2013 Annual Report

University of Idaho
College of Natural Resources

2013 Annual Report

Fire Research And Management Exchange System (FRAMES)

www.frames.gov

Project Title: Ongoing Maintenance and Development of the Fire Research and Management Exchange System (FRAMES)

Agreement: 12-JV-11221637-143

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Reporting Period: January 1, 2013 – December 31, 2013

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All Photography by Karen Wattenmaker

Introduction

Introduction

The close of 2013 marks the eleventh anniversary of the Fire Research And Management Exchange System (FRAMES). The construction of FRAMES began in 2002 at the University of Idaho (UI) with funding support from the US Forest Service's Missoula Fire Lab in response to the need for cataloging and organizing wildland fire tools, data, and documents into a single system. Following the 1999 Joint Fire Science Program's (JFSP) conference and workshop entitled, "Crossing the Millennium: Integrating Spatial Technologies and Ecological Principles for a New Age in Fire Management" there was a clear need for managing what was described as a "deluge of data" and other information that would become increasingly available in the 21st century to wildland fire and other natural resource managers. FRAMES was proposed as a mechanism for ongoing information exchange and technology transfer between the wildland fire management and research communities.

In 2006, an interagency interim steering committee made up of representatives who had invested in FRAMES formed to determine next steps. With support from the US Forest Service and US Geological Survey's Core Science Analytics and Synthesis Program (USGS / CSAS), the Keystone Center facilitated the development of the FRAMES Strategic Plan (2007-2012), which emerged from over 100 telephone interviews and an online survey of fire and natural resource professionals.

The broad vision described in the strategic plan focuses on developing a national wildland fire informatics system and clearinghouse that organizes, synthesizes, evaluates, distributes, tracks use, and measures the efficacy of wildland fire and fire- related information and technological resources[1]. To implement this vision, the FRAMES mission is to support wildland fire and natural resource professionals and policymakers by promoting and facilitating information and technology sharing, exchange, collaboration, and development through a state-of-the-art web-based content management system and resource cataloging system. The use of FRAMES information technologies is intended to help eliminate redundancy, reduce costs, and promote increased productivity and efficiency for the professionals responsible for wildland fire and fire- related research and management.

In 2008 the Wildland Fire Science Partnership (WFSP) was formed among the US Forest Service's Rocky Mountain Research Station (RMRS), the UI, and the University of Montana (UM). The WFSP brings together programs established at each of the three partner institutions including FRAMES and the Wildland Fire Program (UI); the National Center for Landscape Fire Analysis (UM); the Missoula Fire Sciences Laboratory's Fire, Fuel & Smoke Science Program (RMRS); and the Wildland Fire Management Research, Development, & Application (WFMRDA) Program (RMRS). This University - Forest Service partnership was created to "improve the management of wildland fire by integrating science, technology, education, and practical experience[2]." The stated goals of the partnership are to:

- Increase core fire and fuel science and measurement capabilities for the improvement of resource management and fire planning.
- Produce timely, reliable, and consistent fire and fuel information for resource managers to assess and implement decisions at a landscape scale.
- Increase access to critical data and applications to support documentation, implementation, and review of decisions and accomplishments.
- Develop the skills and capabilities of future fire managers by providing experiential education, research opportunities, access to relevant science data, applications, and training[3].

The WFSP merges capabilities and capacities across state and federal agencies and unites them in a common cause. FRAMES contributes to the partnership by providing the technological capacity and resources for the WFSP to web-deliver the products that are stated in the WFSP Charter. FRAMES benefits from the collective knowledge, content, and stability that the partnership provides. Another significant collaboration is with the National Interagency Fuels Tech-

1 Text is from the FRAMES Strategic Plan 2007-2012.
2 Quote is from the Wildland Fire Science Partnership Charter 2009.
3 Goals are taken from Wildland Fire Science Partnership Charter 2009.

nology Transfer team (NIFTT), which operates under the Wildland Fire Management RD&A and is an active partner in FRAMES. NIFTT's mission is to assist land managers in the implementation of effective fuels, fire, and vegetation management technology for addressing risks to severe fire behavior & fire effects to restore healthy ecological systems. The current focus is upon online training. FRAMES and the UI Wildland Fire Program are uniquely qualified to expand online training for wildland fire and other natural resource professionals. Together with the RMRS Wildland Fire Management RD&A Program, FRAMES and NIFTT can further help provide a bridge between wildland fire research and management communities and make sure that the best science is available for managers to make decisions.

FRAMES relies on information technology resources and support from UI through the Northwest Knowledge Network (NKN) (www.northwestknowledge.net), a program operated out of the UI Office of Research and Economic Development (ORED).

Until and unless further integration within existing wildland fire federal programs occurs, FRAMES development and management continues to be guided by the original FRAMES Strategic Plan (2007-2012). The Plan identifies programmatic and organizational goals that emphasize six principal areas of effort including:

Programmatic Goals

1. Provide Content and Increase Content Utility. Develop a rich and usable base of content that is useful to wildland fire and natural resource professionals and policymakers.

2. Expand Services and Increase User Base. Identify opportunities to work with wildland fire and natural resource professionals (i.e., managers, practitioners, and researchers) to develop customized services that are complementary with the FRAMES informatics architecture and that target their common technology transfer and science delivery needs.

3. Increase Name Recognition and Program Awareness: Develop marketing materials for outreach and cultivate relationships with agencies and potential FRAMES users and contributors.

4. Maintain and Upgrade the Infrastructure. Build a technological infrastructure that can support wildland fire and fire-related informatics.

Organizational Goals

5. Ensure Financial Support. Determine staffing requirements and develop a sustainable system of financial support to ensure that FRAMES remains viable.

6. Provide Responsive Governance and Management. Establish a long-term plan for governance and accountability for the management and implementation of FRAMES.

This report summarizes activities and accomplishments for the calendar year of 2012. Additional details about FRAMES can be found at www.frames.gov.

Overview

FRAMES continues to expand and provide content to managers and researchers with the goal of making the content easier to find, access, distribute, compare, and use. Over the years FRAMES has made a significant investment in developing a comprehensive standards-based system of cataloging called the Resource Cataloging System (RCS). The FRAMES RCS is a tool for wildland fire and other natural resource professionals to access information cataloged about wildland-fire related resources, and also to enter/catalog resources. Version 2.0 (RCS v2) has been in operation since 2008. The catalog entry interface is currently restricted to FRAMES staff, as it was developed for "in-house" use rather than for release to other content providers. FRAMES staff continue to 1) catalog new content and 2) work with researchers and managers to make sure that appropriate edits are made to existing content. During 2010, FRAMES contracted with the Science Applications International Corporation (SAIC), and then proceeded to work with SAIC during 2011 to develop the specifications for Version 3.0 (RCS v3). Currently, the development of RCS v3 is scheduled to be performed by FRAMES and NKN staff during 2014. RCS v3 will enable all FRAMES partners to directly contribute content to the system. They will be able to create and edit records. Online help and tutorials will be available for partners to get answers to their questions and learn at their own pace how the catalog system works.

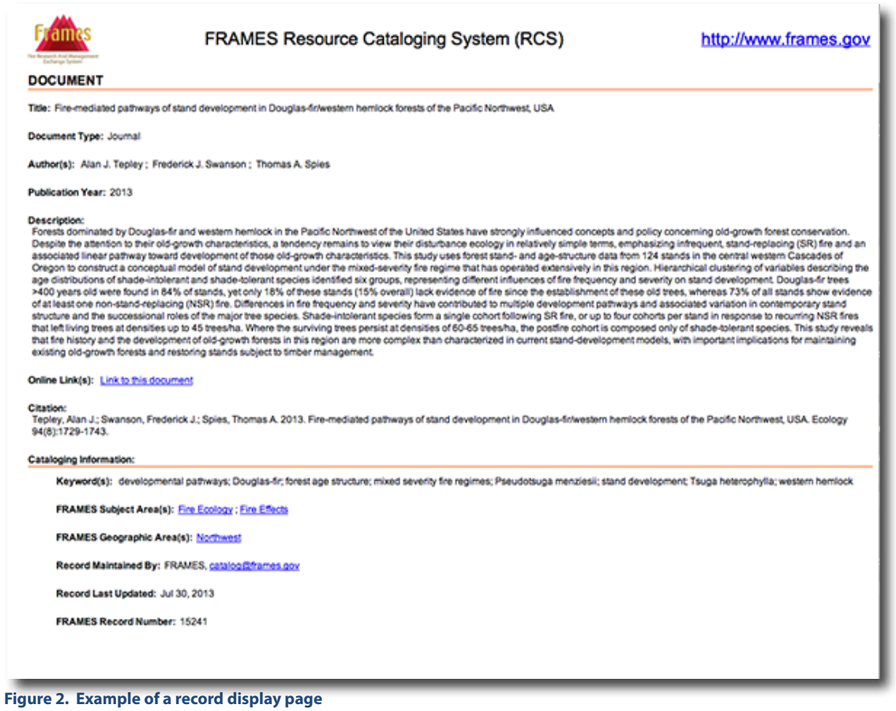
In the RCS there are six resource groups: Projects, Tools (including models), Documents, Web Pages, Data, and Programs (organizations). We are now also cataloging videos and webinar recordings, which will form the foundation of a 7th "Media" resource group in RCS v3. The RCS, particularly the information about documents and data, is based upon established metadata standards, and in the next version (RCS v3) users will have the ability to export records in formats following metadata standards such as Dublin Core (web metadata standard), Federal Geographic Data Committee (FGDC, spatial metadata standard), and Machine-Readable Cataloging (MARC, a bibliographic standard). Additional metadata standards are under consideration for inclusion. By developing a cataloging system that integrates information about multiple types of resources (e.g., broader than just publications or datasets), we are able to provide information about relationships between resources, such as when a project produces a tool, is described by a document, and its associated dataset, etc. Each of these records can be related to one another.

There are four main components to the RCS: 1) online Resource Cataloging Tool; 2) Resource Catalog Database; 3) record display pages; 4) search/browse functionality. Information is entered into the catalog through the Resource Cataloging Tool. Information about a resource is entered through the online user interface to create a record for that resource. Controlled terms, such as Subject Areas (synonymous with Topic on the main website), Geographic Areas (synonymous with Region), Partner Sites, and

Figure 1. Online catalog record review screen

Collection are associated with each record, as well as other uncontrolled Key Words. And as appropriate, spatial bounding box coordinates can be entered for a record.

In RCS v2, data from certain key fields in the Resource Catalog Database (a Microsoft SQL Server 2008 database) are exported nightly in order to generate, modify, or delete html pages (display records) based on cataloging activity from that previous day. Data from certain fields tagged within each record are then crawled (nightly, as well) into search indices developed by FRAMES staff, utilizing the DBSight database search platform. These indices can then be searched by clicking on the Search tab near the upper right of most FRAMES pages, or browsed by topic or region (look for the "Cataloged Resources" tab midway down the Topic and Region pages)



FRAMES Resource Cataloging System (RCS) http://www.frames.gov

DOCUMENT

Title: Fire-mediated pathways of stand development in Douglas-fir/western hemlock forests of the Pacific Northwest, USA

Document Type: Journal

Author(s): Alan J. Tepley ; Frederick J. Swanson ; Thomas A. Spies

Publication Year: 2013

Description:
Forests dominated by Douglas-fir and western hemlock in the Pacific Northwest of the United States have strongly influenced concepts and policy concerning old-growth forest conservation. Despite the attention to their old-growth characteristics, a tendency remains to view their disturbance ecology in relatively simple terms, emphasizing infrequent, stand-replacing (SR) fire and an associated linear pathway toward development of those old-growth characteristics. This study uses forest stand- and age-structure data from 124 stands in the central western Cascades of Oregon to construct a conceptual model of stand development under the mixed-severity fire regime that has operated extensively in this region. Hierarchical clustering of variables describing the age distributions of shade-intolerant and shade-tolerant species identified six groups, representing different influences of fire frequency and severity on stand development. Douglas-fir trees >400 years old were found in 84% of stands, yet only 18% of these stands (15% overall) lack evidence of fire since the establishment of these old trees, whereas 73% of all stands show evidence of at least one non-stand-replacing (NSR) fire. Differences in fire frequency and severity have contributed to multiple development pathways and associated variation in contemporary stand structure and the successional roles of the major tree species. Shade-intolerant species form a single cohort following SR fire, or up to four cohorts per stand in response to recurring NSR fires that left living trees at densities up to 45 trees/ha. Where the surviving trees persist at densities of 60-65 trees/ha, the postfire cohort is composed only of shade-tolerant species. This study reveals that fire history and the development of old-growth forests in this region are more complex than characterized in current stand-development models, with important implications for maintaining existing old-growth forests and restoring stands subject to timber management.

