
An Inventory of Models, Tools, and Computer Applications for Wildland Fire Management

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INTRODUCTION

Over the past two decades, the challenges and problems of wildland fire management have grown enormously in response to a greater need to protect both public and private resources from the devastating effects of wildland fire. One indication of this response is the ever-increasing utilization of analytical models and tools, many of them computer-based, to aid and support various aspects of wildland fire management, including fire planning and budgeting, fire economics, and the analysis of fire behavior. In addition, as advances in computer technologies have put greater computational sophistication in the hands of more wildland fire management personnel, older tools that once were available only on large computers have been adapted to PC platforms and even to hand-held, highly-transportable computer devices. With these rapid changes in technology has also come a broader range of computer-based tools developed not only by federal fire-management agencies, but also by state agencies, universities, and the private sector.

The purpose of this document is to provide an inventory description of current models, tools and computer applications for wildland fire management. For purposes of this inventory, the term “models” is used to represent a range of analytical processes that have been developed to aid wildland fire management. In the strictest sense, a model refers to an abstraction of a process, usually represented in mathematical form. From an operational perspective, models are used to simulate a process (e.g., behavior of wildland fire) for purposes of predicting, projecting, or forecasting a future state or set of conditions (e.g., ecosystem effects of wildland fire). Models are most often made operationally usable in the form of a computer program. However, some of the computer-based tools and applications used by the wildland fire management profession are not models in the strictest sense, and the present inventory blurs the concept of model to include a range of tools, applications, and aids that may or may not be computerized. Perhaps the most common feature shared by all of the entries in the present inventory is the presence of an acronym or common name suggesting a model-like application or process that is used in wildland fire management to achieve its purposes. Viewed in this way, the inventory represents a tabulation and explanation of the various acronyms associated with the analytical tools of wildland fire management, and provides the reader a convenient compendium of information pertaining to their purpose, their origin, and their status.

The intent of the inventory is to provide a non-technical description of each model along with an indication of their primary purpose and users, limitations or boundaries on the application of the model, the status of the model, type of support for users, the developer of the model, how the developer can be contacted, and references to papers, reports, and publications that describe in scientific and technical terms the underlying research supporting the development of the model. Each of these aspects of the model description is discussed below.

The inventory is written for those who have an interest in wildland fire management issues, but do not have a technical background in fire science, economics, natural resource management or other professional/scientific disciplines involved in wildland fire management. The inventory strives to provide readers with a basic understanding of the various acronyms and terminologies that surround the most recent advances in modeling efforts applied to wildland fire

management, and to increase their awareness of the current state of development of the analytical tools used by the wildland fire management profession.

METHODS AND SOURCES OF INFORMATION

The approach taken in developing this document is sequential and divided into a series of phases. The present version of the document is the result of an initial overview phase undertaken with a goal of identifying a broad range of models, regardless of the relative extent of available information. A primary tool used to develop this initial inventory was the Internet as well as the author's awareness of existing wildland fire models. A previous inventory compiled for purposes of identifying computer-based applications relating to implementation of National Forest plans also provided helpful guidance.¹

Criteria for Inclusion. Models and applications were selected for inclusion if they met a set of criteria described below:

1. The model or application must relate primarily and directly to wildland fire management. For example, models pertaining to fire planning, fire budgeting, fire behavior analysis, and fire economics would meet this criteria. *Models pertaining primarily to ecosystem management were not included unless they contained a component used independently as part of wildland fire management.*

2. The model or application must be established in the wildland fire management profession. This is a difficult criterion to define, since "established" can be gauged in a number of ways. One measure of the degree to which a model or application is established is by patterns of use, such as (a) the size of the installed user base (e.g., number of users, number of user sites) or (b) the frequency with which the model/application is used in wildland fire management situations. However, the present inventory is not a survey study of the patterns of use of the various models and applications contained herein. Such a study, while potentially valuable and informative, is beyond the scope of this effort. For purposes of the present version of the inventory, "established" is defined by availability of information and stage of development. These two criteria are defined as follows:

- (a) the model or application must have readily-available documentation or information on the Internet, or be accessible via the Internet. Documentation or information could be in the form of a general overview of the model/application, a User's Guide, or some other technical manual or document that describes the state of the model (e.g., release notes, upgrade notes). This criteria accepts models/applications if, for example, they appear in Internet searches or on Internet wildland fire sites, and includes them in the inventory even if only small amounts of information are available directly from the Internet. As a result, some entries in the inventory are more completely described than others. For some of the entries further research is required.

¹ Schuster, E. G., Leefers, L. A., & Thompson, J.E. "A Guide to Computer-based Analytical Tools for Implementing National Forest Plans." USDA Forest Service, Intermountain Research Station, General Technical Report INT-296 (February, 1993).

(b) the model or application is at a sufficiently advanced stage of development to be fielded at either a Beta-test or higher level. In general, models at this level of development are available to users in the field, though with caveats regarding possible problems or difficulties that users may encounter. Not included in the inventory are models/applications that are in early development phases (Alpha or below) and/or that may require technical or consulting guidance to use. This criterion tends to result in greater acceptance of models/applications that have been in use for some time, and may exclude some models/applications that are in transition between development and fielding. It may also tend to exclude models that have been adopted or implemented in a relatively small geographical area (e.g., National Forest), but have not received wider utilization. Models or applications of this type, however, are also less likely to meet the first criteria with regard to availability of information.

ORGANIZATION OF THE INVENTORY

The inventory is organized as a database of wildland fire models and applications, ordered alphabetically by common name or acronym. Each entry is summarized on a single page with descriptive information provided in each of a number of fields. The information fields are described below

Common Name. This is the name of the model as it is commonly referred to in use. Very often, this is an acronym abbreviation of the model name.

Full Name: This is the full name of the model. When the full name of the model is the same as the Tool Name, the field indicates “same as above.”

Subject: This field contains the subject to which the model applies within wildland fire management. Subject terms in the present version of the inventory include Fire Behavior, Fire Effects, Fire Planning, Fire Budgeting, Fuels Treatment, Fire Weather, Smoke Management, Firefighting Resource Ordering & Tracking, and Fire Economics.

Description: The description of each model is excerpted and (where appropriate) adapted from available materials. In the present draft of the inventory, these descriptions have not been reviewed or crosschecked against multiple information sources. As much as possible, the description avoids over-use of technical terminology with which readers may not be familiar. However, some use of technical language is unavoidable in describing analytically complex tools.

Primary Users: A general indication of the primary user(s) is shown in terms of typical job titles or positions of individuals who might use the model. The entries shown in the present draft are judgments made by the author and do not reflect users specifically targeted by the developer, nor does information in this field reflect who actually uses the model as based, for example, on a survey of users. In some cases, it is not clear from available information who the primary users might be, and further research is required.

Limitations: This field contains information pertaining to limitations or boundary conditions associated with the model or application. Ideally, a description of limitations would indicate potential limits to the generality of an application or model across different situations or contexts. It would also highlight key underlying assumptions which, if violated, compromise the application's external validity. However, relatively few models covered in the inventory contain a description of their limitations in readily-available documentation. When they do, it is often in terms of special computer or database requirements. For some models, it may be necessary to review scientific and technical papers and reports to provide a proper evaluation of a given model's limitations. This aspect of the inventory will, for many models, require further research effort.

Development Status: This is the current status of the application in terms of its development and fielding cycle. Since the focus of the inventory is on established models and applications, most of the entries are for fielded and operational models. However, a recent trend toward greater utilization of microcomputers (and away from network-based mainframe computers) has led to migration of older computer-based applications onto PC platforms. In addition, many older applications are currently being transported to web-based applications. As a result, some models that have been operational for a number of years as a mainframe application may currently be in a beta-test phase (i.e., pre-operational field testing) as a microcomputer application. In addition, there is also a trend toward greater integration of once-standalone models into single-interface, integrated applications or "suites." In these cases, the individual models may have been operational for a number of years, but the application framework that supports their integration may still be in a test phase.

Support Status: This field describes the current state of user support, including the availability of a User's Guide, training, telephone helpdesk support, and web-based support. As much as possible the inventory attempts to indicate the status of support resources that require upgrading in response to changes in the application (e.g., User's Guides).

Developer: This field indicates the developer of the application. As much as possible, the inventory strives to provide a named individual or group of individuals as developer. In some cases, the model has undergone a number of revisions, upgrades or integrations and the original developer may be obscure. Further research is required in these cases.

Contact: This is the most recent point of contact for the developer of the model. In some cases the contact will be the same as that for user support. However, in many cases further research is required.

References: This field contains references to technical or scientific papers and reports that describe the underlying research upon which the model or application has been developed. For purposes of this inventory references are to authored reports, manuscripts, peer-reviewed articles, or General Technical Reports. For some models, a large number of references are available and only two or three key references are listed. For other models, no references appear either because there are no such references, or because information about them is not readily available. In both of these cases, further research is required.

EFFECTS OF Y2K ON MODEL/APPLICATION DEVELOPMENT

In anticipation of the potential effects of Y2K or the “millennium bug” on computer applications developed prior to the year 2000, most federal agencies undertook extensive reviews of existing software to insure that they contained no coding problems that would result in errors associated with dating functions. In some cases, Y2K certification efforts opened opportunities to make changes in computer applications that included additional functionality or even integration of software into a broader interface or framework. Some computer applications experienced a name change as a result of Y2K certification, in which case two versions of a given model/application may exist in the field simultaneously, but under different names. Ideally, all previous versions of software would be replaced by their Y2K-compliant versions. However, this may not have occurred in all cases. The present inventory may contain some entries that are not Y2K compliant, and are models/applications that pre-date Y2K but may still be in use. In addition, the naming conventions for software are not well-established and a widely-used piece of software may retain its original name in common use even when there is a new name or acronym associated with it. When information is available, the inventory notes these cases and identifies name changes resulting from Y2K certification.

