. 2.0	CFES2 V2.0	Cataloged Tool	NWCG/MacGregor
34	California Fire Incident Reporting System	CFIRS	Retired	NWCG
35	California Fire Incident Reporting System Data Warehouse	N/A	Insufficient information	NWCG
36	California Fire Plan	N/A	Insufficient information	NWCG
37	California Prescribed Fire Incident Reporting System	CALPFIRS	Catalog as a Website	NWCG
38	CALPUFF ver. 2.5.0	CALPUFF V2.5.0	Cataloged Tool	NWCG
39	Campbell Prediction System	CPS	Catalog as a Document	MacGregor
40	Canadian Forest Fire Behavior Prediction System	FBP	Catalog as a Website	NWCG
41	Canadian Forest Fire Danger Rating System	CFFDRS	Tools not currently available	NWCG
42	Canadian Forest Fire Weather Index System	FWI	Catalog as a Website	NWCG
43	Canadian Wildfire Fire Information System	CWFIS	Cataloged Tool	Web
44	Changed Climate Fire Modeling System	CCFMS	Cataloged Tool	MacGregor

#	RESOURCE	ACRONYM	STATUS	SOURCE
45	Climate Analysis Using NIFMID	CLIMATOLOG	Retired	NWCG
46	Climate Data Access Facility	CDAF	Insufficient information	NWCG
47	Computer Aided Hazard Information System	CAHIS	Retired	NWCG
48	Computer-Aided Dispatch	CAD	Retired	NWCG
49	Computer-Aided Dispatch - California Version	CALCAD	Insufficient information	NWCG
50	Computer-Aided Navigation	CAN	Retired	NWCG
51	Computerized Harmonic Evaluation of Episodes and Tools for Assessment and Help ver. 2.0	CHEETAH V2.0	Cataloged Tool	NWCG
52	CONSUME	CONSUME	Cataloged Tool	NWCG/FIREHouse/MacGregor
53	Crew Needs Analysis	CREW NEEDS	Retired	NWCG
54	Crown Mass	N/A	Cataloged Tool	MacGregor
55	CS-BEHAVE for PC Windows	CS-BEHAVE	Insufficient information	NWCG
56	CSIRO Fire Danger and Fire Spread Calculator	N/A	Cataloged Tool	Web
57	Data and Reports Technology System	DARTS	Insufficient information	NWCG
58	DDWoodyPC	N/A	Cataloged Tool	Web
59	Dead and Down Fuels Inventory	DFINV	Insufficient information	NWCG
60	Debris Prediction Program	DEBMOD	Insufficient information	NWCG
61	Debris Prediction System	DPS	Insufficient Information	MacGregor
62	Defense Logistics Management System	DLMS	Catalog as a Website	NWCG
63	Dispatch Messaging System	DMS	Cataloged Tool	NWCG
64	Dispatch Utilities ver. Adam 2.0.4, Sunrise-Sunset 2.0.1, CAN 2.0.1	DU V2.0.4	Cataloged Tool	NWCG
65	Down Fuel Inventory System	DFI	Insufficient Information	MacGregor
66	Ecosystem Management Model	EMM	Insufficient information	NWCG
67	Emergency Equipment Rental Agreement	EERA	Insufficient information	NWCG
68	Emergency Fire Firefighter Pay System	EFF-PAY	Insufficient information	NWCG
69	Emergency Resource Directory	ERD	Insufficient information	NWCG
70	Emissions Projection Model	EPM	Retired	NWCG/MacGregor
71	Emissions Reporting System	EMISS-OR	Insufficient information	NWCG
72	Emissions Reporting System for Washington Forests	EMISS-WA	Insufficient information	NWCG
73	Equivalent Disturbed Area	EDA	Insufficient Information	MacGregor
74	ERPLAN	ERPLAN	Insufficient information	NWCG
75	EX-FIRE	EX-FIRE	Insufficient information	NWCG
76	Factor Information REtrieval ver. 6.25	FIRE V6.25	Cataloged Tool	Web
77	Farsite ver. 4.0.4.	Farsite V4.0.4	Cataloged Tool	NWCG/MacGregor
78	Federal Aviation Resource System	FARS	Insufficient information	NWCG
79	Federal Excess Property Management Information System	FEPMIS	Cataloged Tool	NWCG
80	FHX2	FHX2	Cataloged Tool	NWCG
81	Fire and Fuels Extension to Forest Vegetation Simulator	FFE-FVS	Cataloged Tool	NWCG/MacGregor
82	Fire and Pest Protection Forest Modeling Program	FPM	Insufficient information	NWCG
83	Fire Behavior Mapping and Analysis ver. 2.0.0.	FlamMap V2.0.0	Cataloged Tool	NWCG
84	Fire Budget Analysis ver. 2.0.1	FIREBUDGET2 V2.0.1	Cataloged Tool	NWCG/MacGregor
85	Fire Danger Calculator ver. 1.0	FDC V1.0	Cataloged Tool	NWCG/MacGregor
86	Fire Danger PocketCards for Firefighter Safety	N/A	Cataloged Tool	Web
87	Fire Ecology Assessment Tools ver. 2.0	FEAT V2.0	Cataloged Tool	NWCG
88	Fire Effects Information System	FEIS	Cataloged Tool	NWCG/FIREHouse/MacGregor
89	Fire Effects Monitoring and Inventory Database and Data Analysis Software ver. 2.1.0.	FIREMON V2.1.0	Cataloged Tool	NWCG/FIREHouse
90	Fire Effects Trade-Off Model ver. 4.0	FETM V4.0	Cataloged Tool	Web
91	Fire Emission Production Simulator ver. 1.0.0	FEPS V1.0.0	Cataloged Tool	FIREHouse
92	Fire Emissions Tradeoff Model	FETM	Cataloged Tool	NWCG