Online Link(s): Link to this document

Citation:
Tepley, Alan J.; Swanson, Frederick J.; Spies, Thomas A. 2013. Fire-mediated pathways of stand development in Douglas-fir/western hemlock forests of the Pacific Northwest, USA. Ecology 94(8):1729-1743.

Cataloging Information:

Keyword(s): developmental pathways; Douglas-fir; forest age structure; mixed severity fire regimes; Pseudotsuga menziesii; stand development; Tsuga heterophylla; western hemlock

FRAMES Subject Area(s): Fire Ecology : Fire Effects

FRAMES Geographic Area(s): Northwest

Record Maintained By: FRAMES, catalog@frames.gov

Record Last Updated: Jul 30, 2013

FRAMES Record Number: 15241

Figure 2. Example of a record display page

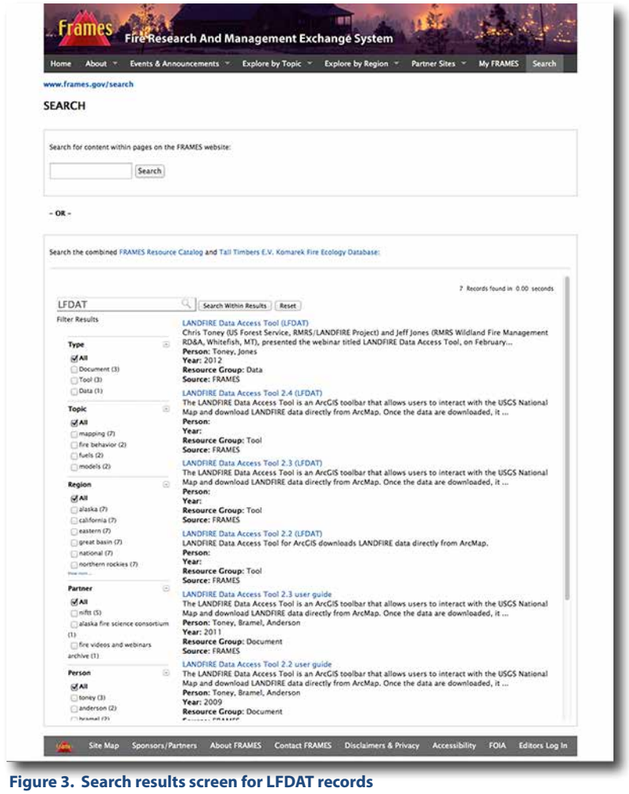
RCS Update, Status, and Next Steps

The RCS v2 infrastructure remained stable during 2013, with a few improvements made to the functionality of the search interface.

As described earlier, specifications for RCS v3 were developed through a contract with SAIC. We will continue to use RCS v2 to catalog and display resources until RCS v3 is constructed. Construction of RCS v3 is expected to begin during the spring of 2014 in collaboration with NKN staff. Numerous improvements are planned, including a more user-friendly online cataloging tool that will incorporate a cataloging management hierarchy and workflow. This will allow a topic, partner or regional content manager to designate a number of catalogers that would submit records to them for review. The content manager would then either determine whether the record will be published, returned for improvement, clarification, etc. All of the cataloger access permissions would be administered through an integrative user account management system that will be used by FRAMES and others.

CONTENT: Resource Cataloging System (RCS)

As during other years, much of the effort dedicated to the RCS during 2013 was related to the ongoing cataloging of resources suggested by FRAMES partners and users, and also resources identified by FRAMES staff. This includes (but is not limited to) scanning numerous journals, a variety of agency and university fire research websites, and the JFSP regional consortia websites. Additionally, we have focused on cataloging the prolific number of webinars and videos produced by the JFSP and its regional consortia, the International Association of Wildland Fire, the Lessons Learned Center, as well as recordings of recent conference sessions hosted by NIFTT and LANDFIRE.



Frames Fire Research And Management Exchange System

Home | About | Events & Announcements | Explore by Topic | Explore by Region | Partner Sites | My FRAMES | Search

www.frames.gov/search

SEARCH

Search for content within pages on the FRAMES website:

Search

– OR –

Search the combined FRAMES Resource Catalog and Tall Timbers E.V. Komarek Fire Ecology Database:

7 Records found in 0.00 seconds

LFDAT | Search Within Results | Reset

Filter Results

Type: All; Document (3); Tool (3); Data (1)

Topic: All; mapping (7); fire behavior (2); fuels (2); models (2)

Region: All; alaska (7); california (7); eastern (7); great basin (7); national (7); northern rockies (7)

Partner: All; nifti (5); alaska fire science consortium (1); fire videos and webinars archive (1)

Person: All; toney (3); anderson (2); bramel (2)

LANDFIRE Data Access Tool (LFDAT)
Chris Toney (US Forest Service, RMRS/LANDFIRE Project) and Jeff Jones (RMRS Wildland Fire Management RD&A, Whitefish, MT), presented the webinar titled LANDFIRE Data Access Tool, on February...
Person: Toney, Jones
Year: 2012
Resource Group: Data
Source: FRAMES

LANDFIRE Data Access Tool 2.4 (LFDAT)
The LANDFIRE Data Access Tool is an ArcGIS toolbar that allows users to interact with the USGS National Map and download LANDFIRE data directly from ArcMap. Once the data are downloaded, it ...
Person:
Year:
Resource Group: Tool
Source: FRAMES

LANDFIRE Data Access Tool 2.3 (LFDAT)
The LANDFIRE Data Access Tool is an ArcGIS toolbar that allows users to interact with the USGS National Map and download LANDFIRE data directly from ArcMap. Once the data are downloaded, it ...
Person:
Year:
Resource Group: Tool
Source: FRAMES

LANDFIRE Data Access Tool 2.2 (LFDAT)
LANDFIRE Data Access Tool for ArcGIS downloads LANDFIRE data directly from ArcMap.
Person:
Year:
Resource Group: Tool
Source: FRAMES

LANDFIRE Data Access Tool 2.3 user guide
The LANDFIRE Data Access Tool is an ArcGIS toolbar that allows users to interact with the USGS National Map and download LANDFIRE data directly from ArcMap. Once the data are downloaded, it ...
Person: Toney, Bramel, Anderson
Year: 2011
Resource Group: Document
Source: FRAMES

LANDFIRE Data Access Tool 2.2 user guide
The LANDFIRE Data Access Tool is an ArcGIS toolbar that allows users to interact with the USGS National Map and download LANDFIRE data directly from ArcMap. Once the data are downloaded, it ...
Person: Toney, Bramel, Anderson
Year: 2009
Resource Group: Document

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Figure 3. Search results screen for LFDAT records

RCS Metrics

There were over 44,000 records in the RCS at the end of 2013, with over 2,800 new records added from January 2013 through December 2013 -- 2,096 documents, 352 projects, 318 videos/webinars, 20 web pages, and 17 tools (56 existing tool records were also updated). FRAMES is also providing access to the Tall Timbers E.V. Komarek Fire Ecology database which includes over 29,000 records.

In 2013 FRAMES began sharing our RCS database with the Northern Rockies Fire Science Network (NRFSN) for their regional records catalog. We hope to merge systems once RCSv3 is in place.

CONTENT: FRAMES Homepage

Overview

The FRAMES Home page provides an overview of content and collaboration services provided through FRAMES. Specifically, it describes how content display is structured (by accessing topic areas, geographic regions, and partner websites). It also provides access to announcements regarding current job postings, upcoming conferences, training opportunities, and other general activities that are of interest to wildland fire and natural resource professionals. From the home page users can link to MyFRAMES, where they can access a suite of collaboration services. The home page is also used to highlight new partner activities, resources, and provide access to their websites. Additionally, users can select the Search tab from the home page to search the FRAMES website and access content in the FRAMES RCS.

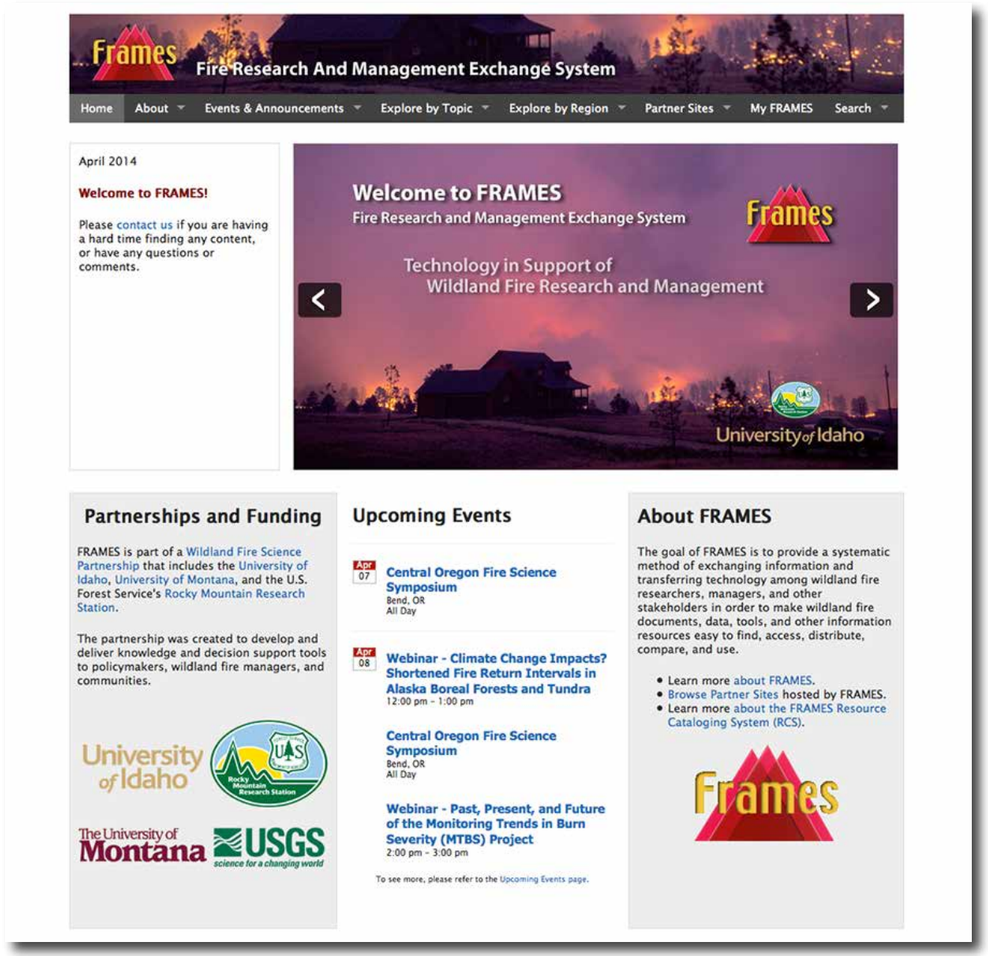


Figure 4. FRAMES home page

CONTENT: Topic Areas

Overview

FRAMES topic areas contain information relevant to topics of interest within the wildland fire community. FRAMES identifies 26 topics reflecting categories originally proposed by wildland fire researchers and as part of a draft of the National Wildland Fire Enterprise Architecture developed by the National Wildland Fire Coordinating Group (NWCG). The goal of FRAMES is to have the topic areas be collaborative spaces for content providers and content users, managed by subject matter experts. Two topic areas are currently being managed by subject matter experts (emissions and smoke, fire history). The remaining topic areas provide access to standardized content (events, announcements, and cataloged resources) targeted to the topic area. Related FRAMES partner pages are also linked to the various topic areas. Ongoing activities related to the topic areas included posting events and announcements targeted to the various topic areas, as well as cataloging relevant resources.