EFFECTS OF MODEL/APPLICATION INTEGRATION

A recent trend in models/applications for wildland fire management has been the integration of stand-alone programs into frameworks or suites. These integrated applications may include a combination of older applications known by their separate names, as well as new applications developed and included for additional functionality. The inventory includes a Cross-reference Index to assist readers in locating the current model/application in which a previously developed model/application may now be contained.

LIMITATIONS OF THE PRESENT INVENTORY

Two factors place limitations on the present inventory. One factor relates to the process and method by which the inventory is developed. A second factor relates to the process by which computer-based applications are developed and fielded by Federal fire management agencies.

With regard to the first factor, the present inventory is undertaken in a relatively short time frame and must make use of readily available information largely from web-based sources. Ideally, other resources would be used as well, including contact with developers and reviews of scientific/technical papers and reports. As the inventory progresses, these resources will be included in the development of the inventory as much as practically possible. In the meantime, however, the present inventory takes maximum advantage of readily-available information, but at some (potential) loss of accuracy.

With regard to the second factor, the Federal fire management agencies currently have no general policy in the form of standards and guides for the development and support of computer-based applications. As a result, the various models and applications that exist in the field and that have become established over a number of years through patterns of use are not consistent in terms of either the process of their development or the management of their upgrading and

documentation. The currently-fielded models and applications for wildland fire management reflect a matrix of development efforts, some undertaken by Federal organizations, but others undertaken by states, universities, and even the private sector. The present inventory is developed within this matrix of inconsistent development approaches and as much as possible attempts to introduce a common framework for describing the status of these development efforts. However, it must be recognized that differing development and management approaches may lead to inconsistent processes and products. As a result, some models or applications may not have the background information that is available for others, or the information may not be in the same form.

**Models and Applications by Common Name (Acronym) and Full Name
With Page Reference**

<u>Common Name</u>	<u>Full Name</u>	<u>Page Number</u>
ADaM	Aircraft Data Manager (Dispatch Utilities)	12
ALMS	Automated Lightning Mapping System	13
AMIS	Aviation Management Information System	14
Behave Plus	Fire Behavior Prediction and Fuel Modeling System	15
CCFMS	Changed Climate Fire Modeling System	16
CFES2	California Fire Economics Simulator	17
CONSUME	Same	18
CPS	Campbell Prediction System	19
Crown Mass	Same	20
DFI	Down Fuel Inventory Program	21
DPS	Debris Prediction System	22
EDA	Equivalent Disturbed Area	23
EPM	Emissions Production Model	24
FARSITE	Fire Area Simulator	25
FEIS	Fire Effects Information System	26
FFE-FVS	Fuels Effects Extensions to the Forest Vegetation Simulator (FVS)	27
Fire Danger Calculator	Same	28
FireAway	Same	29
FireBudget2	Same	30
FireDirect	Same	31
Firefamily Plus	Same	32
fireLib	Same	33
FirePro	Same	34
FIRES	Fire Information Retrieval and Evaluation System	35
FIRESTAT	Fire Statistics (Fire Report 5100-29)	36
FIRESUM	Fire Succession Model	37
FireTower	Same	38
FMA Plus	Same	39
FOFEM	First Order Fire Effects Model	40
Hardwood Rangeland Expert System	Same	41
IAA	Initial Attack Analyzer	42
IAMS	Initial Attack Management System	43
ICBS	Interagency Cache Business System	44
ICE9	Incremental Cumulative Effects	45

**Models and Applications by Common Name (Acronym) and Full Name
With Page Reference**

<u>Common Name</u>	<u>Full Name</u>	<u>Page Number</u>
IIAA99	Interagency Initial Attack Assessment	46
KCFAST	Kansas City Fire Access Software	47
MAGIC	Multi-resource Analysis and Geographic Information System	48
MfFSF	Meteorology for Fire Severity Forecasting	49
MIRPS	Multiagency Incident Resource Processing	50
NEXUS	Same	51
NFDRS	National Fire Danger Rating System	52
NFDRSPC	National Fire Danger Rating System 1.2	53
NFMAS	National Fire Management Analysis System	54
NFSPUFF	Same	55
NIFMID	National Interagency Fire Management Integrated Database	56
NIFSIP	National Interagency Fire Statistics Information Project	57
PCDANGER	Same	58
PCHA99	Personal Computer Historical Analysis	59
PLATA	Project-Level Analysis of Treatment Alternatives	60
PLUME	Same	61
PLUMP	Same	62
PRESCRIPTION DESIGN	Same	63
REDCARD	Same	64
RERAP	Rare Event Risk Assessment Process	65
ROSS	Resource Order and Status System	66
RXBURN	Prescribed Fire Conditions	67
RXWTHR	Prescribed Fire Weather	68
SASEM	Simple Approach Smoke Estimation Model	69
SIAM	Structure Ignition Assessment Model	70
SIMPPLLE	Simulating Processes and Patterns at Landscape Scale	71
SIMS	Safety Management Information System	72
SIS	Smoke Impact Spreadsheet	73
SIT Report	National Interagency Situation Report	74
SMSINFO	Same	75
TELSA	Tool for Exploratory Landscape Scenario Analysis	76
TOM/FETM	Programmatic Fuels Management Tradeoff Model	77

**Models and Applications by Common Name (Acronym) and Full Name
With Page Reference**

<u>Common Name</u>	<u>Full Name</u>	<u>Page Number</u>
VALBOX	Ventilated Valley Box Model	78
VCIS	Ventilation Climate Information System	79
VDDT	Vegetation Disturbance Dynamics Tool	80
Ventura Tools	Same	81
WFAS	Wildland Fire Assessment System	82
WFSA	Wildland Fire Situation Analysis	83
WIMS	Weather Information Management System	84

Cross-reference Index of Older Models/Applications to Current Models/Applications

<u>Old Name</u>	<u>Current Name or Integration</u>	<u>Page Number</u>
AFFIRMS	WIMS	84
CAN	ADaM	12
CLIMATOLOGY	FireFamily Plus	32
DEMOB	DPS	22
Dispatch Utilities	ADaM	12
NFDRCALC	PCDANGER, WIMS	58, 84
NFDRSPC	PCDANGER	58
PCFIRDAT	FireFamily Plus	32
PCSEASON	FireFamily Plus	32
SRSS	ADaM	12

Common Name: ADaM

Full Name: Aircraft Data Manager (Dispatch Utilities)

Model subject: Fire planning

Description:

Dispatch Utilities includes ADaM (Aircraft Data Manager) and SRSS (Sunrise - Sunset) programs. ADaM is a tool for flight planners to determine the optimum aircraft-flight combination to fill a request(s) for aircraft services. Included with ADaM is the Sunrise-Sunset time tables for calculating daylight hours for flight time and CAN (Computer Aided Navigation). ADaM, CAN, and Sunrise-Sunset will be loaded on the personal computer as Dispatch Utilities. All other versions of ADaM, CAN, and Sunrise-Sunset are obsolete with this release. Currently CAN will convert Latitudes and Longitudes to a valid legal description for the following 15 western states: AZ, CA, CO, ID, KS, MT, NE, NM, NV, OR, SD, UT, WA, and WY. CAN will not be updated to incorporate the remaining states. ROSS will be released with conversions for all states.

Primary users:

Fire Planners, Fire Management Officers

Limitations:

Further research required.

Model/Application Status: Status:

Operational. Current releases: Version 01.02.1999.02 (Sep 2000) and Version 2.0.1 (Dec 2001). Y2K certification complete.

Support status:

A downloadable User's Guide is available for Version 01.02.1999.02. No user training is fielded or planned. National Support is provided by Fire and Aviation Management System Helpdesk, USDA, Forest Service, Telephone (800) 253-5559, E-mail: fire_help@dms.nwcg.gov. Forests and Districts should contact their Regional support personnel for assistance before contacting National support personnel.

Developer:

Further research required.

Contact:

Further research required.

Reference:

Further research required.

Common Name: ALMS

Full Name: Automated Lightning Mapping System

Model subject: Fire weather

Description:

This application allows the user to download near real time lightning location information from the Bureau of Land Management data server, via the internet. The ALMS system release consists of the following programs: LtngDown (lightning data download software) and Automated Lightning Mapping (an ArcView Extension).

Primary users:

Fire planners, Fire behavior analysts

Limitations:

Further research required.

Model/Application Status: Status:

Operational. Current release: Version ALMS.2.1 (Jun 2001).

Support status:

A downloadable User's Guide is available (Jun 2001). National Support is provided by Fire and Aviation Management System Helpdesk, USDA, Forest Service, Telephone: (800) 253-5559, E-mail: fire_help@dms.nwcg.gov. Forests and Districts should contact their Regional support personnel for assistance before contacting National support personnel. .

Developer:

Further research required.

Contact:

Greg Jensen. Telephone: (208) 387-5438. E-mail: Greg_Jensen@nifc.blm.gov. National contact to establish account (username & password) to download database from BLM.

Reference:

Further research required.

Common Name: AMIS

Full Name: Aviation Management Information System

Model subject: Fire planning & budgeting

Description:

The Aviation Management Information System (AMIS) is an ORACLE relational database management system that handles aircraft-use information for both contract and Forest Service owned aircraft. The information is summarized and reported to USDA and GSA on a regular basis. The system is designed to allow units to share data and reports between units.