#	RESOURCE	ACRONYM	STATUS	SOURCE
93	Fire Family Plus Upgrade ver. 3.0.5.	FFP V3.0.5	Cataloged Tool	Web
94	Fire Family Plus ver. 3.0.5.	FFP V3.0.5	Cataloged Tool	NWCG/MacGregor
95	Fire Hazard Rating Model	FIREHARM	Insufficient information	NWCG
96	Fire Information Retrieval and Evaluation System	FIRES	Included in Fire Family Plus	NWCG/MacGregor
97	Fire Management Analysis Process	FIREMAP	Replaced by FPA	NWCG
98	Fire Management Information System - Greece	FMIS	Insufficient information	NWCG
99	Fire Occurrence	N/A	Insufficient information	NWCG
100	Fire Planning - GIS Project	FirePlan GIS	Cataloged Tool	NWCG
101	Fire Program Analysis ver. 1.1	FPA V1.1	Cataloged Tool	Forest Service
102	Fire Program Budget Analysis System	FIREPRO	Replaced by FPA	NWCG/MacGregor
103	Fire Qualifications - Fire Quals Listing	QUALS	Retired	NWCG
104	Fire Statistics System ver. 5.1.1	FIRESTAT V5.1.1	Cataloged Tool	NWCG/MacGregor
105	Fire Statistics System ver. 5.2	FIRESTAT V5.2	Cataloged Tool	Web
106	Fire Statistics System ver. 5.3	FIRESTAT V5.3	Cataloged Tool	Web
107	Fire Statistics System ver. 5.4	FIRESTAT V5.4	Cataloged Tool	Web
108	Fire Succession Model	FIRESUM	To be added	NWCG/MacGregor
109	Fire Training Retrieval and Certification System	FIRE TRAC	Insufficient information	NWCG
110	Fire Weather Plus 2000	N/A	Cataloged Tool	NWCG
111	FireAway	FIREAWAY	Cataloged Tool	NWCG/MacGregor
112	FireDirect	FIREDIRECT	Cataloged Tool	NWCG/MacGregor
113	FIREFLY - Airborne Infrared Mapping	FIREFLY	Insufficient information	NWCG
114	FireLib ver. 1.0.1	FireLib V1.0.1	Cataloged Tool	NWCG/MacGregor
115	FIRESCAN	FIRESCAN	Insufficient information	NWCG
116	FIRESCAPE	FIRESCAPE	To be added	NWCG
117	Firestorm Pro	FIRESTORM	Cataloged Tool	NWCG
118	FireTower ver. 2.0	FIRETOWER V2.0	Cataloged Tool	NWCG/MacGregor
119	First Order Fire Effects Model ver. 5.2.1.	FOFEM V5.2.1	Cataloged Tool	NWCG/MacGregor
120	Florida Fuel Hazard Mapping	FLA-RISK	Insufficient information	NWCG
121	Fuel Analysis, Smoke Tracking, and Report Access	FASTRACS	To be added	NWCG
122	Fuel Characteristic Classification System	FCCS	Cataloged Tool	NWCG/FIREHouse
123	Fuels Appraisal	FA	Insufficient information	NWCG
124	Fuels Appraisal Process	FAP	Insufficient information	NWCG
125	Fuels Appraisal Support System	FASS	Insufficient information	NWCG
126	Fuels Assessment and Treatment Evaluation	FATE	Retired	NWCG
127	Fuels Data Base	FUELS-DB	Insufficient information	NWCG
128	Fuels Management Analyst Plus ver. 2.0.37.	FMAPlus V2.0.37	Cataloged Tool	NWCG/MacGregor
129	Fuels Out-Year Request and Budget System ver. software 1.0; database 6.0	FORBS V1.0	Cataloged Tool	NWCG
130	FX-Net	FX-Net	Cataloged Tool	NWCG
131	Geospatial Multi-Agency Coordination	GeoMAC	Cataloged Tool	NWCG
132	Hardwood Rangeland Expert System	N/A	Insufficient Information	MacGregor
133	Idaho Panhandle National Forest Index System	IPNF INDEX	Insufficient information	NWCG
134	Ignition Management Tutorial	IMT	Insufficient information	NWCG
135	Incident Action Plan	IAP	Included in I-Suite	NWCG
136	Incident Command Accounting and Reporting System	ICARS	Included in I-Suite	NWCG
137	Incident Qualifications and Certification System	IQCS	Cataloged Tool	NWCG
138	Incident Qualifications System	IQS	Cataloged Tool	NWCG
139	Incident Resource Status System	IRSS	Included in I-Suite	NWCG
140	Incident Systems and Telecommunications	INSYST	Insufficient information	NWCG
141	Incident Time System	ITS	Included in I-Suite	NWCG