The current topic areas are: administration, aviation, climate, communications, economics, emissions & smoke, fire behavior, fire ecology, fire effects, fire history, fire occurrence, fire prevention, fuels, hazard & risk, intelligence, logistics, mapping, models, monitoring & inventory, outreach, planning, prescribed fire, regulations & legislation, restoration & rehabilitation, safety, and weather.

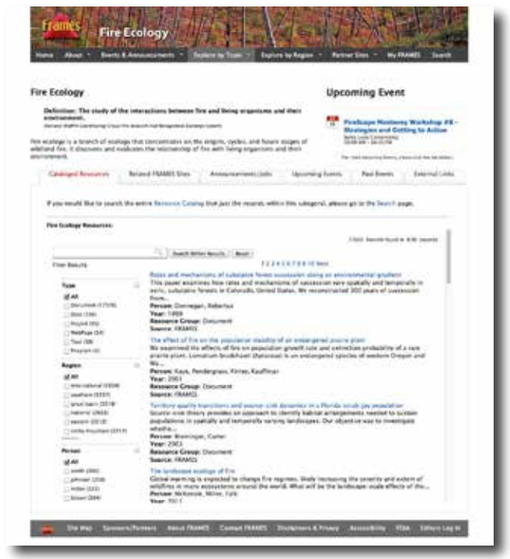
Proposed topic areas include: aquatic and social sciences.

Update

In 2013 National Wildfire Coordinating Group's (NWCG) Smoke Committee (SmoC), FRAMES, and UI faculty and researchers continued to collaborate on the growth and development of the FRAMES Emissions & Smoke Portal (www.frames.gov/smoke), making available a range of educational materials on air quality and smoke management. Offerings include online learning modules, an air quality library, a smoke perceptions section, recorded presentations and videos, over 3,000 cataloged records specific to emissions and smoke, and the Smokepedia online glossary. Representatives of the NWCG Smoke Committee actively manage the emissions and smoke subject area pages and content.

Topic Areas Next Steps

Efforts are ongoing to partner with subject matter experts willing to assume the role of content manager for each topic area.



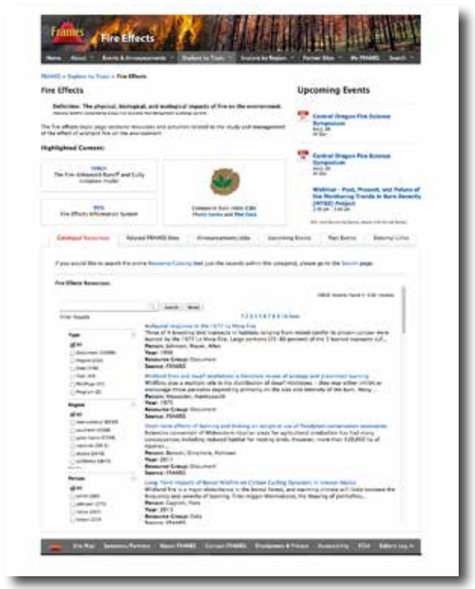


Figure 5. Fire Ecology and Fire Effects Topic Area pages

Overview

Within the FRAMES Geographic Regions, wildland fire content is aggregated at a geographic level relevant to wildland fire management. The FRAMES Geographic Regions correspond to the boundaries of the 11 Geographic Area Coordinating Centers (GACC) designated by the National Interagency Fire Center (NIFC). FRAMES has combined the California North Ops GACC and the California South Ops GACC into the California Fire Portal, and combined the West Basin GACC and the East Basin GACC into the Great Basin Fire Portal (resulting in 9 geographic area fire portals). Therefore the nine fire portals on FRAMES are: Alaska, California, Eastern, Great Basin, Northern Rockies, Northwest, Rocky Mountain, Southern, and Southwest. Each FRAMES regional fire portal provides an opportunity for collaboration between researchers and managers located within that particular region. FRAMES is working with regional researchers and managers (including some of the JFSP Regional Consortia) to provide access to geographically- based and nationally relevant data, documents, and tools. The regional portals provide access to standardized content (events, announcements, and cataloged resources) targeted to the region. Related FRAMES partner pages are also linked to the various regional portals, and links to relevant external websites are also provided (including highlights for the JFSP consortia relevant to the region).

Update

During 2013, FRAMES continued to provide web support for the JFSP-funded Alaska Fire Science Consortium (AFSC; akfireconsortium) and the Southern Rockies Fire Science Network (SRFSN; srockiesfsn). FRAMES also continued to provide the Southwest Fire Science Consortium (SWFSC) with customized access to the RCS (www.frames.gov/swfsc_searches) and also archived lessons learned videos developed by the SWFSC. FRAMES content specialists continued to scan the other JFSP regional consortia websites to catalog relevant resources and post events and announcements. FRAMES continued its partnership with the Tall Timbers Research Station (TTRS), a key Southern Fire Exchange (SFE) partner, by providing access to the E.V. Komarek Fire Ecology Database (www.frames.gov/ttrs). And as described earlier, FRAMES is directly sharing the RCS database with the NRFSN, specifically by exporting all records relevant to the Northern Rockies and Great Basin regions. The NRFSN is importing these records into their catalog. Our goal is to merge our cataloging systems once RCSv3 is in place.

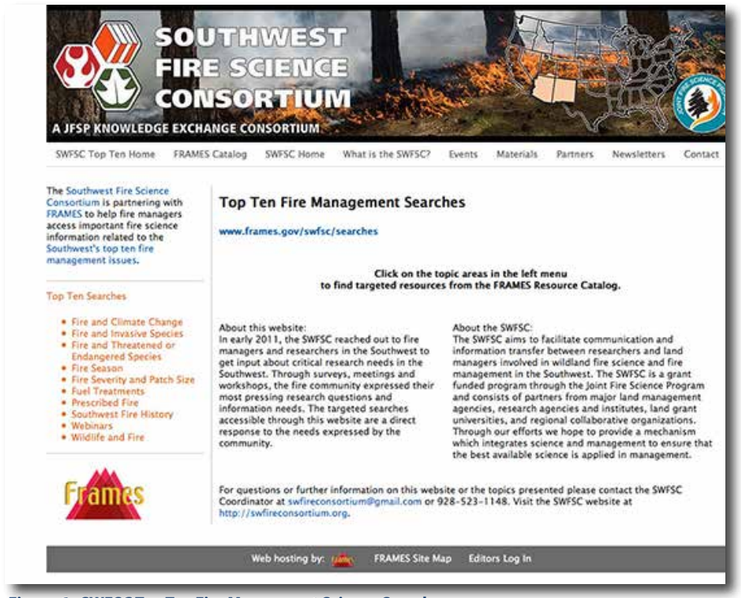


Figure 6. SWFSC Top Ten Fire Mangement Science Searches

CONTENT: Geographic Regions

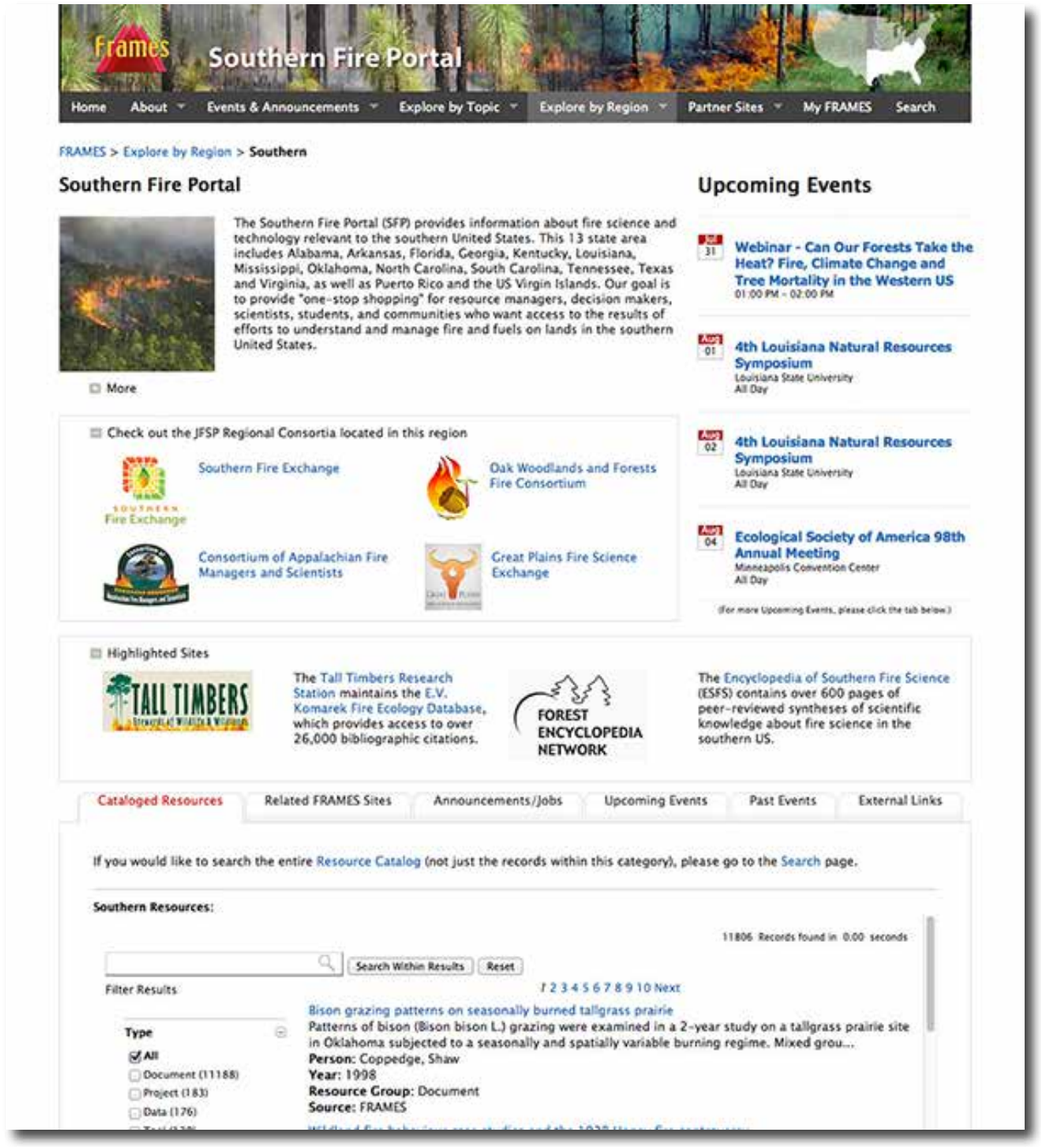


Figure 7. Southern Fire Portal home page

Overview

FRAMES provides ongoing web hosting and online collaboration services to numerous partners. These services may include: 1) hosting a public site, 2) hosting an online collaboration community (login required), 3) posting and cataloging partner resources such as tools, videos, tutorials, data, databases, and documents. FRAMES also provides portal support, web design, marketing support, and online training support for partners.