Primary users:

Fire planners

Limitations:

Further research required.

Model/Application Status: Status:

Operational. Current release: Version 4.4 (Feb 1999). Y2K certification complete.

Support status:

A downloadable User's Guide is available (Version 4.4; Jan 2002). No national training planned. User support is available from the USDA Forest Service, National Fire and Aviation Management Information Systems Team, 3833 S. Development Avenue, Boise, ID 83705-5354. Telephone: (800) 253-5559. E-mail: fire_help@dms.nwcg.gov

Developer:

Further research required.

Contact:

Further research required.

Reference:

Further research required.

Common Name: BEHAVE (Behave Plus)

Full Name: Fire Behavior Prediction and Fuel Modeling System

Model subject: Fire behavior

Description:

BehavePlus is a PC application to predict wildland fire behavior for fire management purposes. It is designed for use by wildland fire managers familiar with fuels, weather, topography, wildland fire situations, and associated terminology. BehavePlus uses site-specific data to predict fire behavior for a point in time and space. The application has been used for a variety of applications including projection of an ongoing fire, prescribed fire planning, fuel hazard assessment, initial attack dispatch, fire prevention planning, and training. BehavePlus is based primarily on physically-based fire models and therefore can be applied anywhere. Requested values depends on the modeling choices made by the user. Models included in BehavePlus are: Surface fire spread, intensity, flame length; Area and perimeter of a point source fire; Spotting distance; Probability of ignition; Scorch height; Tree mortality. Models recently added to BehavePlus include: Transition to crown fire; Crown fire spread; Large fuel burnout behind the fire front; Consumption of organic ground fuel; Emission production; Soil heating.

Primary users:

Fire Behavior Analysts, Fire Planners, Fire Management Officers

Limitations:

Further research required.

Model/Application Status: Status:

Operational. Current release: Version 1.00.00 (Dec 2001).

Support status:

User support is provided by the USDA Forest Service, Fire and Aviation Management, NIFC, Boise (1-800-253-5559). Email: fire@wo_nifc@fs.fed.us

Developer:

Patricia L. Andrews, Rocky Mountain Research Station, and
Collin D. Bevins, Systems for Environmental Management, Missoula, MT

Contact:

Patricia L. Andrews. Email:

Collin D. Bevins. Email: cbevins@montana.com

Reference:

Andrews, P.L. 1986. BEHAVE: Fire behavior prediction and fuel modeling system-BURN subsystem, part 1, Gen. Tech. Rep. INT-194. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 130p.

Andrews, P.L., Chase, C.H. 1989. BEHAVE: Fire behavior prediction and fuel modeling system-BURN subsystem, part 2, Gen. Tech. Rep. INT-260. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 93 p.

Common Name: CCFMS

Full Name: Changed Climate Fire Modeling System

Model subject: Fire planning, Fire effects

Description:

This is an application that Jeremy Fried & M. Torn were involved in for California. No detailed information is available. It may never have materialized as an actual model that is used for fire planning. In an Internet search, it tends to come up under CFES2, which suggests that it was incorporated into the California Fire Economics Simulator. Further research required.

Primary users:

Further research required.

Limitations:

Further research required.

Model/Application Status: Status:

Further research required.

Support status:

Further research required.

Developer:

Further research required.

Contact:

Further research required.

Reference:

Further research required.

Common Name: CFES2

Full Name: California Fire Economics Simulator

Model subject: Fire economics, Fire planning

Description:

The California Fire Economics Simulator, Version 2 (CFES2) is a computer program to support evaluation of the California Department of Forestry's initial attack fire protection capability. CFES2 facilitates a wide range of "what if" analyses to help managers anticipate the consequences of organizational changes by measuring the capability of initial attack forces to contain wildfires before they can become large and damaging. CFES2 simulates critical conditions associated with initial attack system failure, including extreme fire spread rates and multiple fire starts.

Primary users:

Fire planners

Limitations:

Further research required.

Model/Application Status: Status:

Operational. Current release: Version 2.0.

Support status:

User information is available at: <http://frap.cdf.ca.gov/tools.html>. Further research required.

Developer:

Jeremy Fried (and others). Further research required.

Contact:

Jim Spero, California Department of Forestry. Telephone: (916) 227-2686. E-mail: james_spero@cdf.ca.gov.

Reference:

Fried, J.S. and B.D. Fried. 1996. Simulating Wildfire Containment with Realistic Tactics. *Forest Science* 42:267-281.

Fried, J.S. and J.K. Gilless, 1993. Simulating initial attack: stochastic formulation brings risk consideration to fire protection planning. Proceedings of the International Symposium on Systems Analysis and Management Decisions in Forestry, Valdivia, Chile, March 8-12, 1993 pp. 76-94.

Fried, J.S. 1992. Stochastic simulation of initial attack on wildland fire. Ph.D. Dissertation, University of California, Berkeley. 183 p.

Common Name: CONSUME

Full Name: same as above

Model subject: Fire effects

Description:

Consume is a PC-based, interactive fuel consumption model that predicts total and smoldering fuel/biomass consumption during prescribed fires and wildland fires. The software predicts the amount of fuel consumption and emissions from the burning of logged units, piled debris, and natural fuels based on weather data, the amount and fuel moisture of fuels, as well as a number of other factors. Using these predictions, the resource manager can determine when and where to conduct a prescribed burn to achieve desired objectives while reducing impacts on other resources. Consume is usable for most broadcast and underburns on forested lands in the western states if the woody fuels are relatively homogeneous and composed of Douglas-fir, hemlock, alder, lodgepole pine, or mixed conifer species.

Primary users:

Fire planners

Limitations:

Does not include all vegetation types. Most applicable to western forests.

Model/Application Status: Status:

Operational. Current release: Version 2.1.

Support status:

Current version (CONSUME 2.1) is described on the Fire & Environmental Research Applications (FERA) Web Page (<http://www.fs.fed.us/pnw/fera>). Software and a downloadable User's Guide are available on the FERA website. No training available.

Developer:

David V. Sandberg

Contact:

David V. Sandberg, USDA Forest Service, Pacific Northwest Research Station, 3200 SW Jefferson Way, Corvallis, Oregon 97331. Telephone: (541) 750-7265. FAX: (541) 758-7760. E-mail: dsandberg@fs.fed.us.

Reference:

Ottmar, Roger D.; Burns, Mary F.; Hall, Janet N.; Hanson, Aaron D. 1993. CONSUME users guide. Gen. Tech. Rep. PNW-GTR-304. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 17 p.

Common Name: CPS

Full Name: Campbell Prediction System

Model subject: Fire behavior

Description:

The Campbell Prediction System is a hardcopy publication that outlines a procedure for predicting changes in fire behavior for use by firefighters in judging when to take safety precautions. The book includes shaded terrain maps and solid terrain models that display the trigger points, tracks, and time tags to aid tactics selection.

Primary users:

Fire Management Officers

Limitations:

The CPS is a privately funded project and has one point of sale. It may not be helpful in Alaska or in flat lands.

Model/Application Status: Status:

Operational.

Support status:

Has website

Developer:

Doug Campbell

Contact:

Doug Campbell, P.O. Box 1506, Ojai, CA. 93024. Telephone: (805) 646-7026. Web site: www.dougsfire.com

Reference:

Further research required.

Common Name: CrownMass

Full Name: same as above

Model subject: Fuel management

Description:

CrownMass is a fuel management application to determine fuel loading for debris from crowns, boles, and tops; determine crown mass and a stand's susceptibility to crown fires; predict fire behavior in resultant fuelbed (including crown fire potential); and predict fire effects (including probability of tree mortality). The program generates graphs and prints reports. CrownMass imports tree information from Forest Vegetation Simulator (FVS) output and other sources.

Primary users:

Fire planners, Fuel managers

Limitations:

Further research required.

Model/Application Status: Status:

Operational.

Support status:

A downloadable User's Guide is available at: <http://www.fireps.com/fmanalyst/fmasupport.htm>. User support available at: support@fireps.com. Technical notes available at user support site.

Developer:

Fire Program Solutions. Further research required.

Contact:

Fire Program Solutions, LLC. Telephone: (503) 630-4264. <http://www.fireps.com>

Reference:

Further research required.

Common Name: DFI

Full Name: Down Fuel Inventory program

Model subject: Fuels treatment

Description:

DFI is a computer program to calculate the weight, volume, and depth of dead and downed woody material, using the planar intersect technique to collect the data.

Primary users:

Fire Planners

Limitations:

Further research required.

Model/Application Status: Status:

Further research required.

Support status:

Further research required.

Developer:

Systems for Environmental Management, P.O. Box 8868, Missoula, MT, 59807.

Contact:

Systems for Environmental Management, P.O. Box 8868, Missoula, MT, 59807.

Reference:

"Handbook for Inventorying Downed Woody Material" Intermountain Research Station publication 7TR INT-16, 1974

Common Name: DPS

Full Name: Debris Prediction System

Model subject: Fuels treatment

Description:

DPS is a Y2K compliant replacement for DEBMOD. DEBMOD predicts the weight of potential debris from harvesting & thinning.

Primary users:

Fire Planners, Fire Management Officers, Fuels Managers

Limitations:

Further research required.

Model/Application Status: Status:

Further research required.

Support status:

Further research required.

Developer:

Systems for Environmental Management, P.O. Box 8868, Missoula, MT, 59807.

Contact:

Cam Johnston. USDA Forest Service, Fire Sciences Laboratory, Intermountain Research Station, Missoula, MT, 59807.

Reference:

Further research required.