#	RESOURCE	ACRONYM	STATUS	SOURCE
142	Incremental Cumulative Effects	ICE9	Insufficient Information	MacGregor
143	Initial Attack Analyzer	IAA	Insufficient Information	MacGregor
144	Initial Attack Management System	IAMS	Cataloged Tool	NWCG/MacGregor
145	Initial Attack Pre-Planned Dispatch System	IASELECT	Insufficient information	NWCG
146	Intelligent Fire Management Information System	IFMIS	Insufficient information	NWCG
147	Interagency Cache Business System	ICBS	Cataloged Tool	NWCG/MacGregor
148	Interagency Incident Administrative Support System	INCINET	Insufficient information	NWCG
149	Interagency Initial Attack Assessment ver. 1.2.12.	IIAA V1.2.12	Cataloged Tool	NWCG/MacGregor
150	I-Suite ver. 4.0.0.	I-Suite V4.0.0	Cataloged Tool	NWCG
151	Kansas City Fire Access Software	KCFAST	Cataloged Tool	NWCG/MacGregor
152	LANDFIRE	LANDFIRE	Catalog as a Project	NWCG
153	LANDFIRE-US Biogochemical Modeling	LFBGC	To be added	NWCG
154	Landscape Simulation Model	LANDSUM	Insufficient information	NWCG
155	Lightning Detection System - GDS	GDS-LD	Insufficient information	NWCG
156	Mapped Atmosphere-Plant-Soil System ver. 2.0	MAPSS	Cataloged Tool	FIREHouse
157	METAFIRE	METAFIRE	Insufficient information	NWCG
158	Meteorology for Fire Severity Forecasting	MfFSF	Insufficient Information	MacGregor
159	Minnesota Initial Attack Assessment	MNIAAPC	Insufficient information	NWCG
160	Multi-Agency Incident Resource Processing System	MIRPS	Insufficient information	NWCG/MacGregor
161	Multi-Resource Analysis and Geographic Information	MAGIS	Cataloged Tool	NWCG/MacGregor
162	Multi-Resource Analysis and Geographic Information Express ver. 1.0	MAGIS Express V1.0	Cataloged Tool	Web
163	Multi-Resource Analysis and Geographic Information Professional	MAGIS Professional	Cataloged Tool	Web
164	National Automated Cache System	NACS	Retired	NWCG
165	National Fire Danger Rating System	NFDRS	Cataloged Tool	MacGregor
166	National Fire Danger Rating System PC (NOTE: Put in title in FRAMES)	NFDRS PC	Cataloged Tool	NWCG/MacGregor
167	National Fire Management Analysis System	NFMAS	Catalog as a Website	NWCG/MacGregor
168	National Fire Occurrence Data Library	NFODL	Retired	NWCG
169	National Fire Plan Operations and Reporting System	NFPORS	Cataloged Tool	NWCG
170	National Fire Weather Data Library	NFWDL	Retired	NWCG
171	National Interagency Fire Management Integrated Database	NIFMID	Insufficient information	NWCG/MacGregor
172	National Interagency Fire Statistics Information Project	NIFSIP	Insufficient Information	MacGregor
173	National Interagency Situation Report	SIT	Catalog as a Website	NWCG/MacGregor
174	Natural Fuels Photo Series and the Digital Photo Series	N/A	Cataloged Tool	FIREHouse
175	NEXUS	NEXUS	Cataloged Tool	NWCG/MacGregor
176	NFSPUFF	NFSPUFF	Cataloged Tool	NWCG/MacGregor
177	Overhead Resource Status	OVERSTAT	Retired	NWCG
178	Pacific Northwest Lightning Probability Maps	N/A	Cataloged Tool	FIREHouse
179	Pacific Northwest MM5 Weahter Forecast Maps	N/A	Cataloged Tool	Web
180	Pacific Northwest National Fire Danger Rating System (NFDRS) Maps	N/A	Cataloged Tool	Web
181	PC - FireFamily	PCFIRDAT	Retired	NWCG
182	PCDanger	PCDANGER	Retired	NWCG/MacGregor
183	Personal Computer Historical Analysis ver. 1.1.2.1.	PCHA V1.1.2.1	Cataloged Tool	NWCG/MacGregor
184	Photo Series Explorer	PSExplorer	Cataloged Tool	Web
185	PLUME	N/A	Insufficient Information	MacGregor
186	PLUMP	PLUMP	Cataloged Tool	NWCG/MacGregor
187	Powerterm,Netterm,Webterm	TERM	Insufficient information	NWCG
188	Prescribed Fire Conditions	RXBURN	Retired	NWCG/MacGregor