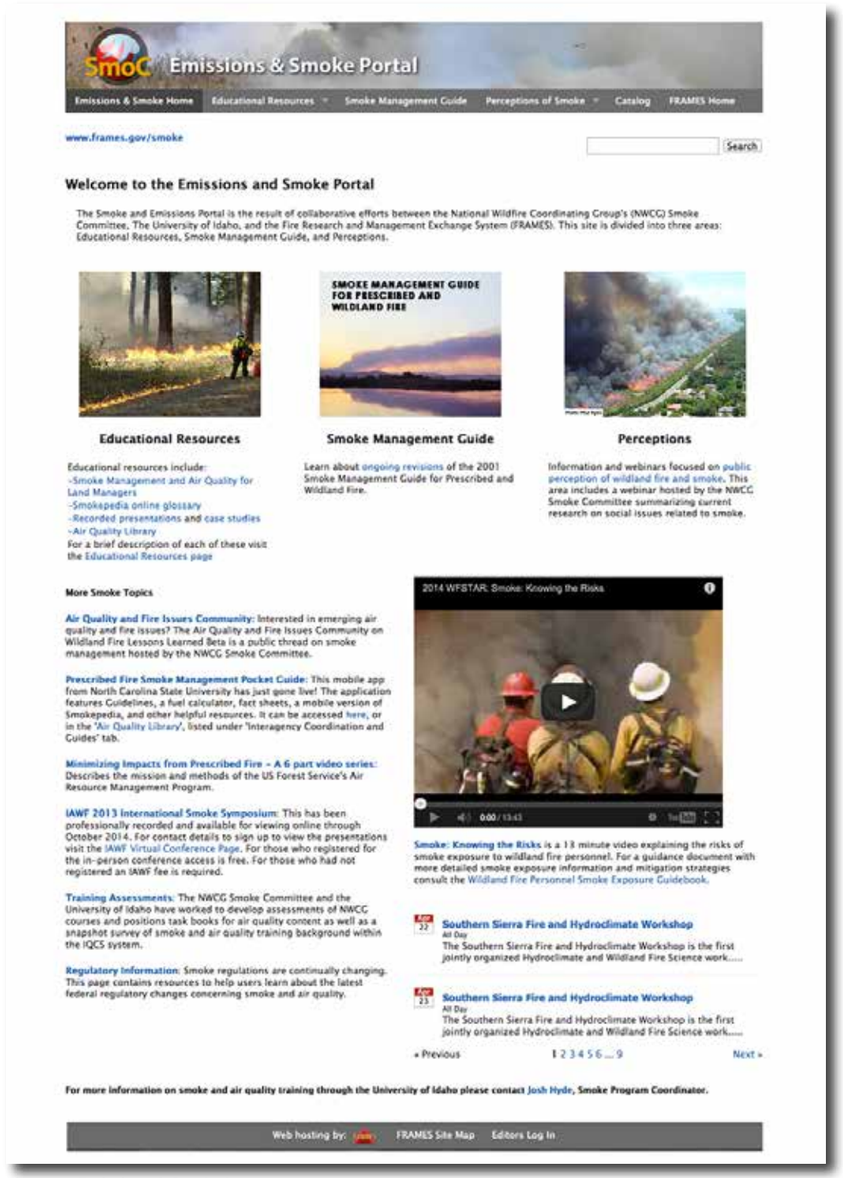


Figure 8. Emissions & Smoke home page

CONTENT: Partner Sites

Update

FRAMES added four new partners in 2013 – ArcBurn, IFIRE, FIRETEC, and WFSP Recordings – creating a total of 23 partners using FRAMES to host their public websites or content of special importance.

Alaska Fire Science Consortium (AFSC) – A JFSP regional consortium formed to promote communication between managers and scientists and to provide a science delivery platform. www.frames.gov/afsc

Applied Fire Behavior – Publications related to wildland fire behavior and fire danger rating authored or co-authored by Dr. Martin E. Alexander, with specific emphasis on publications related to the Canadian Forest Fire Danger Rating System (CFFDRS), the Crown Fire Initiation and Spread (CFIS) System, and the International Crown Fire Modeling Experiment (ICFME). It provides access to the CFIS software tool itself. www.frames.gov/applied_fire_behavior

ArcBurn – The ArcBurn project is designed to integrate cultural resources information into fire management decision processes. This extends beyond NHPA compliance and requires a collaborative approach among fire scientists, forest ecologists, archaeologists, and fire managers to ensure that the best science is effectively and appropriately used to guide management plans; and that these plans are defensible and reasonable under dynamic environmental conditions. One objective of the project is to quantify the direct effects of heat treatment (e.g. wildfires) and the indirect effects of wildfires (e.g. erosion) on prehistoric cultural resources including stone tool (lithic) assemblages, ceramics, and architectural stone. www.frames.gov/arcburn

Assessing Burn Severity (ABS) – The JFSP funded the Rapid Response project "Assessing the Causes, Consequences and Spatial Variability of Burn Severity" to be conducted during and after active fire incidents. The project's goal was to investigate the spatial variability in fire effects and to explore relationships between burn severity and fuels, fire behavior, local weather, and topography. www.frames.gov/burnseverity

Emissions & Smoke Portal – The Emissions and Smoke Portal is the result of collaborative efforts between the National Wildfire Coordinating Group's (NWCG) Smoke Committee (SmoC), The University of Idaho, and FRAMES. It provides access to information about smoke and emissions from wildland fire, including the online Smoke Management and Air Quality for Land Managers online tutorial. The site is divided into three areas: Educational Resources, Smoke Management Guide, and Perceptions. In 2013 SmoC, FRAMES, and UI faculty and researchers continued to collaborate on the growth and development of the FRAMES Emissions & Smoke Portal, making available a range of educational materials on air quality and smoke management. Offerings include online learning modules, an air quality library, a smoke perceptions section, recorded presentations and videos, over 3,000 cataloged records specific to emissions and smoke, and the Smokepedia online glossary. Representatives of the NWCG Smoke Committee actively manage the emissions and smoke subject area pages and content. www.frames.gov/smoke

Extreme Fires Portal – The Extreme Fires Portal is a result of the collaborative efforts of the University of Idaho, Washington State University, USDA Forest Service, Michigan Technological University, and the Fire Research and FRAMES. The portal is a source of information about the ongoing NASA-funded research project, "Quantifying the characteristics and investigating the biogeoscientific and societal impacts of extreme wildland fires in the United States northern Rockies region." www.frames.gov/extremefires

FFI: Ecological Monitoring Utilities – FFI (FEAT/FIREMON Integrated) is a plot-level monitoring software tool designed to assist managers with collection, storage, and analysis of ecological information. It was constructed through a complementary integration of the Fire Ecology Assessment Tool (FEAT) and FIREMON. FFI is funded by the Fuels Management Committee, National Park Service and US Forest Service, and is being developed in cooperation with Systems for Environmental Management and Axiom IT Solutions. www.frames.gov/ffi

Fire and Fire Surrogates (FFS) Study – FFS was a national JFSP study to assess the effects of fire and fire surrogate fuel treatments, specifically, quantifying the costs and ecological consequences of alternative fire and fire surrogate restorative treatments in a number of forest types and conditions across the US. www.frames.gov/ffs

Fire History Analysis and Exploration System (FHAES) – FHAES is the result of an effort to redevelop and enhance components of the FHX2 computer program, originally a DOS-based program considered to be the standard for fire history analysis. FHAES is a web-based design that is user-friendly and easily accessible to a broad range of users. While the FHAES website is hosted by FRAMES, it is managed by Elaine Kennedy Sutherland (Rocky Mountain Research Station, US Forest Service), M. Elena Velásquez (Boise State University) and Peter Brewer (Laboratory of Tree-Ring Research, University of Arizona). www.frames.gov/fhaes

Fire Effects Monitoring and Inventory Protocol (FIREMON) – FIREMON is an agency independent plot level sampling system designed to characterize changes in ecosystem attributes over time. The system consists of a sampling strategy manual, standardized sampling methods, field forms, Access database, and a data analysis program. FIREMON has been integrated with the National Park Service Fire Ecology Assessment Tool into a new monitoring tool called FFI. FIREMON will still be supported but further development and updates may be suspended. The system was developed by the U.S. Forest Service, Missoula Fire Sciences Laboratory in cooperation with the U.S. Geological Survey, National Park Service and Systems for Environmental Management. Funding was provided by the Joint Fire Science Program. www.frames.gov/firemon

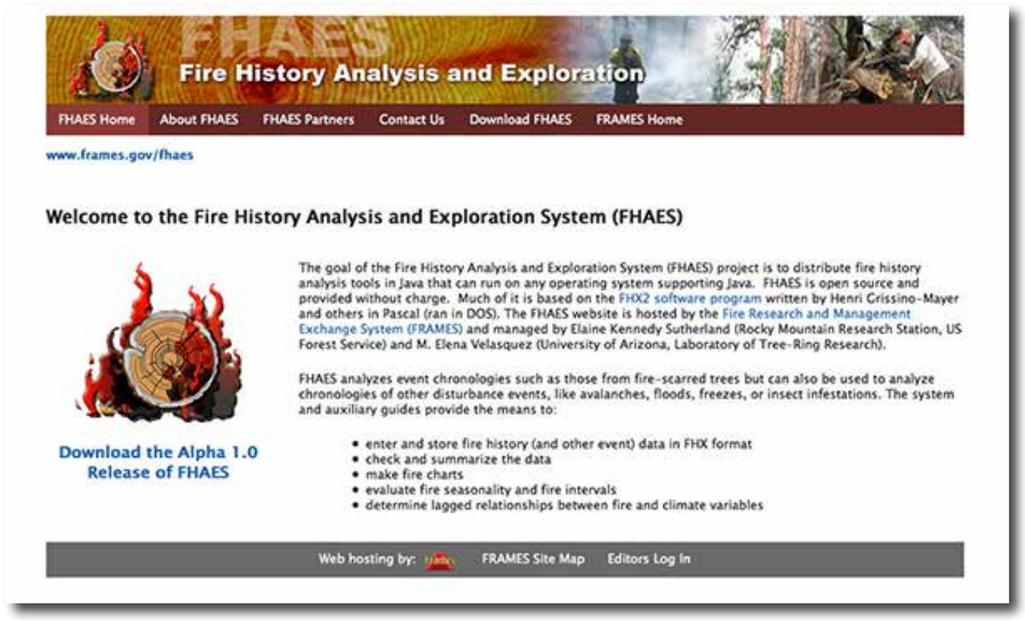


Figure 9. FHAES partner page

FIRESEV – The Fire Severity Mapping System project (FIRESEV) is geared toward providing fire managers across the western United States critical information about the potential ecological effects of wildland fire at multiple levels of thematic, spatial, and temporal detail. A major component of FIRESEV is a comprehensive map of the western U.S. depicting the potential for fires to burn with high severity if they should occur. Developed as a 30m-resolution raster dataset, the map is intended to be an online resource that managers can download and use to evaluate the potential ecological effects associated with new and potential fire events. www.frames.gov/firesev

FIRETEC – HIGRAD/FIRETEC is a physics-based, 3-D computer code designed to simulate the constantly changing, interactive relationship between fire and its environment. It does so by representing the coupled interaction between fire, fuels, atmosphere, and topography on a landscape scale. HIGRAD/FIRETEC is the cornerstone of a growing collaboration between Los Alamos National Laboratory (LANL) and the USDA Forest Service Rocky Mountain Research Station (RMRS), eight domestic university campuses (including the University of Idaho and Colorado State University), and multiple research institutions in France. www.frames.gov/firetec

CONTENT: Partner Sites

Fire Videos and Webinars Archive – FRAMES is cataloging and archiving videos, webinars, and other presentations hosted by its various partners, including the Wildland Fire Science Partnership, National Interagency Fuels Technology Transfer (NIFTT), Wildland Fire Lessons Learned Center, Joint Fire Science Program and its regional consortia, and the International Association of Wildland Fire. There were over 300 videos and webinars available to view at the end of 2013. www.frames.gov/videos-webinars-archive

Fire Regime Condition Class (FRCC) – FRCC is an interagency, standardized tool for determining the degree of departure from reference condition vegetation, fuels, and disturbance regimes. www.frcc.gov

Human Dimensions and Fire Social Sciences (HDFSS) – The goal of HDFSS is to provide social science fire managers can use. Teams of scientists and fire managers find and synthesize the best available social science and apply it to fire management. The teams then deliver the results in applications and tools designed by fire science users and researchers working together to create useful knowledge in forms that make sense to fire managers. www.frames.gov/hdfss

IFIRE: Idaho Fire Institute of Research and Education – The IFIRE facility in the UI College of Natural Resources was developed to advance research and educational opportunities within the field of fire sciences. The facility actively pursues research related to fire ecology, combustion dynamics, smoke emissions, and scaling of remote sensing observations amongst others. Currently IFIRE is primarily utilized for the education of undergraduate students in fire behavior, along with general fire ecology and behavior demonstrations for other student groups. www.frames.gov/ifire

Interagency Fuels Treatment Decision Support System (IFTDSS) – In 2007, the JFSP initiated the Software Tools and Systems study, which resulted in the development of IFTDSS. IFTDSS is a web-based software and data integration framework that organizes previously existing and newly developed fire and fuels software applications to make fuels treatment planning and analysis more efficient and effective. FRAMES hosts all project planning and accomplishment documents resulting from the Software Tools and Systems study. www.frames.gov/iftdss