Common Name: EDA

Full Name: Equivalent Disturbed Area

Model subject: Fire effects, Fuels treatment

Description:

EDA is a spreadsheet application for identifying, assessing, and displaying cumulative impacts of forest activities, including fire, as related to 6th-code watersheds. This may be an old program with limited application to fire. Further research required.

Primary users:

Fire Planners, Fuels Managers

Limitations:

Further research required.

Model/Application Status: Status:

Further research required.

Support status:

Further research required.

Developer:

Jerry Colmer

Contact:

Apache-Sitgreaves NF, Springerville, AZ.

Reference:

Further research required.

Common Name: EPM

Full Name: Emissions Production Model

Model subject: Fire behavior, Smoke management

Description:

The Emissions Production Model (EPM) 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. EPM also produces the rate of heat release for application to plume rise models. It has recently been improved with new smoldering decay rates and a new ignition module.

Primary users:

Fire Planners, Fuels Managers

Limitations:

Further research required.

Model/Application Status: Status:

Operational. Current release: Version 1.02. Originally developed as a batch file system under DOS. Software available on FERA website. Version 2.0 expected release 1999, but not on website as yet.

Support status:

EPM sample files & runs as well as software download available on FERA website (<http://www.fs.fed.us/pnw/fera>). Documentation available on FERA website. No User's Guide available. No training available.

Developer:

David V. Sandberg and/or Sue A. Ferguson

Further research required.

Contact:

David V. Sandberg, USDA Forest Service, Pacific Northwest Research Station, 3200 SW Jefferson Way, Corvallis, Oregon 97331. Telephone: (541) 750-7265. FAX: (541) 758-7760. E-mail: dsandberg@fs.fed.us

Reference:

Ferguson, S.A.; Hardy, C.C. 1994. Modeling Smoldering Emissions from Prescribed Broadcast Burns in the Pacific Northwest. *International Journal of Wildland Fire*, 4(3):135-142.

Ferguson, S.A.; Sandberg, D.V.; Ottmar, R. 1998. Wild-land biomass emissions affected by land-use changes. In: *Second Symposium on Fire and Forest Meteorology*, 11-16 January 1998, Phoenix, Az. Boston, MA: American Meteorological Society: 71-74.

Common Name: FARSITE

Full Name: Fire Area Simulator

Model subject: Fire behavior, Fire planning

Description:

FARSITE is a fire growth simulation model used for long-range projections of active wildland fires and for fire planning purposes. It uses spatial information on topography and fuels along with weather and wind files. FARSITE incorporates existing models for surface fire, crown fire, spotting, and fire acceleration into a 2-dimensional fire-growth model. Long-Range Projections on active fires are made for different weather scenarios to analyze how fire growth patterns may change depending on future weather conditions. These predictions are most appropriate for prescribed natural fires (PNFs) in National Parks and wilderness areas. Fire Planning applications can use FARSITE to examine how effective fuel treatments may be, or what could happen if a fire started in a given location under given weather scenarios. FARSITE outputs include tables, graphs, and 2D/3D visual maps of fire growth, behavior, area, and perimeter over time. The program also simulates the effects of both ground and aerial suppression activities on fire behavior and spread.

Primary users:

Fire Behavior Analysts, Fire Management Officers

Limitations:

FARSITE is a complex program that utilizes a number of separate models to perform its simulation. The program makes simplifying assumptions about weather, wind, fuel moistures, and fire behavior. These assumptions may limit the accuracy of simulations, particularly those that extend out over long time periods or wide geographic areas. The program does not account for multiple fires that may interact.

Model/Application Status: Status:

Operational. Current release: Version 3.0.

Support status:

Support available through the National Information System Team, Boise, ID. Telephone: (800)253-5559. Email: fire?/wo_nifc@fs.fed.us. A list of "super-users" is also available upon request. A discussion forum is available on the FARSITE homepage. FARSITE 3.0 comes with online Windows help. A downloadable Users Manual is available. A tutorial and some sample files are provided.

Developer:

Mark A. Finney

Contact:

Mark A. Finney, Systems for Environmental Management, P.O. Box 8868, Missoula, MT, 59807.

Reference:

Extensive references are given in the Users Guide.

Common Name: FEIS

Full Name: Fire Effects Information System

Model subject: Fire effects

Description:

The Fire Effects Information System (FEIS) is a computerized encyclopedia of information describing the fire ecology of more than 1,000 plant and animal species and plant communities. FEIS is accessed directly via the Internet using a search engine on the FEIS website. FEIS provides forest and rangeland managers, scientists, and students with access to in-depth information for applying ecological research to natural resource planning. The FEIS database contains synoptic descriptions, taken from current English-language literature of almost 900 plant species, about 100 animal species, and 16 Kuchler plant communities found on the North American continent. The emphasis of each synopsis is fire and how it affects each species. Background information on taxonomy, distribution, basic biology and ecology of each species is also included. Synopses are thoroughly documented, and each contains a complete bibliography. Personnel from several land management agencies (USDA Forest Service, USDI-BIA, NPS, BLM, F&WS) identified the species to be included in the database.

Primary users:

Forest and Rangeland Managers, Scientists.

Limitations:

FEIS Knowledge Base summaries are not updated annually, and may not contain recent information.

Model/Application Status: Status:

Operational. Software available at: <http://www.fs.fed.us/database/feis/index.html>

Support status:

Support is provided by the USDA Forest Service. FEIS is a menu driven application and can be operated with no previous training. A User's Guide is available and can be used as a tutorial.

Developer:

USDA Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory, Missoula, Montana.

Contact:

Cam Johnston (406) 329-4810; or Jane Kapler Smith (406) 329-4805 Email: cjohnston@fs.fed.us OR jsmith09@fs.fed.us

Reference:

Further research required.

Common Name: FFE-FVS

Full Name: Fuels Effects Extension to the Forest Vegetation Simulator (FVS)

Model subject: Fire effects

Description:

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. The goal of the application is to provide forest managers with a method for assessing the effects of treatment alternatives on fuel dynamics and fire potential into the future. The program uses stand-type data including a tree list to describe the stand. Initial fuel loadings can be set, but default values are available. Treatments including harvest, planting, prescribed fire, fuel treatment, and wildfire must be scheduled and described. Outputs include tables depicting surface fuels and standing dead and live biomass over time; fire behavior, fuel consumption, smoke production, and tree mortality in the event of a fire; stand characteristics over time; and potential fire intensity (flame length, crown fire potential) over time.

Primary users:

Fuels Managers, Fire Planners, Fire Management Officers

Limitations:

Currently calibrated for the Intermountain West. Geographic variants for FVS exist for most of the forested land in the U.S.; the fire and fuels extension can be linked to these variants with some additional work. Further work is necessary to make this model available to users throughout the nation, and to complete the documentation of this model.

Model/Application Status: Status:

Operational.

Support status:

Software is downloadable from: <http://www.fs.fed.us/fmssc/fvs.htm> User's Guides and Manuals are under development. Documentation is currently incomplete. Future technical support will be provided by the Ft. Collins Timber Management Group and Methods Application Group.

Developer:

Further research required.

Contact:

Further research required.

Reference:

Buekema, S., Greenough, J, Kurz, W. and Robinson, D. 1996. FVS-fire Model: Model Description. Working Document.

Common Name: Fire Danger Calculator

Full Name: same as above

Model subject: Fire behavior

Description:

The Fire Danger Calculator is a computer program that calculates fire danger using weather and vegetation information. The output of the program includes an index of fine fuel moisture, fuel buildup, fuel dryness, fire weather conditions, and an overall fire danger rating.

Primary users:

Fire Staff

Limitations:

The program was developed for use in Florida and may not be applicable to other geographic areas.

Model/Application Status: Status:

Operational.

Support status:

A website is available at: http://flame.fl-dof.com/fire_weather/software/firedanger.html.

Developer:

Florida Division of Forestry

Contact:

Further research required.

Reference:

Further research required.

Common Name: FireAway

Full Name: same as above

Model subject: Fire behavior

Description:

FireAway is a subset of the Behave software, plus additional tools and calculations from the Fireline Handbook, that runs on a handheld Palm computer. FireAway provides information such as relative humidity from wet & dry bulb readings, fuel moisture, probability of ignition, midflame windspeed, and fire behavior indicators (e.g., flamelength, rate of spread, heat, fireline intensity, direction of maximum spread). FireAway includes online help screens as well as reference resource such as suppression resource production rage, resource typing, and a hand signals reference.

Primary users:

Fire behavior analysts, Fire management officers

Limitations:

Further research required.

Model/Application Status: Status:

Operational. Further research required.

Support status:

Further research required.

Developer:

John Covele

Contact:

John Covele, Pocket Mobility, Inc., 2935 Iris Ave., Suite B, Boulder, CO 80304. Telephone: (303) 546-6200. Web: <http://www.pocketmobility.com>

Reference:

Further research required.

Common Name: FireBudget2

Full Name: same as above

Model subject: Fire budgeting, Fire planning

Description:

FireBudget2 is a budget analysis tool to assist planners in determining Fire and Aviation Management budgets. Using various funding levels, FireBudget2 determines allocation at the Most Efficient Level (MEL) as calculated in the National Fire Management Analysis System (NFMAS).

Primary users:

Fire planners, Budget analysts

Limitations:

Further research required.

Model/Application Status: Status:

Current release: Version 2.01 (Mar 2000). Status unknown at this time. Released January 1998 for regional use. Further research required.

Support status:

National Support is provided by USDA Forest Service, Fire and Aviation Management System Helpdesk, Telephone: (800) 253-5559. Email: fire_help@dms.nwcg.gov. Further research required.