#	RESOURCE	ACRONYM	STATUS	SOURCE
189	Prescribed Fire Emission Predictor	PFEP	Insufficient information	NWCG
190	Prescribed Fire Incident Reporting System	PFIRS	Cataloged Tool	NWCG
191	Prescribed Fire Weather	RXWTHR	Insufficient Information	MacGregor
192	Prescrption Design	N/A	Insufficient Information	MacGregor
193	Prevention and Fuels Data and Reports Technology	PF-DARTS	Insufficient information	NWCG
194	Prevention Workload Analysis	PWA99	Insufficient information	NWCG
195	Programmatic Fuels Management Tradeoff Model	TOM/FETM	Insufficient information	NWCG/MacGregor
196	Project-Level Analysis of Treatment Alternatives ver. 1.1.25	PLATA V1.1.25	Cataloged Tool	MacGregor
197	RamAir Simulator	N/A	Insufficient information	NWCG
198	Rapid Access Information System	RAINS	Cataloged Tool	FIREHouse
199	Rare Event Risk Assessment Process ver. 5.03b.	RERAP V5.03b	Cataloged Tool	NWCG/MacGregor
200	RAZU	RAZU	Cataloged Tool	NWCG
201	READY	READY	Insufficient information	NWCG
202	Real-Time Observation Monitor and Analysis Network	ROMAN	Cataloged Tool	NWCG
203	Redcard Qualification System	REDCARD	Cataloged Tool	NWCG/MacGregor
204	Resource Ordering and Status System ver. 1.2.5.	ROSS	Cataloged Tool	NWCG/MacGregor
205	Resource Status - Region 1	RESTAT	Retired	NWCG
206	Risk Assessment and Mitigation Strategies	RAMS	Cataloged Tool	NWCG
207	SafeNet	SAFENET	Cataloged Tool	NWCG
208	Safety Management Information System	SMIS	Catalog as a Website	MacGregor
209	SAM Sensitive Area Program	SAM	Cataloged Tool	NWCG
210	Severity Maps	N/A	Retired	NWCG
211	Simple Approach Smoke Estimation Model ver. 4.0.	SASEM V4.0	Cataloged Tool	NWCG/MacGregor
212	Simulating Processes & Patterns at Landscape Scale	SIMPPLLE	Cataloged Tool	NWCG/MacGregor
213	SLASH - HAZARD	SLASH/HAZARD	Insufficient information	NWCG
214	Smoke Impact Spreadsheet	SIS	Cataloged Tool	NWCG/MacGregor
215	Smoke Management System	SMSINFO	Insufficient information	NWCG/MacGregor
216	Smokey Bear CFFP Ordering System	SMOKEY	Retired	NWCG
217	Southern State Fuel Hazard Mapping	SOSTRISK	Insufficient information	NWCG
218	Station Manager	N/A	Insufficient information	NWCG
219	Structure Ignition Assessment Model	SIAM	Cataloged Tool	NWCG/MacGregor
220	THOR	THOR	Insufficient information	NWCG
221	Tiered Smoke Air Resource System - Version 3	TSARS	Insufficient information	NWCG
222	Tool for Exploratory Landscape Scenario Analysis	TELSA	Cataloged Tool	NWCG/MacGregor
223	Toolbox	Toolbox	Insufficient information	NWCG
224	Topographic Air Pollution Analysis System	TAPAS	Insufficient information	NWCG
225	Trade-off Evaluation Process	TEP	Insufficient information	NWCG
226	Vaisala Thunderstorm Lightning Tracking Software LTS2005	N/A	Cataloged Tool	Web
227	Vegetation Dynamics Development Tool	VDDT	Cataloged Tool	NWCG/MacGregor
228	Vegetation to Fuel Model	VEG2FM	Insufficient information	NWCG
229	Ventilated Valley Box Model	VALBOX	Cataloged Tool	NWCG/MacGregor
230	Ventilation Climate Information System	VCIS	Cataloged Tool	NWCG/FIREHouse/MacGregor
231	Ventura Tools	N/A	Cataloged Tool	NWCG/MacGregor
232	Volume I: Mixed-Conifer with Mortality, Western Juniper, Sagebrush, and Grassland…	N/A	Cataloged Tool	FIREHouse
233	Volume VII: Oregon White Oak, California Deciduous Oak, and Mixed-Conifer with Shrub…	N/A	Cataloged Tool	FIREHouse
234	Weather Information Management System ver. 1.1.1.	WIMMS V1.1.1	Cataloged Tool	NWCG/MacGregor
235	WeatherBrief	N/A	Cataloged Tool	NWCG

#	RESOURCE	ACRONYM	STATUS	SOURCE
236	Wildfire Automated Reporting System	WARS	Insufficient information	NWCG
237	Wildfire Hazard Identification and Mitigation System	WHIMS	Cataloged Tool	NWCG
238	Wildfire Prevention Analysis and Plan	WPAP	Retired	NWCG
239	Wildland Computer-Aided Dispatch	WILDCAD	Insufficient information	NWCG
240	Wildland Fire Assessment System	WFAS	Cataloged Tool	NWCG/MacGregor
241	Wildland Fire Management Computer System	WFMCS	Retired	NWCG
242	Wildland Fire Management Information	WFMI	Catalog as a Website	NWCG
243	Wildland Fire Situation Analysis Plus ver. 04.3.	WFSA V 04.3	Cataloged Tool	NWCG/MacGregor
244	ZONECAD	ZONECAD	Retired	NWCG

Appendix G

Farsite Metadata Record

Tool Name: Farsite 4.0.4

Contributors:

- **Mark Finney**
  program design, program development
- **Rob Seli**
  program testing, online help system
- **Joint Fire Science Program**
  funding for development and material support
- **USDA Forest Service, Pacific Southwest Region**
  funding for development and material support
- **Interagency Fire Center, National Park Service**
  funding for development and material support
- **USDA Forest Service, Pacific Southwest Research Station**
  funding for development and material support
- **USDA Forest Service, Rocky Mountain Research Station, Fire Behavior Research Work Unit**
  funding for development and material support
- **Systems for Environmental Management (SEM)**
  funding for development and material support

Date made available (month/day/year): 2003

Description (brief):
Farsite is a fire growth simulation model that automatically computes wildfire growth and behavior for long time periods under heterogeneous conditions of terrain, fuels, and weather.