JFSP Biomass Review – This site was developed to showcase the results of the JFSP-funded project "A Review of Available Economic and Financial Biomass Information and Tools for Federal Land Managers in the West." The Review provides a synthesis of information products available to federal land managers to enhance their ability to understand and deal with the economic and financial aspects of woody biomass removal as a component of fire hazard reduction treatments. www.frames.gov/jfsp/biomass_review

National Interagency Fuels Technology Transfer (NIFTT) – The National Interagency Fuels Technology Transfer (NIFTT) was originally chartered in 2005 by the National Interagency Fuels Coordination Group (now called the National Interagency Fuels Management Committee) to "coordinate, develop, and transfer consistent, efficient, and science-based fuel and fire ecology technology." Initially, the NIFTT Team focused their efforts on implementing and improving the Interagency FRCC Guidebook, developing and implementing a training program for application of assessment tools and techniques using LANDFIRE data to achieve National Fire Plan objectives. From 2005 through 2011 tools, user documentation, and accompanying online courses and training materials were developed from these original objectives and many of the goals of the program were met. UI staff and the infrastructure of the FRAMES Program benefits NIFTT by 1) hosting websites which were under NIFTT's purview; 2) providing secure logged in space for staff and stakeholders of NIFTT to collaborate on tool and training development; 3) providing staff and tools for registering, managing, and delivering online training courses; 4) providing expertise in the development of online training courses. In 2011 NIFTT became a component of the Wildland Fire Management Research, Development, and Application program (WFMRDA). The primary mission to "coordinate, develop, and transfer consistent, efficient, and science-based fuel and fire ecology technology» is still relevant under the Fuels and Fire Ecology portion of the WFMRDA. As web-based applications and mobile technologies begin to dominate our workstations, the WFMRDA Fuels and Fire Ecology team will continue to integrate, develop and revolutionize the work that has already been completed since NIFTT's inception. The continuing partnership with the University of Idaho provides unique opportunities for distance learning and the expertise of staff skilled in instructional design and fire management education and training. NIFTT (known as WFMRDA Fuels and Fire Ecology (FFE) as of January 2014) is sponsored by the USFS Office of Fire & Aviation Management with additional funding provided by the National Interagency Fuels Management Committee and LANDFIRE.

Partners and collaborators are the University of Idaho, The Nature Conservancy (TNC), and the Fire Modeling Institute (FMI). www.frames.gov/wfmrda-ffe

Northern Rockies Climate and Fire (NRCF) – The goal of this JFSP-funded project was to identify the past, present, and future climate drivers of regional fire and fuel dynamics in the Northern Rockies. Funding for the project was provided by the Joint Fire Science Program, the USFS Rocky Mountain Research Station, and the University of Idaho. www.frames.gov/partner-sites/nrcf/home/

SERDP Biomass Emission Factor Database – The Strategic Environmental Research and Development Program (SERDP) is supporting the USFS Rocky Mountain Research Station (RMRS) and the USFS Pacific Southwest Research Station (PSW) in the development of a database that contains emissions information related to prescribed burning. The database contains emissions information from over 300 burns of different wildland vegetation types, including grasslands, shrublands, woodlands, forests, and tundra. Funding for this project came from the Resource Conservation and Climate Change Program Area of the Department of Defense Strategic Environmental Research and Development Program. Other partners include the University of Montana, the USFS Missoula Fire Lab, the University of California-Riverside, and Pacific Northwest National Laboratory. www.frames.gov/serdp-befd

Southern Rockies Fire Science Network (SRFSN) – The Southern Rockies Fire Science Network was formed to support collaboration between science practitioners and communities of wildfire science users. SRFSN includes intermountain Colorado, central and southern Wyoming, central and eastern Utah, and the Black Hills area of South Dakota and northwestern Nebraska. SRFSN is sponsored by the Joint Fire Science Program. www.frames.gov/partner-sites/srfsn/home/

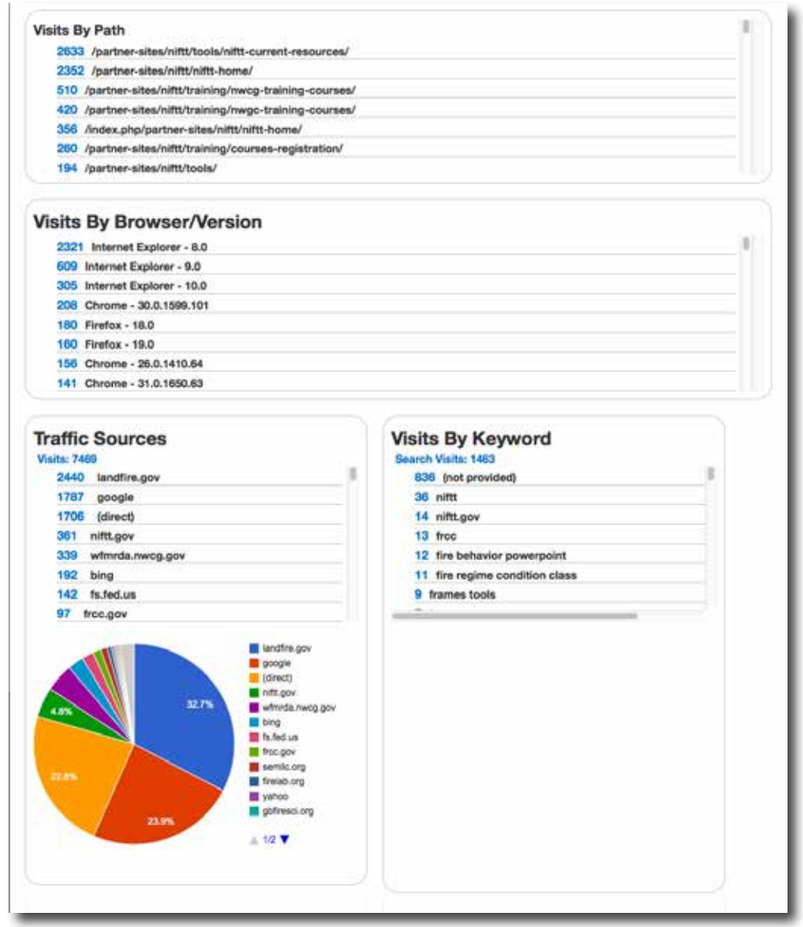
WFSP Recordings – Recordings from the December 2012 Association for Fire Ecology (AFE) 5th International Fire Ecology and Management Conference Special Session, "Looking back for a clear view of the future: 1999-2012" in Portland, Oregon. www.frames.gov/wfsp

Figure 10. Fire Videos and Webinars Archive home page

CONTENT: Website Analytics

As outlined in the FRAMES Strategic Plan, metrics are an important part of tracking the growth and utility of FRAMES. The following information was collected from January 1 – December 31, 2013.

Figure 11. Google Analytics



Collaboration Space

One of the valuable features FRAMES provides its partners is online collaboration space (MyFRAMES; www.frames.gov/myframes). The collaboration space provides users with an opportunity to work in a collaborative environment to share documents, calendars, as well as other collaboration functions. FRAMES offers this service to groups involved in fire-related projects that need a secure login environment that enables a distributed team of people to work collaboratively in an efficient manner. Some of the collaboration groups have relationships with partner sites, topic areas, or regions, while others simply serve groups of individuals as secure places to work together.

User Accounts

Currently there are 16 Collaboration groups on FRAMES and 58 active user accounts (accounts with logins during the past 6 months; 82 additional accounts exist but have been disabled due to inactivity). In 2013 LANDFIRE joined FRAMES and began actively using the MyFRAMES collaboration space. At NIFTT's request, FRAMES staff expanded the MyFRAMES software infrastructure to include discussion forum functionality.

Events and Announcements

As a service to FRAMES partners and others in the wildland fire and natural resources communities, FRAMES posts events and announcements on our web pages. These can be about upcoming conferences, jobs, training, etc. As with cataloged records, events are categorized and sortable by topic area, geographic region, and partner site.

In 2013 FRAMES posted information about 374 Events (54 conferences, 66 jobs, 95 trainings/workshops, 131 webinars, and 28 meetings) and 89 general announcements.

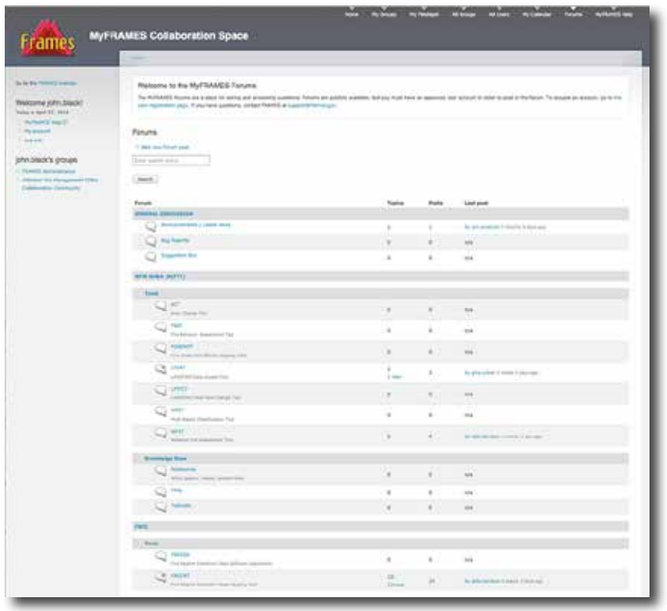


Figure 12. MyFRAMES Discussion Forum

Marketing Materials

FRAMES maintains a 10'x7' conference booth display structure and two 48"x24" tabletop displays for workshops and smaller meetings.

In 2013 a 33"x80" retractable floor display and a 24"x40" retractable table top display were purchased and subsequently used in a FRAMES exhibit at the IAWF Smoke Symposium at the University of Maryland in October 2013.

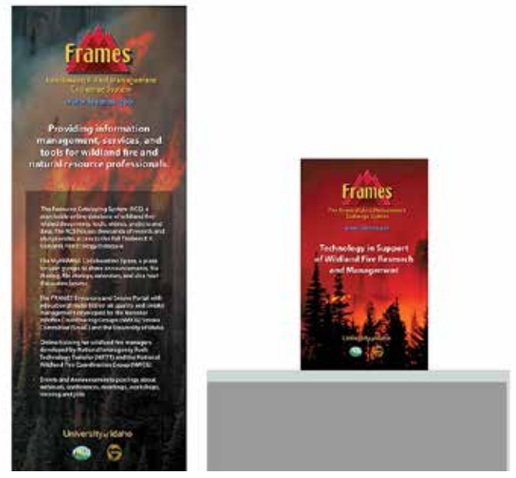


Figure 13. FRAMES 33" x 80" and 24" x 40" displays

FRAMES also maintains and distributes five different brochures: A general FRAMES information brochure, a FRAMES Partners brochure, a Human Dimensions of Fire Social Sciences (HDFSS) brochure, and a NIFTT brochure. In April 2013 an Emissions and Smoke Portal brochure was developed.

Figure 14. Brochures

Outreach

During 2013, FRAMES staff worked with partners and promoted FRAMES in meetings, workshops, and conferences throughout the year in an effort to represent and promote the FRAMES Program, the University of Idaho, and the Wildland Fire Science Partnership and also maintain a strong presence in the wildland fire community. The following is a list of events that were attended by staff.

Hyde, JC and Wells, L "FRAMES and NIFTT Resources for Smoke and Air Quality." Oral presentation, Montana Idaho Airshed Group - Northern Idaho Chapter meeting, February 2013, Moscow, ID.

Olson, DL, Alaska Fire Science Consortium advisory board meeting, February 2013, Fairbanks, AK (via teleconference).

Wells, L "FRAMES: Providing information, services, and tools for wildland fire and natural resource professionals." Conference exhibit, Western Wildfire Conference, April 2013, Kelowna, BC, Canada.

Hyde, JC, Smith, A, Lahm, P, Fitch, M, Strand, E, and Wells, L 2013. FRAMES Emissions and Smoke Portal: Tools for Smoke Management Education. Poster presentation, IAWF Smoke Symposium, October 2013, University of Maryland, Adelphi, MD.

Wells, L "FRAMES: Providing information, services, and tools for wildland fire and natural resource professionals." Conference exhibit, IAWF Smoke Symposium, October 2013, University of Maryland, Adelphi, MD.