Developer:

Further research required.

Contact:

Further research required.

Reference:

Further research required.

Common Name: FireDirect

Full Name: same as above

Model subject: Fire planning, Fire effects

Description:

FireDirect is mapping software that provides GIS capabilities for agencies fighting fires in the Wildland/Urban Interface. The software allows the users to collect structure and water source information on palm computers, view structure information and photos, create and run relative hazard models on structure information, create GPS plots, create incident maps, and track locations and assignments of responding engines and crews. FireDirect support preplanning activities in the field, and allows rapid retrieval of information and photographs for threatened structures.

Primary users:

Fire Planners, Fire Management Officers

Limitations:

Further research required.

Model/Application Status: Status:

Further research required.

Support status:

Further research required.

Developer:

Clark Woodward

Contact:

RedZone Software, 4582 Fourmile Canyon Dr., Boulder, CO 80302. Telephone: (303)-544-0170.
Website: www.redzonesoftware.com

Reference:

Further research required.

Common Name: Firefamily Plus

Full Name: same as above

Model subject: Fire planning

Description:

Firefamily Plus is a Windows-based program that integrates historical analysis programs that operate against the fire weather and fire occurrence databases in the National Integrated Fire Management Interagency Database (NIFMID). The programs incorporated (and expanded) in Firefamily Plus include: PCFIRDAT (processes historical fire weather data); PCSEASON (does primitive graphics, conditional climatology, seasonal severity, and RERAP reports); FIRES (reads fire occurrence files and does analysis of index or weather variable performance in terms of the relationships between seasonal index traces and fire occurrence potential); and CLIMATOLOGY (provides detailed climate information by 10-day and monthly periods). Outputs of FireFamily Plus include detailed graphic and tabular fire weather/fire danger climate summaries by user specified time periods for individual stations or SIGS (special interest groups); PCSEASON text reports (Persistence, Severity List and Summary, Probability Analysis, Daily Lists, and RERAP queries); NFDR Pocket Cards; Basic fire occurrence summaries (e.g., correlation of fire occurrence to weather/NFDRS parameters, threshold analysis). The database structure allows for fire occurrence analysis from adjoining regions of different protection agencies.

Primary users:

Fire Behavior Analysts, Fire Management Officers

Limitations:

Further research required.

Model/Application Status: Status:

Current release: Version 2.0.

Support status:

A downloadable User's Guide is available (Version: July 1, 2000). User support is provided by the F&AM National Systems Support Group, NIFC, Boise, ID. Telephone (800) 253-5559. The latest version and user guide are available online at: <http://www.fs.fed.us/fire/planning/nist/applicat.htm>.

Developer:

Further research required.

Contact:

Further research required.

Reference:

Main, William A., Donna M. Paananen, and Robert E. Burgan. 1990. FIREFAMILY 1988. USDA For.Serv. Gen. Tech. Report NC-138, 35 p. North Central Forest Experiment Station, St. Paul, MN. Additional references are provided in the User's Guide. Further research required.

Common Name: fireLib

Full Name: same as above

Model subject: Fire behavior

Description:

fireLib is a C function library for predicting the spread rate and intensity of free-burning wildfires. While fireLib is a direct descendant of the BEHAVE fire behavior algorithms for predicting fire spread, it is optimized for highly iterative applications such as cell- or wave-based fire growth simulation. The download file contains the C source code, a simple "make" file, sample code showing use of the C APIs, and technical documentation in PostScript format. For program developers writing a fire behavior simulation in C/C++, fireLib provides a highly optimized API to quickly implement BEHAVE fire spread capability.

Primary users:

Program/Application Developers

Limitations:

Further research required.

Model/Application Status: Status:

Operational. Further research required.

Support status:

A downloadable User's Manual is available with the software download. Further research required.

Developer:

Collin D. Bevins

Contact:

Systems for Environmental Management, P.O. Box 8868, Missoula, MT 59807

Reference:

Further research required.

Common Name: FirePro

Full Name: same as above

Model subject: Fire economics, Fire planning

Description:

This is the USDI National Park Service model for fire economics and planning. Further research required.

Primary users:

Fire Planners

Limitations:

Further research required.

Model/Application Status: Status:

Operational. Further research required.

Support status:

FIREPRO runs are conducted at the National Interagency Fire Center, Boise, ID. For information contact Steve Botti at NIFC. Telephone: (208) 387-5200. Email: stephen_botti@nps.gov.

Developer:

Further research required.

Contact:

Further research required.

Reference:

Further research required.

Common Name: FIRES

Full Name: Fire Information Retrieval and Evaluation System

Model subject: Fire planning

Description:

Fire Information Retrieval and Evaluation System (FIRES) 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. Historical seasonal trends of fire danger and fire occurrence can be plotted and compared. Methods for defining critical levels of fire danger are provided. FIRES can be used by land managers who use fire danger rating in decision making and by researchers who may be evaluating new indexes. Potential applications include interpretation of fire danger indices, choice of appropriate index and fuel model, setting decision levels, choice of weather stations, and revision of NFDRS. FIRES applies to any geographic area and can be used for any fire danger index. The user can define formats for index data. Outputs of FIRES include tables, graphs and statistics that can output directly or exported to a database program or other applications. FIRES provide a methodology for analyzing and interpreting fire danger rating indices.

Primary users:

Fire Management Officers, Fire Behavior Analysts

Limitations:

FIRES has weaknesses in graphics and print drivers. This will be remedied through incorporation into FIREFAMILY+. Further research required.

Model/Application Status: Status:

Operational. FIRES is maintained and supported by Forest Service Fire and Aviation Management, National Interagency Fire Center (NIFC), Boise, ID. FIRES will be incorporated into FIREFAMILY+, which is currently under development.

Support status:

Forest Service Fire and Aviation Management HELP desk. Telephone (800) 253-5559. Email: fire?/wo_nifc@fs.fed.us.

Developer:

Pat Andrews and Larry Bradshaw

Contact:

pandrews/rmrs_missoula@fs.fed.us (Pat Andrews)
lbradshaw/rmrs_missoula@fs.fed.us (Larry Bradshaw)

Reference:

Andrews, Patricia I.; Bradshaw, Larry S. 1997. FIRES: Fire Information Retrieval and Evaluation System-- a program for fire danger rating analysis. Gen. Tech. Rep. INT-GTR-367. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 64 p.

Common Name: FIRESTAT

Full Name: Fire Statistics (Fire Report 5100-29)

Model subject: Fire planning

Description:

Fire Statistics (Fire Report 5100-29, Version: 5.1.1) is an application to electronically enter and store information from the FS-5100-29 Individual Fire Report form. The information is initially acquired by filling out the fire report form that is, then, input to files on the local computer. Periodically, the files are transmitted to the National Information Technology Center in Kansas City, where it is loaded into the National Interagency Fire Management Integrated Database (NIFMID) for historic analysis. Regional and National reports and analyses may be generated using this centralized database.

Primary users:

Fire Planners

Limitations:

Further research required.

Model/Application Status: Status:

Operational. Y2K-Certification Complete. Software download is available at:
<http://www.fs.fed.us/fire/planning/nist/firestat.htm>

Support status:

A downloadable Users' Guide is available (Version 5.2, Jan 2002). The FireStat User Reference Guide is available on the F&AM Fire Applications Support Desk WEB page at
<http://www.fs.fed.us/fire/planning/nist/firestat.htm> .

Developer:

Further research required.

Contact:

National Information Systems Technical Support, Email: fire_help@dms.nwcc.gov, Telephone: (800) 253-5559, Fax: (208) 387-5292.

Reference:

Further research required.

Common Name: FIRESUM

Full Name: Fire Succession Model

Model subject: Fire effects, Fuels treatment

Description:

FIRESUM is a deterministic ecosystem process model that simulates long-term stand dynamics of forests in the Northern Rocky Mountains. The model simulates tree regeneration, growth and mortality given stochastic fire events. In the model, individual trees are grown deterministically using an annual time step. Tree growth is affected by light, water and nutrients. Fuel loadings are calculated annually and fire is simulated by reducing litter, duff, and down woody fuels. The model simulates forest stand dynamics. The model requires species parameters as input as well as site parameters, such as weather, elevation, and soil characteristics. Output includes the average basal area for each tree species simulated, fuel values of forest components and fire behavior statistics. This program may be superceded by FOFEM. Further research required.

Primary users:

Fire planners.

Limitations:

Further research required.

Model/Application Status: Status:

Operational. Further research required.

Support status:

A User's Guide and technical manual are available. Further research required.

Developer:

Bob Keane

Contact:

Bob Keane, USDA Forest Service, Intermountain Research Station, PO Box 8089, Missoula, MT 59807.
Telephone: (406)329-4846 Fax : (406) 329-4877/ Further research required.

Reference:

Keane, R.E., Arno, S.F., Brown, J.K., 1989. USDA Forest Service Intermountain Research Station General Technical Report INT-66 FIRESUM - An ecological Process Model for Fire Succession in Western Conifer Forests.

Common Name: FireTower

Full Name: same as above

Model subject: Fire behavior

Description:

FireTower is a computer program for simulating the movement of fire through landscapes. FireTower allows users to simulate the spread of fires through the landscape from digital earth images including, aerial photographs or satellite imagery, on Macintosh and Power Macintosh computers. FireTower lets land managers and foresters simulate how fires spread through the land allowing managers to conduct scenarios useful in predicting the behavior of wildfires.

Primary users:

Fire planners.

Limitations:

Further research required.

Model/Application Status:

Operational. Further research required.