Progress: complete **Update:** unknown

Inputs:	Outputs:
- fuel model - slope - aspect - elevation - canopy cover - precipitation - temperature - humidity - wind speed - wind direction - cloud cover - fuel moisture	- time of arrival - fireline intensity - flame length - rate of spread - heat/area - reaction intensity - crown fire activity - spread direction

- rate of spread adjustment
- crown bulk density
- crown base height
- base height
- stand height
- duff loading
- custom fuel models
- fire acceleration
- air attack resources
- coarse woody debris
- burn period
- ground attack resources

Suggested use:	Suggested user:
• simulate fire behavior	• fire manager • land manager

Minimum computer system requirements:

Hardware

- processor:
  Intel Pentium III 100 MHz
- memory:
  64 MB
- storage:
  read/write (500 MB)
- display:
  800x600

OS / Software

- os:
  Microsoft Windows® 98, Microsoft Windows® NT4, Microsoft Windows® 2000, Microsoft Windows® ME, Microsoft Windows® XP

Other requirements:

- ARC/INFO or GRASS digital elevation data
- ARC/INFO or GRASS digital slope data
- ARC/INFO or GRASS digital aspect data
- ARC/INFO or GRASS digital surface fuel model data
- ARC/INFO or GRASS digital canopy cover data
- ARC/INFO or GRASS digital canopy height data
- ARC/INFO or GRASS digital crown base height data
- ARC/INFO or GRASS digital coarse woody fuels data
- ARC/INFO or GRASS digital coarse duff loading data

Support:

- National Interagency Fire Center (NIFC) National System Support Desk
  Call or email questions regarding this software.
  telephone: (800) 253-5559
  email: fire_help@dms.nwcg.gov

Distribution:
Fire.org
http://www.fire.org

- copy:
  farsite4.04_setup.exe is the complete FARSITE distribution packaged as a self-installing executable for Windows.
  http://farsite.org/farsite4/farsite4.04_setup.exe
  fees: none

Access constraints:
unknown

Use constraints:
unknown

Metadata created by Merrick B. Richmond on 9/23/2004
XML metadata Schema available here: http://159.189.176.141/xml/frames/tools/tools.xsd
Metadata author available at: merrick@merrickrichmond.com

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Appendix H

Fire Management Tools Online (FMTO) Survey

Background

Fire Management Tools Online (FMTO) has recently moved to www.frames.gov. We at the Fire Research And Management Exchange System (FRAMES) Project are currently reviewing the FMTO website and plan to substantially update and expand it. However, we need your help. Please take the time to fill out the survey below about the current FMTO website. We need your input in order to make the best site possible for tool users. If you have any questions or comments please contact us at feedback@frames.gov or contact:

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We would appreciate if you would also fill out the information about yourself below. Thank you.

_____ _____ _____
         First Name   Middle   Last Name

_____
Agency

_____
Business Address

_____ _____ _____
        City   State   Zip

_____
Job Title

_____
E-mail

_____
Office Phone

_____
Office Webpage

FIRE MANAGEMENT TOOLS ONLINE SURVEY

1. Are you a current user of the Fire Management Tools Online (FMTO) website?

    ____ Yes   ____ No   If No, please specify why not.

    _____

    _____

    _____

2. What do you specifically like about FMTO?

    _____

    _____

    _____

3. What do you specifically dislike or would like to see improved on FMTO?

    _____

    _____

    _____

4. Do you like the current organization of tools on FMTO?

    ____ Yes   ____ No   If No, please specify why not. _____

    _____

    _____

    _____

5. Have you ever downloaded a tool from FMTO?

    ____ Yes   ____ No   If No, please specify why not. _____

    _____

_____

6. When you visit FMTO, which of the following categories of tools are you looking for? (Please identify your top 5, with #1 being the **most frequently** used.)

_____ Business & Economics	_____ Fuels
_____ Climate & Weather	_____ Hazard & Risk
_____ Communications	_____ Mapping
_____ Education	_____ Monitoring & Inventory
_____ Emissions	_____ Planning
_____ Fire Behavior	_____ Restoration & Rehabilitation
_____ Fire Effects	_____ Safety
_____ Fire Occurrence	_____ Other; Please specify _____
	_____

7. Which categories of tools listed on question #5 are most useful in your job, **but tools are NOT currently available on FMTO**?