Wells, L "FRAMES 2012-2013 Accomplishments/Activities," PowerPoint presentation, WFSP Teleconference, October 31, 2013.

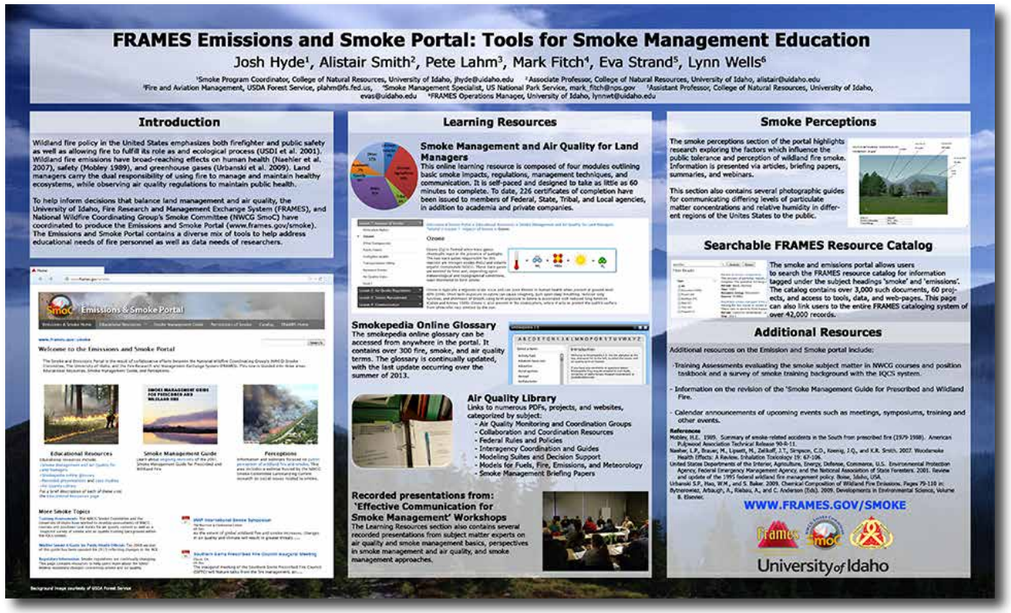


Figure 15. FRAMES Poster at IAWF Smoke Symposium, October 2013

Partnerships & Collaborations

The list below shows the diversity of partners involved with FRAMES. Numerous agencies and organizations (many not listed here) are involved with FRAMES through partner websites and/or online collaboration communities hosted by FRAMES.

Alaska Fire Science Consortium

Bureau of Land Management

Colorado State University

CSIRO Bushfire Dynamics and Applications

FEAT/FIREMON Integrated (FFI)

Fire and Fire Surrogates (FFS) Study

Fire Effects Information System (FEIS)

Fire Effects Monitoring and Inventory Protocol (FIREMON)

Fire-Enhanced Runoff and Gully Initiation model (FERGI)

Fire History Analysis and Exploration System (FHAES)

Forest Guild

Fire Program Analysis (FPA)

Interagency Fuels Treatment Decision Support System (IFTDSS)

Joint Fire Science Program (JFSP)

Landscape Fire and Resource Management Planning Tools (LANDFIRE)

Los Alamos National Laboratory

Michigan Technological University

Montana State University Big Sky Institute

National Interagency Fuels Technology Team (NIFTT)

National Park Service

National Wildland Fire Coordinating Group (NWCG) Smoke Committee (SmoC)

NOAA Paleoclimatology Branch

Northern Rockies Fire Science Network (NRFSN)

Northwest Knowledge Network (NKN)

Rochester Institute of Technology

Science Applications International Corporation (SAIC)

Southern Fire Exchange

Southern Rockies Fire Science Network (SRFSN)

Southwest Fire Science Consortium (SWFSC)

Tall Timbers Research Station (TTRS)

University of Alaska Fairbanks

University of Alberta

University of Arizona Laboratory of Tree-Ring Research

University of Idaho

University of Montana National Center for Landscape Fire Analysis

University of Washington

US Fish and Wildlife Service

US Forest Service

USFS Boise Aquatic Sciences Lab

USFS Missoula Fire Sciences Lab

USFS Pacific Wildland Fire Sciences Lab

USFS Rocky Mountain Research Station (RMRS)

USFS Science Application & Integration (SA&I) Program

USFS Wildland Fire Management Research, Development & Application (RD&A)

Washington State University

Wildland Fire Science Partnership (WFSP)

Overview

FRAMES infrastructure encompasses the underlying technological foundation and personnel that supports the management and movement of information, communication, and tools. Since July 2012, the FRAMES hardware and software infrastructure has been hosted and maintained by the Northwest Knowledge Network (NKN), Office of Research and Development, University of Idaho in Moscow, Idaho. Responsibility to maintain FRAMES technology and content reside with NKN personnel as well as with the FRAMES Staff. The total build-out of FRAMES includes or will include: 1) a data, document, and tool repository, 2) consolidation, visualization, and web-based analytical capabilities of spatial data in a Geographic Information Systems (GIS) framework, 3) web-enabled communications and collaboration, 4) online course development and delivery, and all of this 5) in a platform that provides for customization based upon user, community, and agency needs.

University of Idaho Personnel

Eva Strand, UI College of Natural Resources, Department of Forest, Rangeland, and Fire Sciences, is the lead faculty member of FRAMES. Eva is also responsible for the management and oversight of NIFTT and its relationship with FRAMES.

All FRAMES positions are contingent on continued federal funding. State Board of Education (SBOE) positions include the FRAMES Program Manager (Lynn Wells) and the FRAMES Project Manager (Diana Olson). Besides these two SBOE positions, there are several additional FRAMES staff positions. They are a part-time Graphics & Interface Design Specialist (John Black) and three part-time FRAMES Content Specialist positions (Jennifer Lagadinos, Michael Tjoelker and Wayne Buck). In 2013 we added two UI students to the FRAMES staff in part time positions, a UI undergraduate student in Computer Science (Ranger Adams) and a PhD student in the College of Natural Resources (Linda Tedrow).

Additional UI personnel who assist the FRAMES team part time are Gina Wilson (College of Natural Resources), David Vollmer (NKN), and Kelly Lotts (NKN).

A staff page, including photos and biographies of FRAMES personnel and affiliated personnel, was developed in 2012 and updated in 2013 (www.frames.gov/about/frames-staff).

Funding

FRAMES continues to be funded through line item funding for the Wildland Fire Science Partnership (WFSP), and is currently funded under the five year Joint Venture Agreement 12-JV-11221637-143, June 2012-September 2017. This is the primary funding source for FRAMES. Funds are added on an annual basis via modifications to this agreement. FRAMES will continue to look to diversify its funding through efforts to provide custom services to new partners. FRAMES will also work with WFSP partners to increase funding to the partnership including the RMRS, UM, and UI. Also, in kind support from many organizations helps FRAMES fulfill its mission each year.

Fire Program Analysis (FPA)

In 2013 FRAMES began discussions with Wildland Fire Information Technology (WFIT) & Fire Program Analysis (FPA) about developing a partner site on FRAMES, geospatial downloads of 9 FPA map layers, and collaboration space on MyFRAMES. In 2013 FRAMES began limited development of a web page and collaboration space for FPA. The goal is to make FPA information available to an audience broader than the immediate fire community and also enhance collaboration between FMOs and FPA personnel who work with budget related forecasting and reporting. The proposed effort includes the development on FRAMES of eight of the nine existing FPA data layers (Fire Planning Units, Dispatch Locations, Fire Workload Areas, Wildfire Fighting Agencies, Aerial Tanker Bases, RAWS Weather Stations, Hotshot Crews, and Wilderness Boundaries).

Online Courses

In 2013 FRAMES began discussions with NIFTT, the National Advanced Fire & Resource Institute (NAFRI), and LANDFIRE concerning the growing need for online course development and delivery. FRAMES then began investigating Moodle, a Learning Management System (LMS) in the hope that it would provide the necessary educational platform. In October 2013 Moodle was installed on an NKN/FRAMES server and the new site was named the "FRAMES Online Course System" (moodle.nkn.uidaho.edu). S-491 was the first course placed on the new site. A demo of the course and the Moodle LMS was presented to the S-590 Interagency Steering Committee and a decision was made for NIFTT and FRAMES to continue with the project. In December 2013 the S-590 course was also added to the system and course content and quizzes were made available. S-491 and S-590 will be fully available in January 2014. Additional courses and content will become available throughout the year.

Much of the work during 2014 and beyond will focus on continued support for existing partners, developing additional partnerships with fire research and management content providers, resource cataloging, posting events/announcements, development of the RCSv3, and developing additional online courses and certifications. We expect the demand for the discussion forum feature could expand beyond NIFTT. Additionally, we are developing a helpdesk question tracking system (per NIFTT's request), which could also be expanded for use by additional partners.

FRAMES: Technology in Support of Wildland Fire Research and Management

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

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

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

APPENDIX A: FRAMES Strategic Plan 2007-2012

FRAMES Five Year Strategic Goals

1. Provide Content and Increase Content Utility. Develop a rich and usable base of content that is useful to wildland fire and natural resource professionals and policymakers.

2. Expand Services and Increase User Base. Identify opportunities to work with wildland fire and natural resource professionals (i.e., managers, practitioners, and researchers) to develop customized services that are complementary with FRAMES informatics architecture and that target their common technology transfer and science delivery needs.

3. Increase Name Recognition and Program Awareness: Develop marketing materials for outreach and cultivate relationships with agencies and potential FRAMES users and contributors.

4. Maintain and Upgrade the Infrastructure. Build a technological infrastructure that can support wildland fire and fire-related informatics.

5. Ensure Financial Support. Determine staffing requirements and develop a sustainable system of financial support to ensure that FRAMES remains viable.

6. Provide Responsive Governance and Management. Establish a long-term plan for governance and accountability for the management and implementation of FRAMES.

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

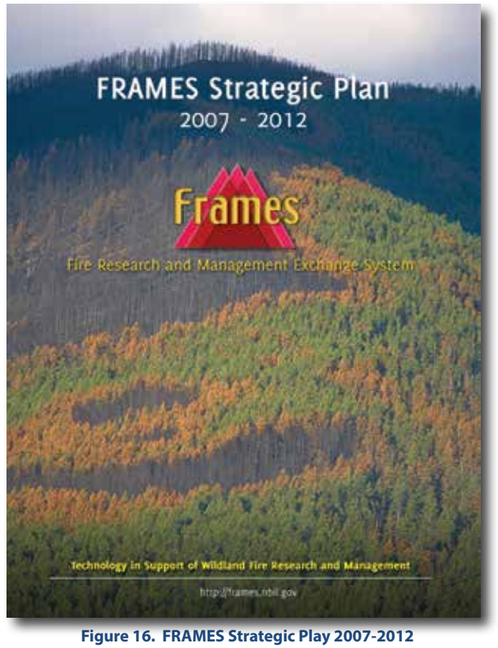


Figure 16. FRAMES Strategic Play 2007-2012

APPENDIX B: NIFTT Annual Report FY2013

FRAMES-NIFTT Partnership

NIFTT was chartered in 2005 by the National Interagency Fuels Coordination Group to assist land managers with the assessment of fire behavior, fire effects, fire regimes, and vegetation dynamics. In July 2009, the staff of FRAMES was approached by the US Forest Service and asked to assume administration of NIFTT through an agreement between the RMRS and UI. Since October 2010, NIFTT has been operating under the Rocky Mountain Research Station (RMRS) in the Wildland Fire Management RD&A. UI's College of Natural Resources and the FRAMES Program continue to work closely with NIFTT staff on courses, workshops, help aids, and skill development tools for current fuel, fire and vegetation management applications.

NIFTT Annual Report FY2013

Background

The National Interagency Fuels Technology Transfer (NIFTT) was chartered in 2005 by the National Interagency Fuels Coordination Group to assist land managers with the assessment of fire behavior, fire effects, fire regimes, and vegetation dynamics. Since October 2010, NIFTT has been operating under the Rocky Mountain Research Station (RMRS) in the Wildland Fire Management RD&A.