Support status:

An information page is available at: <http://home.att.net/~podolsky/firetower.htm>. Further research required.

Developer:

Richard Podolsky, Ph.D.

Contact:

Richard Podolsky, Ph.D. Avian Systems, 95 Magnolia Ave., Tenafly, NJ 07670. Telephone: (201) 568-9494. Fax: (201) 568-6959. Email: podolsky@aol.com.

Reference:

Further research required.

Common Name: FMA Plus

Full Name: same as above

Model subject: Fire behavior, Fire effects

Description:

FMA Plus is a software package designed to calculate Down and Dead Woody 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. The software catalogs and runs reports for Brown's DDWoody inventories, creates data files to store stick counts, calculates and predicts fire behavior for Crown Mass. The software also creates a digital photo series with the option to make side-by-side comparisons and print photos for burn plans with the fuel loading.

Primary users:

Fuels Managers.

Limitations:

Further research required.

Model/Application Status:

Operational. Current release: Version 1.2.20 (Jan 2002).

Support status:

A downloadable User's Guide is available at: <http://www.fireps.com/fmanalyst/fmasupport.htm>. User support available at: support@fireps.com. Technical notes available at user support site.

Developer:

Further research required.

Contact:

Fire Program Solutions, LLC. Telephone: (503) 630-4264. Internet: <http://www.fireps.com>

Reference:

Further research required.

Common Name: FOFEM

Full Name: First Order Fire Effects Model

Model subject: Fire effects, Smoke management

Description:

First Order Fire Effects Model (FOFEM) is a computer program for predicting effects of prescribed fire and wildfire. FOFEM predicts fuel consumption, smoke production and tree mortality on forest and non-forest vegetation types. Potential uses include wildfire impact assessment, development of salvage specifications, design of fire prescriptions, environmental assessment and fire management planning. FOFEM can also be used in real-time to estimate tree mortality, smoke generation and fuel consumption of ongoing fires. FOFEM computes the direct effects of prescribed fire or wildfire: fuel consumption by fuel component for duff, litter, small and large woody fuels, herbs, shrubs and tree regeneration, and crown foliage and branchwood; mineral soil exposure, smoke production (lbs/acre) of CO, PM10, and PM2.5; soil heating; and percent tree mortality by species and size class. FOFEM also contains a planning mode for prescription development.

Primary users:

Resource managers, fire planners, and fire analysts in predicting and planning for fire effects.

Limitations:

Scope is limited to the Interior West Fire Effect Region. Includes most but not all vegetation types.

Model/Application Status:

Operational. Current release: Version 5.0 (Spring 2002). Software is downloadable at <http://www.fore.org/perl/tools.cgi>. Current FOFEM users should replace Version 4.0 with Version 5.0.

Support status:

FOFEM is supported by the Fire Effects Research Work Unit, Intermountain Fire Sciences Lab, Missoula, MT 59807. Software includes embedded help and user's information.

Developer:

Elizabeth Reinhardt

Contact:

Elizabeth Reinhardt, USDA Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory, Prescribed Fire and Fire Effects Research Unit, Missoula, MT 59807. Email: ereinhardt@fs.fed.us

Reference:

See the FOFEM home page: <http://fire.org/cgi-bin/nav.cgi?pages=fofem&mode=1> (note: FOFEM home page contains no scientific or technical references.). Further research required.

Common Name: Hardwood Rangeland Expert System

Full Name: same as above

Model subject: Fire Planning

Description:

This study describes a state-and-transition model for hardwood rangelands that portrays vegetation dynamics at a particular site as a set of transitions between discrete and persistent vegetation conditions, or states. Either natural disturbances (e.g., weather, fire, herbivores) or management actions (e.g., grazing, burning, wood harvest, elimination or introduction of plant species, fertilization) can trigger transitions between states. Very often transitions require a particular combination of causes. Transitions may occur rapidly, as with fire, or over a period of many years, as with recruitment of trees. Yet, in either case the system crosses a threshold between states and cannot persist halfway through a transition.

Primary users:

Further research required.

Limitations:

Further research required.

Model/Application Status:

Further research required.

Support status:

Further research required.

Developer:

Further research required.

Contact:

Bob Motroni. Telephone: (916) 227-2657. Email: Robert_Motroni@fire.ca.gov.

Reference:

Further research required.

Common Name: IAA

Full Name: Initial Attack Analyzer

Model subject: Fire planning, Fire budgeting, Fire economics

Description:

IAA is part of the National Fire Management Analysis System (NFMAS). After initial inputs, the program games different organizational mixes and budget levels. The user is presented with a marginal analysis of the efficiency of the present and alternative organizations.

Primary users:

Fire Planners

Limitations:

Further research required.

Model/Application Status:

Further research required.

Support status:

Further research required.

Developer:

Dick Chase

Contact:

USDA Forest Service W/O, F&AM

Reference:

Further research required.

Common Name: IAMS

Full Name: Initial Attack Management System

Model subject: Fire planning

Description:

The Initial Attack Management System (IAMS) provides frequently used aviation functions to expedite field operations. The functions display aviation data as text. Graphical display of some of this information is also provided by the IAMS Maps application. IAMS provides the aviation utilities in a stand-alone mode. The IAMS Aviation objectives are to decrease the workload of dispatchers and aviation managers in accessing aviation data during high-activity levels common to multiple and/or large fire situations. In addition, IAMS provides non-agency personnel (FAA and military) with text-based information enhancing their ability to deconflict airspace and avoid areas during land management operations. The application provides a current automated data source for these data on MTRs and SUA, Airport/Facility Directories that are updated on 28 and 56 day cycles.

Primary users:

Fire Management Officers, Fire Dispatchers

Limitations:

There are some limitations to the stand-alone mode, chiefly the dynamic data link Temporary Flight Restriction (TFR) is not shared automatically between field units. However, the basics of the stand-alone operations are the same. The Dispatch and Hazards dialog boxes require that a geographic point be defined before they can perform their searches and display the results. The various applications that host the aviation functionality provide the user with different methods of selecting the geographic point. This documentation does not address how the point might be defined. Further research required.

Model/Application Status:

Operational. Further research required.

Support status:

A downloadable User's Guide is available (Version: 3/10/99). User support is also available from Larry Mahaffey (USDOI NIFC, 208-387-5160) or from the USDA Forest Service, National F&AM Support, 800-253-5559. Further research required.

Developer:

Further research required.

Contact:

Further research required.

Reference:

Further research required.

Common Name: ICBS

Full Name: Interagency Cache Business System

Model subject: Fire planning, Resource ordering & tracking

Description:

Interagency Cache Business System is an ORACLE-based automated fire cache inventory system designed to assist in inventory control and cost accounting for all items stocked in the National Fire Equipment System (NFES). The application is intended for use by the USDA, Forest Service and USDI, Bureau of Land Management National Interagency Support Caches.

Primary users:

Fire Planners

Limitations:

Further research required.

Model/Application Status:

Operational. Current release: Version 2.01. Y2K-Certification completed. Further research required.

Support status:

Training materials and a training guide are available on request. A downloadable User's Guide is available at: <http://www.fs.fed.us/fire/planning/nist/distribu.htm#Distribution>. Further research required.

Developer:

Further research required.

Contact:

Further research required.

Reference:

Further research required.

Common Name: ICE9

Full Name: Incremental Cumulative Effects

Model subject: Further research required.

Description:

This is an application that appears on SEM's home page. No other information is readily available. Further research required.

Primary users:

Further research required.

Limitations:

Further research required.

Model/Application Status:

Further research required.

Support status:

Further research required.

Developer:

Systems for Environmental Management (SEM)

Contact:

Systems for Environmental Management, P.O. Box 8868, Missoula, MT, 59807.

Reference:

Further research required.

Common Name: IIAA99

Full Name: Interagency Initial Attack Assessment

Model subject: Fire planning, Fire budgeting, Fire economics

Description:

Interagency Initial Attack Assessment (IIAA99) is a tool used to develop budget requests as part of the National Fire Management Analysis System (NFMAS) process. IIAA is used by administrative planning units to select the most effective fire program for a given budget, identify the best location to station additional firefighting resources, and simulate the effects of alternative dispatch policies and escape criteria. Input information needed includes fire and cost data, fire history, output size class specifications, average per acre suppression cost, resources, and dispatch specifications. Output information produced includes: event lists, fire frequency, expected annual missions, and initial attack success. IIAA is intended to help fire planners analyze different scenarios or program options that describe mixes of fire-fighting resources and other budget items. This analysis will primarily focus on finding the Most Efficient Level (MEL) of funding.

Primary users:

Fire Planners

Limitations:

Further research required.

Model/Application Status:

Operational. Current release: Version 1.2.0 (Mar 2001). Further research required.

Support status:

A downloadable User's Guide is available (Ver. 1.2.0). Further research required.

Developer:

National Fire and Aviation Management Information Systems Team

Contact:

National Fire and Aviation Management Information Systems Team, NIFC, 3833 S. Development Ave., Boise, ID 83705-5354. Telephone: (800) 253-5559. Email: fire?/wo_nifc@fs.fed.us.

Reference:

Further research required.

Common Name: KCFAST

Full Name: Kansas City Fire Access Software

Model subject: Fire planning

Description:

KCFast is a menu-based computer application that simplifies data retrieval from the National Interagency Fire Management Integrated Database (NIFMID). KCFast is currently being converted into a web-based application, allowing users the flexibility of the web and file transfer protocol (ftp) to move data between the Weather Information Management System (WIMS) and the workstations on the units. KCFast builds the Job Control Language (JCL) required to query NIFMID for fire and weather data. KCFast is a PC based system. The software is primarily used to access data in the National Interagency Fire Management Integrated Database (NIFMID). The application removes the burden of having to remember the IBM Job Control Language or to use a text editor for constructing "lead cards" to run applications.