   A. _____

   B. _____

   C. _____

8. Which categories of tools from the list on question #5 do you think are **most important** to wildland fire managers? (Please list the top 3)

   D. _____

   E. _____

   F. _____

9. Which categories of tools would you like to see made **more available** to the wildland fire community (not only managers)? (Please list the top 3)

   G. _____

   H. _____

   I. _____

10. What sort of new tool or tools would you like to see developed? **And why**?

_____

_____

_____

11. In your own words, what are the key characteristics of a good wildland fire tool?

_____

_____

_____

_____

_____

_____

12. Which type of electronic tools do you use most frequently in your work? (Please number your top 5 from the list below with #1 being the most frequently used.)

_____ CD ROM	_____ Statistical Analysis
_____ Documents	_____ User Manuals
_____ Databases	_____ Websites
_____ Computer Programs	_____ Other Electronics; Please specify _____
_____ GIS, GPS, & Maps	_____
_____ Models	_____ Other Spatial; Please specify _____
_____ Sensors	_____
	_____ Other; Please specify _____
	_____

13. Besides tools, what other types of information or services would be useful to you?

_____

_____

14. Is the World Wide Web (WWW) a good way to deliver tools and information to you?

_____ Yes   _____ No   If No, please specify why not. _____

_____

_____

_____

15. The following is a list of the tools (with a brief description of each) currently available on FMTO. Please circle the answer to the right of the description that best describes your knowledge of each tool.

TOOLS	How have you used each tool? (*Please circle one response for each product*)				
BAER – Burn Area Emergency Rehabilitation is a research publication synthesizing 30 years of USDA Forest Service Burn Area Emergency Rehabilitation (BAER) projects.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (≥5 Times/ Year)
BEHAVE – The Fire Behavior Prediction and Fuel Modeling System produces tables of fire behavior given user defined environmental conditions. It provides methods for developing custom fuel models.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (≥5 Times/ Year)
CONSUME – Consume 2.1 is a PC-based, interactive fuel consumption model that predicts total and smoldering fuel/biomass consumption during prescribed fires and wildland fires. Predictions are based on weather data, the amount and fuel moisture of fuels, and a number of other factors.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (≥5 Times/ Year)
CPS – Campbell Prediction System is an experienced based system for extending the state of the art of firefighting. The focus of this system is to predict changes in fire behavior so firefighters can get out of harms way before the fire makes its move.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (≥5 Times/ Year)
EPM – Emissions Production Model predicts air pollutant emissions source strength, heat release rate, and plume buoyancy consistently for all fire environments and fuel types. It requires an estimate of flaming and smoldering consumption, and a stylized description of ignition pattern. EPM then calculates timed emission rates for gases, particles, and heat.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (≥5 Times/ Year)
FARSITE - FARSITE is a fire growth simulation model. It uses spatial information on topography and fuels along with weather and wind files. FARSITE incorporates the existing models for surface fire, crown fire, spotting, and fire acceleration into a 2-dimensional fire growth model.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (≥5 Times/ Year)

TOOLS	How have you used each tool? *(Please circle one response for each product)*				
FDRPC – Fire Danger Rating Pocket Card for Firefighter Safety is for local or regional fire managers to prepare cards for distribution to firefighters.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
FEIS – The Fire Effects Information System is a computerized encyclopedia of information describing the fire ecology of more than 1,000 plant and animal species and plant communities.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
FFE-FVS – The Fire and Fuels Extension to FVS incorporates models of fuel dynamics, fire behavior and fire effects into the base model of forest stand development. Effects of timber harvest, fuel treatment, and fire on subsequent fuel dynamics, stand development, and potential fire intensity can be simulated for a period of decades.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
FireAway – A subset of the Behave software, plus some additional tools and calculations from the Fireline Handbook, that runs on a handheld Palm computer.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
FireDirect – Is mapping software from RedZone Software providing innovative GIS capabilities for agencies fighting fires in the Wildland/Urban Interface.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
Firefamily+ - FireFamily Plus is the new software for analyzing and summarizing historical weather observations and computing fire danger indices of the National Fire Danger Rating System (NFDRS).	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
fireLib – fireLib is a C function library for predicting the spread rate and intensity of free-burning wildfires.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)

TOOLS	How have you used each tool? (*Please circle one response for each product*)				
FIRES – Fire Information Retrieval and Evaluation System provides methods for evaluating the performance of fire danger rating indexes. The relationship between fire danger indexes and historical fire occurrence and size is examined through logistic regression and percentiles.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
FireTower – FireTower allows users to simulate the spread of fires through the landscape from digital earth images including, aerial photographs or satellite imagery, on color-enabled Macintosh and Power Macintosh computers.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
FIREWORKS – A portable trunk that contains educational materials for hands-on learning about how forest change over time, especially in relationship to fire. Provides curricula for all grade levels. For use by classroom teachers and agency staff.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
FMA_Plus – A software package designed to make life a lot easier for calculating DDWoody inventories, using digital photo series, calculating Crown Mass for fire behavior predictions, and allows the user to create their own fuel models to fit the local area.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
FOFEM – First Order Fire Effects Model is an easy-to-use computer program for predicting effects of prescribed fire and wildfire. FOFEM predicts fuel consumption, smoke production and tree mortality.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
I-SUITE – A group of applications for automating incident operation, using a centralized database of resources assigned to the incident.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
IIAA – Interagency Initial Attack Assessment is a tool used to develop budget requests as part of the National Fire Management Analysis System (NFMAS) process.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
KCFAST – KCFast is a menu-based computer application that simplifies data retrieval from the National Interagency Fire Management Integrated Database (NIFMID).	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)

TOOLS	How have you used each tool? (Please circle one response for each product)				

MfFSF – Meteorology for Fire Severity Forecasting includes monthly fire weather forecasts that can provide fire managers with a quick and easy planning tool. It is based on the monthly forecast of 700 millibar heights issued by the NWS Climate Analysis Center in Washington, DC.

Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)

NEXUS – NEXUS is an EXCEL spreadsheet that links surface and crown fire prediction models.

Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)

NFSPUFF – is a Smoke Dispersion Model. It is a screening/planning level dispersion model for smoke management in complex terrain. It models smoke emissions and trajectories using gridded wind fields and three dimensional terrain data.

Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)

PCDANGER – is a Personal Computer (PC) application of the National Fire Danger Rating System (NFDRS) which calculates both 1978 and 1988 version fire danger indexes form daily weather observations and forecasts.

Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)

PCHA – Personal Computer Historical Analysis is a Personal Computer (PC) program developed to complete the Historical Analysis required for the National Fire Management Analysis System (NFMAS). PCHA is a tool designed to help you analyze historical wildland fire occurrence for wildland fire planning.

Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)

PLUMP – Plump calculates plume rise from large fires, including pyrocumulus and cumulus growth without fire

Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)

RAfFS – Articles and information discussing recent fire research and its application to firefighter safety.

Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)

RERAP – Rare Event Risk Assessment Process is a Windows based program that helps calculate the information needed to manage prescribed fire and wildfires.

Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)

TOOLS	How have you used each tool? (Please circle one response for each product)				
SASEM – is a screening 1 planning level, Gaussian dispersion model designed to predict ground level particulate matter and visibility impacts from single sources in relative flat terrain in the western United States.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
SIAM – Structure Ignition Assessment Model assesses potential residential ignitions during wildland/urban interface (WUI) fires given a structure's materials and design and its exposure to flames and firebrands to produce an index of WUI ignition risk.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
SIS – Smoke Impact Spreadsheet for smoke dispersion and emissions information.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
TAC-PAC – is a comprehensive communications system integrated into a battery powered briefcase. Fire personnel can be in worldwide contact within 5 minutes of arrival at a remote site.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
VALBOX – Ventilated Valley Box Model is a screening model designed to predict ground level concentrations of particulate matter and gaseous pollutants under stagnation conditions in mountain valleys.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
Ventura_Tools – A complete set of ArcView 3.2 extensions to create and edit critical incident data. After the data has been developed a quick map layout tool is employed to create IAP, Planning and Public Display Maps.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
WFAS – Wildland Fire Assessment System is an internet-based system that provided national fire potential and weather maps.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)
WFAS_Plus98 – is a software package designed to assist managers in developing and documenting the Wildland Fire Situation Analysis and Wildland Fire Use assessments and plans.	Not Aware Of It	Aware Of, But Have Not Used It	Have Downloaded and used it- Will Never Use Again	Used Occasionally (<5 Times/ Year)	Used Frequently (>5 Times/ Year)

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16. List the **one tool** from the above list that you have used the most often. The tool I use most often is:

_____

17. Does the information currently available on FMTO help you compare tools?

____ Yes   ____ No   If No, please specify why not. _____

_____

_____

18. For each tool at the FMTO website there is a link to "Brief Information" that describes the tool. Is the information in this section sufficient for you to make a decision about whether or not to use the tool?

____ Yes   ____ No   If No, please describe why not. _____

_____

19. For some tools on the FMTO website there is a link to "Detailed Information" that describes the tool. Have you found this information useful for deciding whether or not to use the tool?

____ Yes   ____ No   If No, please describe why not. _____

_____

20. As a tool user, do you think the "Brief Information" and "Detailed Information" sections are both necessary for potential tool users?

____ Yes   ____ No   If No, please describe why not. _____

_____

21. Are there other electronic tools that you use in your work, but are not on the FMTO website?

____ Yes   ____ No   If Yes, please specify _____

_____

22. Are there electronic tools that you have heard about, but have not tried because they are not readily available?

____ Yes   ____ No   If Yes, please specify _____

_____

23. Please list up to 5 items of information that you need to know before you decide whether or not you are going to use an electronic tool.

J. _____

K. _____

L. _____

M. _____

N. _____

24. The following is a list of the information available under the "Brief Information" and "Detailed Information" forms about each tool on FMTO. Please circle the number that best represents how valuable this information is to you.