Innovation

During FY2013, NIFTT focused on the revision of the LANDFIRE online course modules. The online course provides an exciting array of modules for students to choose from. This array of modules focuses on providing students a choice of learning paths that range from "Data Access and User Guidance" for LANDFIRE data to in depth looks at "Fire Behavior and Effects Layers and Methods" or "BpS and Fire Regime Layers and Methods." The online course is designed for individuals with a broad range of exposure to LANDFIRE data, from considerable experience to none. Participants can select from the following modules: Overview, Data Access and User Guidance, Top Ten Frequently Asked Questions (FAQs), Example Applications, Existing Vegetation Layers with an associated Ecological Systems and National Vegetation Classification System exercise, Existing Vegetation Methods, Fire Behavior and Effects Layers and Methods, Biophysical Settings (BpS) Models, BpS and Fire Regime Layers and Methods, Reference Database (LFRDB), and Topographic Data. Major improvements include a focus on the definitions and methods specific to each layer or associated data sets with geographic examples.

In FY2013 NIFTT delivered nine classroom or field based workshops in conjunction with fire and fuels conferences, regional Forest Service or interagency training session or in university courses; and recorded sixteen technical session conference presentations in collaboration with the Association for Fire Ecology.

NIFTT outreach via their web sites www.niftt.gov and www.frcc.gov was greatly improved. This includes a complete change of web site providers from NBII-USGS to the University of Idaho's Northwest Knowledge Network. Both the NIFTT and FRCC web sites were completely re-built and updated in 2013. New FAQ's were added to NIFTT Current Tools and Users Documents. In the last quarter, visitor results were 121 visitors and viewed 302 pages. We improved out tracking of downloads and can proudly say that over 5500 documents and tools were downloaded in FY2013.

In March of 2013 at the request of the NWCG Fuels Management Committee (FMC) the Wildland Fire Management RD&A Fuels program with assistance from the University of Idaho and funding from the US Forest Service Washington Office Fire Ecology and Fuels Program developed a questionnaire on the Fire Regime and Condition Class (FRCC) concept and related tools. The intent was to gain a better understanding for how FRCC is being used in the field after being developed 10 years ago. User feedback will contribute to the future direction of FRCC. Report is posted at www.frcc.gov.

There were approximately 400 responses which resulted in the following summary of results.

All NIFTT GIS tools have been modified to be compatible with ArcGIS versions 10.1 and 10.2. Primary tools include including the Area Change Tool (ACT), Fire Regime Condition Class Mapping Tool (FRCC), LANDFIRE Data Access Tool (LFDAT), the LANDFRE Total Fuels Change Tool (LFTFC), Multi-Raster Classification Tool (MRCT), and the Wildland Fire Assessment Tool (WFAT). All tools provide the User the option for data layer inputs of downloaded LANDFIRE data or their own local data. Key fire and resource applications for these tools include:

Tool	Key Applications	Compatibility with Arc 10.1 and 10.2
ACT	Combine, add, create, and edit raster layers BpS, SCLASS, FBFM40, CBD, FLM, FCCS, etc.	More user friendly
FRCCmt	Landscape and stand FRCC, Fire Severity, Fire Frequency, and Vegetation Condition	BpS Group Raster Fix, simplified TOC, Departure Layers Value = Departure, More user friendly reports, frequency and severity layer creation or input
LFDAT	Download LANDFIRE data specific to a local area	More user friendly
LFTFC	Create & edit fire behavior & effects layers	More user friendly, LANDFIRE Refresh Rules
MRCT	Combine and create raster layers	More user friendly
WFAT	Potential or spreading fire behavior and effects	FuelCalc Algorithms for post-fire consumption, FRCC Severity, Custom Fuel Beds, Percent Fuel Load Consumption Output, No burn pixel fix

Cooperation

Currently, NIFTT is primarily sponsored by the Interagency Fuels Committee and LANDFIRE. NIFTT also cooperates with:

- NWCG - help develop training material and/or post that material for S-491 and S-495. We researched possible learning management systems (LMS) that will provide a better student tracking for S491 instructors. The NIFTT Program Coordinator works with instructors getting material set up on a LMS and monitor student progress. Also we have been working with Wildlife Fire Management RD&A to strategize best training practices for current curriculum.
- Weather Information Management System (WIMS) – develop an online course for WIMS. An update was made in September 2013.
- Association for Fire Ecology – we recorded 16 presentations in two technical sessions focusing on "LANDFIRE Data and Methods" and "Looking back for a clear view of the future: 1999-2012". The presentation recordings were posted on the NIFTT web site and catalogued by FRAMES.

APPENDIX B: NIFTT Annual Report FY2013

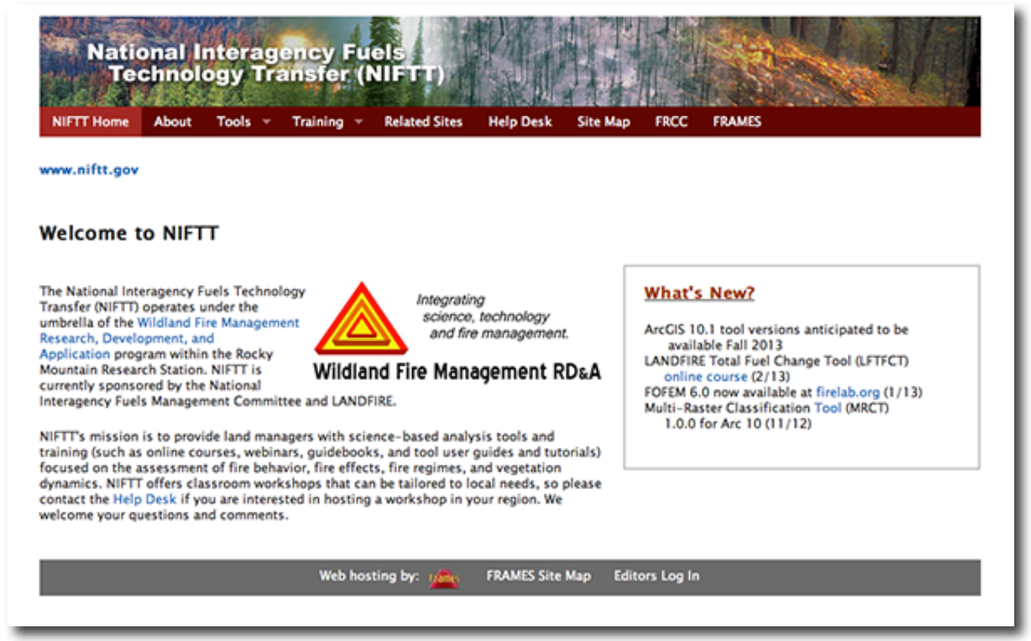


Figure 17. NIFTT Home Page

NIFTT partners include:

- University of Idaho – develops training materials (online courses, videos, webinars, posters, etc.), develop marketing materials, monitor the effectiveness of online courses, and provide workshop instructors.
- Fire Research And Management Exchange System (FRAMES) – host websites and miscellaneous training materials.
- The Nature Conservancy – collaborate on technology transfer of LANDFIRE products.
- RMRS Fire Modeling Institute (FMI) – collaborate on the development of FuelCalc and maintenance of FOFEM.

Inspiration (Training and User Support)

Training Materials:

- NIFTT provides training opportunities using a variety of media including:
- Online courses
- Classroom workshops
- Videos
- Webinars

- Guides, tutorials, and other reference material

NIFTT currently offers online courses titled:

- Fuel Characteristics Classification System (FCCS)
- Fire Regime Condition Class (FRCC)
- Fire Regime Condition Class Mapping Tool (FRCCMT)
- Fire Behavior Fuel Models 40 (FBFM40)
- Fuel Loading Models (FLM)
- LANDFIRE Concepts, Data, and Methods
- NOMOGRAPHS - Fire Behavior Nomographs to Estimate Fire Behavior Characteristics
- Predicting Vegetation Change
- Working with LANDFIRE Vegetation Dynamics Models
- Wildland Fire Assessment Tool (WFAT)

Table 1. Online student registrations FY2013.

Course (Nov 12-Sept 13)*	DOI	Other	Private	State	University	USFS	Total
LANDFIRE	14	6	1	4	8	13	46
FRCC	19	7	1	1	5	16	49
FLM	7	1	1	2	4	8	23
Predicting Veg. Change	6	2	1	2	2	7	20
LF Veg. Dynamic Models	6	2	1	2	3	5	19
$FRCC_{MT}$	12	4	1	1	6	17	41
WFAT	10	4	1	3	6	7	31
FCCS	4	4	1	2	4	8	23
LFTFCT	6	2	1	1	2	7	19
Nomographs	3	2	1	1	5	3	15
FBFM40	9	3	3	3	6	8	32
Total	96	37	13	22	51	99	318

*These data reflect the time period November 2012 – September 2013. An additional **81** students registered for various classes in October 2012, however the system was not set up to identify the individual class.

In FY2013 students registered for 399 NIFTT online courses which is a 64% increase compared to last year (Table 1). The system was not set up to record the course registrations by class until November and Table 1 therefore reports only the 318 registrations documented during this time period. An additional 81 students registered for various NIFTT courses in October 2012.

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User Support

NIFTT provides user support by managing two websites (niftt.gov and frcc.gov) and a HelpDesk that responds to question pertaining to NIFTT tools and curricula, FRCC, and LANDFIRE. During FY2013, the NIFTT web pages were visited with 6596 hits/year with an average of 550 hits/ month. FRCC web pages were visited with 2893 hits/year with an average of 241 hits/month.

NIFTT's Helpdesk responded to 616 requests in FY2013. In summary, approximately 67% of the requests were related to NIFTT tools and courses, 32% were related to LANDFIRE, and 1% was related to FRCC. See Table 2 for a detailed list of requests by helpdesk category.

Table 2. NIFTT Helpdesk requests for FY2013 by category.

Helpdesk Categories	# requests
FRCC Misc	3
FRCC software	1
LF Data Download	39
LF Data	57
LF Data Request	24
LF Misc	79
NIFTT Misc	4
NIFTT Tools general	15
NIFTT Tool (ACT)	10
NIFTT (WFAT)	17
NIFTT Tool (FRCCmt)	34
NIFTT Tool (SLA)	4
NIFTT Tool (LFDAT)	46
NIFTT Tool (LFTTCT)	5
NIFTT Tool (MRCT)	1
NIFTT training	273
Total	616

FY2013 Accomplishments

NIFTT's program of work is largely accomplished through cooperative agreements with the University of Idaho, and contracts with independent vendors.

Current Agreement:

Cooperative Reimbursable Agreement between RMRS-Wildland Fire Management RD&A and the University of Idaho (11-CR-11221611-214). Title: Developing Comprehensive Curricula for Assessing Fire Behavior, Fire Effects, Fire Regimes, and Vegetation Dynamics. Additional funds were added to this agreement in August 2012 and 2013 through a modification.

Online Courses and Course Material

- Uploaded course material for NWCG course S491 onto the eLeap learning management system and assisted instructors with problem solving and eLeap expertise.

- Review of the Vegetation Dynamics Pathway and the outline on the online course "Introduction to the Vegetation Dynamics Pathway" in the pathway.

- Development and production of LANDFIRE course: The online course is designed for individuals with knowledge and skills with LANDFIRE data that range from considerable to none. Participants can select from the following modules: Overview, Existing Vegetation Layers, Biophysical Settings (BpS) Models, Vegetation and Fire Regime Layers, and Fire Behavior and Fire Effects Fuel Layers. The online course will be available early winter.

- Geospatial Fire Analysis, Interpretation and Application S495 course: Renee Piper is continuously working Wildlife Fire Management RD&A to strategize best training practices for current curriculum. Currently working with Laurie Kurth and Tonja Opperman. A need analysis overview will be presented to the Steering Committee in December 2013.

- Review, posting, and maintenance of NWCG course material for S-390, S-491, and S-495 on the NIFTT web site and on learning management systems.

- Twelve online NIFTT courses were maintained through this year.

Learning Tools and Documentation (available at www.NIFTT.gov)

- All current NIFTT learning tools have been made compatible with ArcGIS version 10.0. This includes the Area Change Tool, Fire Regime Condition Class Mapping Tool, LANDFIRE Data Access Tool, the LANDFIRE Total Fuels Change Tool, and the Wildland Fire Assessment Tool.