Primary users:

Fire Planners, Fire Management Officers, Fuels Managers

Limitations:

Further research required.

Model/Application Status:

Operational. A software download is available at: <http://www.fs.fed.us/land/fire/kcfastpc.htm>. A version of KCFAST using WEB technology is available at NITC-Kansas City, and can be found at <http://famweb.nwcg.gov>.

Support status:

A downloadable User's Guide is available at: <http://www.fs.fed.us/fire/planning/nist/distribu.htm>. No national training is planned.

Developer:

Jeff Barnes (F&AM, Boise, ID), Dan Ervin (F&AM, Boise, ID), Steve Rorabaugh (USDA-NITC, Ft. Collins, CO)

Contact:

National Fire & Aviation Management Information System Team, 3833 S. Development Ave., Boise, ID, 83705-5354. Telephone: (800) 253-5559. Email: fire?wo_nifc@fs.fed.us.

Reference:

Bradshaw, Larry S. and Patricia L. Andrews. 1990. FCFAST: Fort Collins fire access software. Fire Management Notes 51(4):26-27.

Common Name: MAGIS

Full Name: Multi-resource Analysis and Geographic Information

Model subject: Fire planning

Description:

MAGIS is a modeling system for integrating ecological and social information, and scheduling management treatments spatially and temporally for a landscape. In addition, the model computes the effects on the landscape from the schedule of treatments. A wide variety of management practices can be accommodates, including prescribed burning. A variety of relationship types are available for addressing management issues: outputs (e.g., wildlife habitat indices, sediment yield, harvest volume), acres with specified characteristics (e.g., acres in a specific stand structure class), miles of network with specific characteristics (e.g., miles of road closing), costs, and net revenues. These relationships can be calculated for the entire planning area, or sub-components such as individual drainages. In additional, MAGIS provides for spatial relationships that address wildlife security areas, corridors, and activities on adjacent treatment units.

Primary users:

Fuels managers, Fire ecologists, Fire planners

Limitations:

Further research required.

Model/Application Status:

Pre-operational. Expected release FY 2003. Further research required.

Support status:

An information page can be found at: <http://www.fs.fed.us/rm/missoula/4802/page29.html>. Further research required.

Developer:

Greg Jones, Janet Sullivan, Kurt Krueger, Judy Troutwine

Contact:

Tel: (406) 542-4150. FAX: (406) 543-2663

Reference:

Further research required.

Common Name: MfFSF

Full Name: Meteorology for Fire Severity Forecasting

Model subject: Fire weather, Fire planning

Description:

Meteorology for Fire Severity Forecasting (MfFSF) 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. Information provided by MfFSF includes: afternoon temperature forecast, afternoon relative humidity forecast, chandler burning index, and precipitation frequency. The monthly weather forecast provided by MfFSF characterizes the weather-induced fire potential for the continental United States as an average for the month.

Primary users:

Fire Planners, Fuels Managers

Limitations:

Further research required.

Model/Application Status:

Operational. Further research required.

Support status:

A website is available at: <http://www.rfl.psw.fs.fed.us/met/MFWF.html> Further research required.

Developer:

Francis Fujioka

Contact:

USDA Forest Service, Pacific Southwest Research Station, Riverside Fire Lab, Riverside, CA.
Telephone: (909) 680-1552. Email: ffujioka/psw_rfl@fs.fed.us

Reference:

Further research required.

Common Name: MIRPS

Full Name: Multiagency Incident Resource Processing

Model subject: Firefighting resource ordering

Description:

Multiagency Incident Resource Processing (MIRPS) evaluation is being conducted as part of ROSS project during the third quarter of FY98. Further research required.

Primary users:

Further research required.

Limitations:

Further research required.

Model/Application Status:

Further research required.

Support status:

Further research required.

Developer:

Further research required.

Contact:

Further research required.

Reference:

Further research required.

Common Name: NEXUS

Full Name: same as above

Model subject: Fire behavior

Description:

NEXUS is an EXCEL spreadsheet that links surface and crown fire prediction models. The spreadsheet supports evaluation of alternative fuel treatments for reducing risk of crown fire, exploration of the influence of different factors on prediction of fire behavior and crowning potential, and aids assessment of surface and canopy fuels. NEXUS provides site-specific indices of crown fire hazard.

Primary users:

Fire Management Officers, Fuels Managers, Fire Behavior Analysts

Limitations:

Further research required.

Model/Application Status:

Operational. Requires Microsoft Excel for operation. Further research required.

Support status:

Software download and technical notes available at: <http://www.huntana.com/nexus/nexus.html>. Further research required.

Developer:

Joe Scott (SEM) and Elizabeth Reinhardt (USDA Forest Service)

Contact:

Joe Scott, Systems for Environmental Mangement, Missoula, MT. Telephone: (406) 329-4837. Email: jscott@montana.com.

Reference:

Scott, J. H. and Reinhardt, E. D. 2001. Assessing crown fire potential by linking models of surface and crown fire behavior. Res. Pap. RMRS-RP-29. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 59 p

Common Name: NFDRS

Full Name: National Fire Danger Rating System

Model subject: Fire planning

Description:

NFDRS provides indices to aid in broad scale fire management planning activities. The system utilizes current fire weather to derive indices that relate to potential fire occurrence and behavior. The National Fire danger Rating System is a set of computer programs and algorithms that allow land management agencies to estimate today's or tomorrow's fire danger for a given rating area. NFDRS characterizes fire danger by evaluating the approximate upper limit of fire behavior in a fire danger rating area during a 24-hour period. Calculations of fire behavior are based on fuels, topography and weather (the fire triangle). NFDRS outputs give relative ratings of the potential growth and behavior of any wildfire. Fire danger ratings are guides for initiating pre-suppression activities and selecting the appropriate level of initial response to a reported wildfire in lieu of detailed, site- and time-specific information. It links an organization's readiness level (or pre-planned fire suppression actions) to the fire problems of the day.

Primary users:

Fire planners.

Limitations:

Further research required.

Model/Application Status:

Operational. Further research required.

Support status:

Further research required.

Developer:

John Deeming, Bob Bergen

Contact:

Further research required.

Reference:

Deeming, John E., Robert E. Burgan, and Jack D. Cohen. 1977. The national fire-danger rating system - 1978. Gen. Tech. Rep. INT-39. Intermountain Forest and Range Experiment Station, Ogden, UT: US Department of Agriculture, Forest Service.

Common Name: NFDRSPC

Full Name: National Fire Danger Rating System 1.2

Model subject: Fire planning, Fire weather

Description:

NFDRSPC is a PC-version of the National Fire Danger Rating System (NFRDS) that processes weather observations and forest and rangeland fuels data to produce probable wildland fire-danger indices.

Primary users:

Fire planners, Fire management officers

Limitations:

Further research required.

Model/Application Status:

Operational. Users of NFDRSPC are encouraged to use its replacement PCDanger.

Support status:

A downloadable Users' Guide is available at: http://www.srs.fs.fed.us/pubs/gtr/gtr_se061.pdf

Developer:

Further research required.

Contact:

Further research required.

Reference:

Donaldson, Bryan G.; Paul, James T. (1990). NFDRSPC: The National Fire-Danger Rating System on a Personal Computer General Technical Report SE-61. Asheville, NC: U.S. Dept. of Agriculture, Forest Service, Southeastern Forest Experiment Station. 49 p.

Common Name: NFMAS

Full Name: National Fire Management Analysis System

Model subject: Fire planning

Description:

NFMAS analyzes data and alternatives for fire planning and budgeting. NFMAS calculates the Most Efficient Level (MEL) of funding for fire-fighting resources based upon average historic fire activity. Analysis of historical data develops key numbers that reflect the historical fire occurrence base for a fire planning project area. Output from the analysis becomes a part of the basic input for other portions of the NFMAS process.

Primary users:

Fire planners

Limitations:

Further research required.

Model/Application Status:

Operational. Current release: Version 2.30.0. Further research required.

Support status:

User support available from: Fire and Aviation Management Applications Helpdesk. Email: fire_help@dms.nwcg.gov. Telephone: (800) 253-5559 or (208) 387-5290. Software components and technical notes downloadable at: <http://www.fs.fed.us/fire/planning/nist/distribu.htm#Distribution>.

Developer:

Dick Chase

Contact:

USDA Forest Service W/O, F&AM. Further research required.

Reference:

Further research required.

Common Name: NFSPUFF

Full Name: same as above

Model subject: Smoke management

Description:

NFSPUFF is a screening/planning level smoke emissions and trajectories puff model designed to predict ground level concentrations of particulate matter and gaseous pollutants from multiple sources in complex terrain in the Western United States. The model incorporates an emission production module (EPM) with National Weather Service predictions for upper-air winds, extrapolated to the surface, to predict potential pollutant transport. Tabular, 2-D and 3-D graphics are displayed. Terrain effects are computed with a user's option of 1, 2, 4, and 8 km resolution in the western US between 30 and 50 degrees north latitude and 100 to 125 degrees west longitude. This domain includes Washington, Oregon, Idaho, Montana, California, Arizona, Utah, New Mexico, Colorado, Wyoming, and portions of North and South Dakota, Nebraska, Kansas, Oklahoma, Texas, British Columbia, Alberta, Saskatchewan, Baja California, and Sonora. Outputs of NFSPUFF include (a) a graphic display of predicted smoke trajectories, (b) a three-dimensional perspective display, (c) a field map with a plot of maximum TSP concentration, and (d) a real-time, animated graphic display of color-coded concentration levels overlaying a terrain map.