Tool Information Heading	Value to You			
	Extremely Valuable	Quite Valuable	Moderately Valuable	Not Valuable
What is it?	4	3	2	1
What type of information will you find?	4	3	2	1
How can it help you?	4	3	2	1
Contact / Developer name	4	3	2	1
Model / System	4	3	2	1
Description / Overview / Features	4	3	2	1
Applications / Potential Users / Capabilities / Goals	4	3	2	1
Scope / Primary Geographic Application	4	3	2	1
Input Variables / Data Requirements	4	3	2	1
Output / Products / Performance	4	3	2	1
Advantages / Benefits	4	3	2	1
Disadvantages	4	3	2	1
System / Computer Requirements	4	3	2	1
System Support / Tech Support	4	3	2	1
User Support / Manuals / Guides	4	3	2	1
References	4	3	2	1
Development Status	4	3	2	1

ADDITIONAL COMMENTS

Thank you. We would appreciate any additional comments you have. Please use the space below.
If you wish to contact us later you may either e-mail us at feedback@frames.gov or contact:

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Appendix H

USGS Policy on Information Collection

Personal communication from Lisa Zolly, USGS Center for Biological Informatics

From USGS Intranet

  To minimize the paperwork burden imposed on the public, Federal agencies are required to obtain Office of Management and Budget approval for information collections. Generally an "information collection" means the obtaining or soliciting of information by an agency from 10 or more persons by means of identical questions.

U.S. Geological Survey Manual
431.10 - Information Collection Requirements

6/30/89

OPR: Admin/Facilities and Management Services

1. Purpose. The purpose of this chapter is to establish the policy, responsibilities and procedures for controlling the paperwork burden imposed on the public by the U.S. Geological Survey.

2. Authority.

A. Paperwork Reduction Act of 1980 (44 U.S.C. 3501-3520).

B. 5 CFR 1320 (Information Collection).

C. Departmental Manual (381 DM 11 and 12, Information Collection Program Requirements and Clearance Procedures for Information Collections).

3. Definitions. For the purpose of this chapter the following words are defined:

A. Information Collection means the obtaining or soliciting of information by an agency from 10 or more persons by means of identical questions, whether the collection is mandatory, voluntary, or required to obtain a benefit. The "obtaining" or "soliciting" of information includes any requirement or request for persons to obtain, maintain, retain, report, or publicly disclose information.

B. Burden means the total time, effort, or financial resources required to respond to an information collection, including that needed to read or hear instructions; to develop, modify, or assemble any materials or equipment; to conduct tests, inspections, polls, observations, or the like, necessary to obtain the information; to organize the information into the requested format; to review its accuracy and the appropriateness of its manner of presentation; and to maintain, disclose, or report the information.

C. Person means an individual, partnership, association, corporation, business trust, or legal representative; an organized group of individuals, a State, territorial, or local government or branch thereof; or a political subdivision of a State, territory, or local government. Current employees of the Federal Government are excluded from this definition for purposes of the information collection within

the scope of their employment.

D. Information Collection Budget (ICB) refers to the planning document required by the Office of Management and Budget (OMB) for information collection activities. The budget is compiled every year based on instructions provided by OMB. Individual information collections are listed separately along with the estimated burden associated with each.

E. Information Collection Clearance Officer (ICCO) means the information collection clearance officer for the U.S. Geological Survey.

4. Policy. It is USGS policy to ensure that information collections are structured so that the burden on the public is kept to a minimum. The burden associated with each information collection must be allowed for in the annual ICB. No office may collect or sponsor an information collection from 10 or more persons unless it is essential to a program, and the information collection has been approved by OMB.

5. Responsibilities.

A. The Assistant Directors/Division Chiefs are responsible for:

(1) Implementing the procedures as outlined in this chapter.

(2) Ensuring that information collections imposed on the public are submitted to the Information Collection Clearance Officer (ICCO) for OMB approval.

B. The Congressional Liaison Office will ensure that legislative proposals initiated by the USGS containing information collection requirements are submitted to the ICCO for OMB approval.

C. The Chief, Office of Facilities and Management Services, Administrative Division, has staff responsibility for the USGS ICB process and will:

(1) Ensure implementation of an effective information collection program and compliance with OMB and Department requirements.

(2) Designate an ICCO and alternate with responsibilities for development and management of the program and report these designations to the Chief, Division of Directives and Regulatory Management, at the Department.

D. The Information Collection Clearance Officer (ICCO) is responsible for:

(1) Establishing procedures for the systematic review of existing and proposed information collection requirements, including any requirements which would be imposed by any legislative proposals initiated by the USGS.

(2) Disseminating to the appropriate program officials within the USGS all instructions received from the Department relative to information collection.

(3) Responding to questions from USGS program officials about the requirements of the Paperwork Reduction Act or the information collection clearance process.

(4) Reviewing all clearance packages originating in the USGS for conformance to OMB and departmental guidelines.

(5) Consolidating, reviewing, and ensuring the accuracy and completeness of the annual ICB submission.

(6) Monitoring clearance requests throughout the year to ensure that requests do not cause the USGS to exceed the ceiling established by OMB.

(7) Reviewing all proposed and final rule-making documents to ensure that any information collection requirements they contain are submitted to OMB for clearance.

6. Procedures. When an information collection is being planned, consult immediately with the ICCO, Office of Facilities and Management Services, Paperwork Management Section. All information collection clearance packages must be submitted to the ICCO for review and subsequent transmittal to OMB through appropriate channels.

7. Reporting Requirements.

A. Upon OMB approval of the information collection, the program official will, within 30 days, forward a copy of each form/format involved to the ICCO for transmittal to the Department.

B. The ICCO will maintain the information collection official file. This file must be maintained for 2 years after the expiration of the OMB clearance.