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- Fire Regime Condition Class Mapping Tool has been updated to address fire regime departure in addition to vegetation departure. The tool, guidebooks, tutorials, and help utilities have been updated to reflect this change in FRCC methodology.

- The Wildland Fire Assessment Tool v. 2.2.0 has been released. This version includes algorithms from FuelCalc for characterizing post-fire fuels. Guidebooks, tutorials, and help utilities have been updated to reflect the additional computations of post-fire fuels.

- A guidebook, tutorial, and help utility were developed for the LANDFIRE Total Fuel Change Tool.

- Tree List Raster Mapping – continue on evaluating the steps to successfully produce a WFAT Tree List Raster data set.

- The articulate software was tested for direct use by Subject Matter Experts in creating learning modules for fuels management and fire ecology applications from PowerPoint. The software is also being compared to Adobe Presenter.

Workshops and Lectures

- Fire Regime Condition Class, Barrett S, Hann W, Strand EK, Hyde J, Association for Fire Ecology, December 3, 2012, Portland Oregon.

- Wildland Fire Assessment Tool, Strand EK, Hann W, Hyde J, Association for Fire Ecology, December 2, 2012, Portland Oregon.

- Wildland Fire Assessment Tool, Hyde J, Piper R, International Association of Wildland Fire, Fourth Fire Behavior and Fuel Conference, February 18-22, 2013, Raleigh, North Carolina.

- Modeling fire behavior and fire effects with the Wildland Fire Assessment Tool (WFAT), Lecture and lab in FOR404 – Fire and Fuels Modeling. Students learned how to run and compare scenarios using WFAT. Eva Strand

- Introduction to ArcFuels and the Landscape Treatment Designer. Lab on how to use the Landscape Treatment Designer. Lecture and lab in FOR404 – Fire and Fuels Modeling. Students learned about the importance and use of landscape scale modeling and learned how to use the Landscape Treatment Designer. Eva Strand

- Interagency Fuels Treatment Decision Support System. Guest lecture and lab by Stacy Drury in Eva Strands course FOR404 – Fire and Fuels Modeling. Students were introduced to IFTDSS and completed the IFTDSS tutorials in a hands-on lab session. They also wrote a short essay about their experience with IFTDSS.

- Lecture on Fire Regime Condition Class Concepts and Methods in the University of Idaho senior level course

REM 460 Rangeland Ecology Current Topics and Field Studies. 13 students. Eva Strand

- Fire Regime Condition Class field assessment in the Smith Creek watershed in the Owyhee Mountains using the Simple 7 Form. 13 students. Eva Strand

- Fire Regime Condition Class Mapping Tool exercise in the senior level course REM404 GIS Application in Rangeland Management. 14 students. Eva Strand

Webinars

Science delivery and technology transfer are common goals for NIFTT and for the Southwest Fire Science Consortium (SWFSC). In FY2012 we took advantage of this opportunity for collaboration and jointly offered six webinars.

- LANDFIRE Data Access Tool, Southwest Fire Science Consortium, February 15, 2012, Chris Toney (USFS, RMRS/ LANDFIRE) and Jeff Jones (RMRS Wildland Fire Management RD&A)

- LANDFIRE Total Fuel Change Tool, Southwest Fire Science Consortium, March 21, 2012, Tobin Smail and Charley Martin (US Geological Survey)

- First Order Fire Effects Model (FOFEM), Southwest Fire Science Consortium, April 18, 2012, Duncan Lutes (RMRS Fire Modeling Institute)

- Wildland Fire Assessment Tool, Southwest Fire Science Consortium, May 16, 2012, Eva Strand and Josh Hyde (University of Idaho)

- Fire Regime Condition Class Concepts, Southwest Fire Science Consortium, June 20, 2012, Steve Barrett (NIFTT) and Doug Havlina (BLM)

- Fire Regime Condition Class Mapping Tool, Southwest Fire Science Consortium, July 18, 2012, Steve Barrett (NIFTT) and Doug Havlina (BLM)

The Webinars are available at: http://swfireconsortium.org/materials/webinars/

Recordings

LANDFIRE Video Links recorded at the Association for Fire Ecology 5th International Fire Ecology and Management Congress in Portland, Oregon, December 3-7.

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LANDFIRE Data and Methods

- Matt Rollins – Overview of LANDFIRE data products and methods
- Brenda Lundberg – LANDFIRE reference data
- Don Long – LANDFIRE existing and potential vegetation
- Birgit Peterson – LANDFIRE existing vegetation cover and height
- Tobin Smail – LANDFIRE fuel attributes layer development
- Kori Blankenship – LANDFIRE fire regime products
- Joel Connot – Disturbance mapping
- Don Long – Updating of LANDFIRE vegetation and fuel data
- Kori Blankenship – LANDFIRE biophysical setting maps and models

Looking back for a clear view of the future: 1999-2012

- Kevin Ryan – Looking Back; Welcome, background, and goals
- Robert Keane/Wendel Hann – Integration of ecological principles into land management
- Roger Ottmar – Characterizing fuel for fire and fuel management in the 21st century
- John Cissel – Tools and technology in the 21st century
- Jan Engert/Jim Menakis – Technology transfer and communication
- Lisa Elenz – Collavorativ approaches
- Colin Hardy/Peny Morgan – Clear view of the future 1999 to 2012
- Laurie Kurth – Training in the latest developments

Publications and Reports

- Strand E.K et al. 2012., Landscape composition in aspen woodlands under various modeled fire regimes p. 197-214 in General Technical Report PNW-GTR-869, Proceedings of the First Landscape State-and-Transition Simulation Modeling Conference June 14-16, 2011, Portland, Oregon. Publication date October 2012

- Contribution to journal article titled New and revised fire effects tools for fire management submitted to the journal Fire Management Today by authors: Robert E. Keane1, Greg Dillon, Stacy Drury, Robin Innes, Penny Morgan, Duncan Lutes, Susan J. Prichard, Jane Smith, Eva Strand

- Updated measured fuel in a manuscript comparing FCCS, FLM, and measuring fuel loadings when used to generate emissions in WFAT. Josh Hyde and Eva Strand

Presentations and Lectures

- Seminar titled "NIFTT, FRAMES, and Geospatial Analysis Projects in Fire Science", University of Idaho, October 1, 2012 (Strand)

- Webinar titled "What's New with LANDFIRE" for Paul Smith's College, New York, November 28, 2012 (Strand)

- Presentation titled FRAMES and NIFTT Resources for Smoke and Air Quality. Described NIFTT tools and online resources applicable to smoke management. Delivered to the Montana Idaho Airshed Group South Idaho Chapter in Boise (January) and North Idaho Chapter in Moscow February. Hyde.

- Seminar titled "NIFTT, FRAMES, and Geospatial Analysis Projects in Fire Science", Univesity of Idaho, October 1, 2012. Strand.

- Webinar titled, "What's New with LANDFIRE" for Paul Smith's College, New York, November 28, 2012. Strand.

- Preparation of demonstration of the FRCC Mapping Tool for the USFS GIS group in Salt Lake City, invitation by Paul Bartchi. Josh Hyde and Eva Strand

- Demonstration of the FRCC Mapping Tool for the SFS GIS group in Salt Lake City, invitation by Paul Bartchi. Josh Hyde and Wendel Hann

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Meetings

- Meeting at the Missoula Fire lab, Missoula, January 10-11, Jones J, Strand EK, Gollberg GE. Planning for technical sessions at the Association for Fire Ecology Conference in Portland December 2012.

- ASTD 2013 International Conference and Exposition (online learning), Dallas, Texas, May 19-22, Piper, Renee. World's largest professional association dedicated to the training and development professionals.

Marketing Material

- NIFTT Brochure updated with new courses and tools. 200 copies were printed and distributed at conferences/meetings.

- NIFTT Poster presented at conferences and meetings.

Customer Support and Web Sites

- Updates and maintenance of three web sites: niftt.gov, frcc.gov, and landfire.gov. This includes a complete change of web site providers from NBII-USGS to the University of Idaho's Northwest Knowledge Network. Both the NIFTT and FRCC web sites were completely re-built and updated in 2013.

- Installation of web traffic tracking on the NIFTT and FRCC web sites including tracking of individual documents downloads.

- Customer support via three helpdesks: helpdesk@niftt.gov, helpdesk@frcc.gov, and helpdesk@landfire.gov (616 helpdesk inquiries were responded to in FY2013)

- Have the capability to host our own LMS courses on the FRAMES serves using Moodle.

- New Forums webpage of FRAMES.

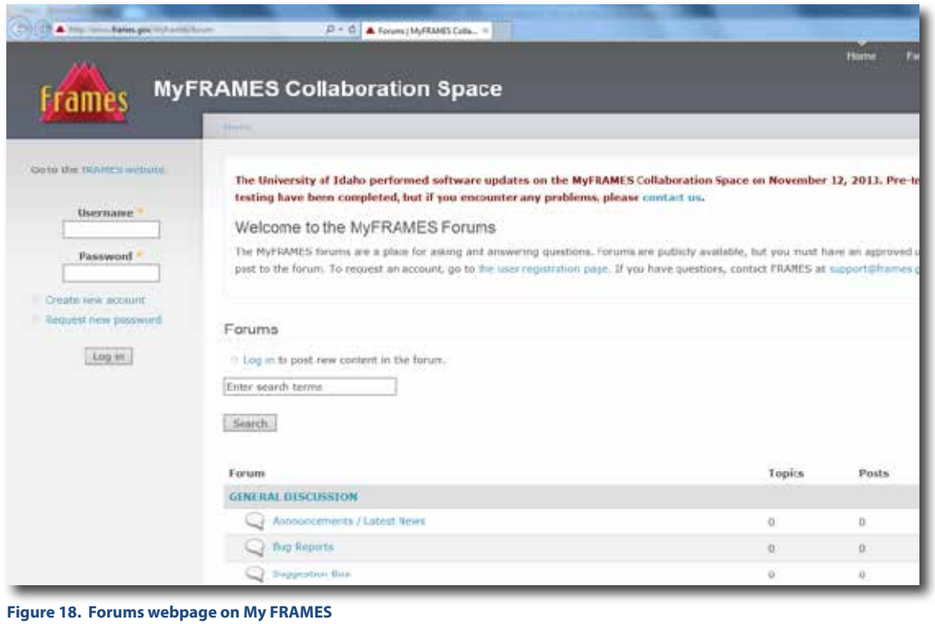

Figure 18. Forums webpage on My FRAMES

- New FAQ's were added to NIFTT Current Tools and Users Documents. Visitor results were 121 visitors and viewed 302 pages.

- New tracking system from websites. Have the capability to track Document/Tool downloads. See Table 2 for breakdown.

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Table 3. Tracking system from websites for FY2013 by category.

Document/Tool	Start Date	End Date	# Downloads/FY
FRCCmt User Guide 3.1	09/13/2012	9/30/2013	403
LFTFCT Tutorial	02/05/2013	9/30/2013	268
LFTFCT Syllabus	02/05/2013	9/30/2013	210
ACT3.0.2	02/05/2013	9/30/2013	142
Fire Regime Pathways	11/27/2012	9/30/2013	145
Fire Effects Pathways	11/27/2012	9/30/2013	169
Fire Behavior Pathways	11/27/2012	9/30/2013	221
MRCT 1.0 User Guide	11/11/2012	9/30/2013	495
MRCT 1.0 Tool	11/11/2012	9/30/2013	208
FRCCmt Tutorial 3.1	09/06/2012	9/30/2013	253
FRCCmt 3.1 Tool	09/26/2012	9/30/2013	365
FOFEMMT Tutorial	10/10/2012	9/30/2013	176
FOFEMMT UG	10/10/2012	9/30/2013	265
FOFEMMT Tool	10/10/2012	9/30/2013	181
WFAT 2.2 Tutorial	10/01/2012	9/30/2013	259
WFAT 2.2 UG	09/26/2012	9/30/2013	736
WFAT 2.2	09/26/2012	9/30/2013	357
ACT 3.1	09/26/2012	9/30/2013	308
WFAT 2.0 Tutorial	09/26/2012	9/30/2013	443

University of Idaho
College of Natural Resources