Primary users:

Smoke Managers, Fire Management Officers

Limitations:

NFSPUFF was originally developed to assist the management of smoke emissions from prescribed fires in the Pacific Northwest (PUFF), and later expanded to include the western US. Its current reliance on NGM data limits simulations with time-varying weather to 48-hour periods. Its science is not as well documented as some other models and is limited to topography of the western U.S. NSFPUFF may not be appropriate as a research tool in some contexts.

Model/Application Status:

Operational. Current release: Version 1.19x (Feb 1996). Further research required.

Support status:

A User's Guide is available from WYNDSoft Inc.

Developer:

Halstead Harrison, WYNDsoft Inc., 6333 77th Ave. SE, Mercer Island, WA; and Ann Acheson, USDA Forest Service.

Contact:

Ann Acheson, Air Quality Specialist, USDA Forest Service, Fire, Aviation, and Air Northern Region, 200 East Broadway, P.O. Box 7669, Missoula, Montana 59807. Telephone: (406)329-3493 Email: aacheson/r1@fs.fed.us

Reference:

Hardy, C.C.; Ferguson, S.A.; Speers-Hayes, P.; Doughty, C.B.; Teasdale, D.R. 1993. Assessment of PUFF: A Dispersion Model For Smoke Management. Final Report to USDA Forest Service Pacific Northwest Region. Fire and Environmental Research Applications, USDA Forest Service, PNW Research Station, 32 pp.

Common Name: NIFMID

Full Name: National Interagency Fire Management Integrated

Model subject: Fire planning & budgeting

Description:

NIFMID is the combined weather and fire occurrence historical database. This relational database currently encompasses all weather stations reporting to the Weather Information Management System (WIMS; a replacement for AFFIRMS), and fire occurrence records for the USDA Forest Service. Access to NIFMID is available through computer software packages that reside in the computer library at the Kansas City Computer Center. In order to use these programs, users must establish an account. Once an account is opened, all access information is provided to the user. Telecommunications packages on most computers can be used to communicate with this USDA computer (e.g., KC-FAST).

Primary users:

Fire planners

Limitations:

Further research required.

Model/Application Status:

Operational.

Support status:

Further research required.

Developer:

Further research required.

Contact:

Further research required.

Reference:

Further research available.

Common Name: NIFSIP

Full Name: National Interagency Fire Statistics Information Project

Model subject: Fire planning

Description:

National Interagency Fire Statistics Information Project (Under Development) will define an interagency wildland fire statistics data standard and provide a mechanism to provide a common access point for Federal Wildland fire data. NIFSIP will establish a new federal interagency data standard for fire statistics and make Federal data available for single point access. Further research required.

Primary users:

Further research required.

Limitations:

Further research required.

Model/Application Status:

Under development. A downloadable report titled "NIFSIP Analysis Stage Report" is available at: http://www.fs.fed.us/fire/planning/nist/Analysis_Stage_Report.pdf. Further research required.

Support status:

Further research required.

Developer:

Jon Skeels, Project Manager, US Forest Service

Contact:

Further research required.

Reference:

Further research required.

Common Name: PCDANGER

Full Name: same as above

Model subject: Fire Behavior

Description:

PCDANGER is a Personal Computer (PC) application of the National Fire Danger Rating System (NFDRS) that calculates both 1978 and 1988 version fire danger indexes from daily weather observations and forecasts. The computational routines (NFDRCALC) are the same as those used in the Weather Information Management System (WIMS), which is the current national system in the United States for daily computation of NFDRS components and indexes. PCDanger replaces the formal PC-based fire danger application NFDRSPC. Anyone using WIMS is encouraged to use PCDanger. PCDanger is an excellent tool of checking the accuracy of WIMS. Users not having access to WIMS, but desire daily NFDRS components and indexes, can easily input the daily weather observations promptly receiving the daily indices. PCDanger is also an excellent tool for futuring, allowing the user to play the "what if" game. PCDanger (Version: 01.02.1998) facilitates day-to-day fire weather analysis of observations producing indices using the NFDRS calculations currently being used at WIMS.

Primary users:

Further research required.

Limitations:

Further research required.

Model/Application Status:

Because PCDanger is not Y2K compliant, and its functionality is planned for inclusion in FireFamily Plus, distribution of this software has stopped. Users with an urgent need for PCDanger can call the Fire Applications Helpdesk (800-253-5559).

Support status:

A website is available. Further research is required.

Developer:

Further research is required.

Contact:

National Information Systems Team
3833 S. Development Ave.
Boise, ID. 83707-5354
Phone: (800)253-5559
Email: fire?/wo_nifc@fs.fed.us

Reference:

Further research required.

Common Name: PCHA99

Full Name: Personal Computer Historical Analysis

Model subject: Fire planning

Description:

Personal Computer Historical Analysis (PCHA99) 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 aid the analysis of historical wildland fire occurrence for wildland fire planning. The primary reports generated by PCHA include: number of fires by fire intensity level within each fire management area zone (FMAZ), percentage distribution of fires by representative fire location, and percentile rates of spread for each FMAZ. PCHA allows users to import fire weather data for their planning unit, review and edit the data, and generate fire summaries for further fire planning.

Primary users:

Fire Planners

Limitations:

Further research required.

Model/Application Status:

Operational. Version: 1.1.7 (2/25/01). Further research required.

Support status:

A User's Guide is available (Ver: 4/23/01). National Support is provided by Fire and Aviation Management System Helpdesk, USDA, Forest Service, (Phone 1-800-253-5559), E-mail: fire_help@dms.nwccg.gov.

Developer:

Bighorn Information Systems and COMPUS Services Corporation developed PCHA99 during 1994-1996 under contract with the USDA Forest Service. In 1998-1999 Pro-2-Serve Inc. updated the program to be Y2K compliant and accept the WxObs98 format.

Contact:

National Fire & Aviation Management Information System Team
3833 S. Development Ave.
Boise, ID 83705-5354
Phone: (800)253-5559
Email: fire?/wo_nifc@fs.fed.us

Reference:

A listing of general references is contained in the User's Guide. No direct references to the application. Further research required.

Common Name: PLATA

Full Name: Project-Level Analysis of Treatment Alternatives

Model subject: Fire economics

Description:

PLATA is a software application for conducting economic analysis at the project level. PLATA accommodates a variety of vegetation treatment projects, such as fuel treatment (prescribed fire & mechanical), range, wildlife, and timber harvesting projects, as well as capital investment projects (e.g., roads, trails, recreation facilities). The program also provides calculations and summaries useful in project planning. PLATA is comprised of two programs: the Default Database Builder (DDB), which builds geographic-specific defaults, and the Project Builder (PB), where the project analysis is conducted.

Primary users:

Further research required.

Limitations:

Further research required.

Model/Application Status:

Expected completion, including user documentation in FY2002. An information website is available at: <http://www.fs.fed.us/rm/missoula/4802/page28.html>. Further research required.

Support status:

Further research required.

Developer:

Greg Jones, Janet Sullivan, Kurt Krueger

Contact:

Tel: (406) 542-4150. FAX: (406) 543-2663

Reference:

Further research required.

Common Name: PLUME

Full Name: same as above

Model subject: Smoke management

Description:

PLUME is a computer program based on a one-dimensional model to use with atmospheric sounding and fire-characteristic inputs. It estimates the characteristics of the plume that results from burning. Further research required.

Primary users:

Further research required.

Limitations:

Further research required.

Model/Application Status:

Undetermined. Further research required.

Support status:

Further research required.

Developer:

Don Latham

Contact:

Don Latham, USDA Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory, Missoula, MT, 59807. Telephone: (406) 329-4810. FAX: (406) 329-4825. Email: dlatham@fs.fed.us

Reference:

Further research required.

Common Name: PLUMP

Full Name: same as above

Model subject: Smoke management

Description:

PLUMP is a computer program that calculates plume rise from large fires, including pyrocumulus and cumulus growth without fire. PLUMP provides information such as cloud top heights, updraft velocity, plume growth rate, and cloud extent. The program can assist in analyzing inversion penetration, down burst possibility, cloud top height, smoke softing, and cloud growth rate.

Primary users:

Smoke Managers

Limitations:

Further research required.

Model/Application Status:

Undetermined. Further research required.

Support status:

Software download available at: <http://www.fire.org/tools/PLUMP>. Further research required.

Developer:

Don Latham

Contact:

Don Latham ,USDA Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory, Missoula, MT, 59807. Telephone: (406) 329-4810. FAX: (406) 329-4825. Email: dlatham@fs.fed.us.

Reference:

Further research required.

Common Name: PRESCRIPTION DESIGN

Full Name: same as above

Model subject: Fire planning, Fuels management

Description:

PRESCRIPTION DESIGN is an expert system for designing fire prescriptions that incorporate fire effects research results and rule-of-thumb type information about burning conditions. The program recommends a burn prescription to meet specified management objectives. Further research required.

Primary users:

Fuels managers. Further research required.

Limitations:

Further research required.

Model/Application Status:

Undetermined. Further research required.

Support status:

Further research required.

Developer:

Further research required.

Contact:

Intermountain Research Station, Missoula, MT. Further research required.

Reference:

Further research required.

Common Name: REDCARD

Full Name: same as above

Model subject: Fire management

Description:

Redcard is an automated system (ORACLE-based application) for tracking fire certifications (training, experience, qualifications, task books, target position and fitness) for Forest Service personnel. Redcard may be used for other agencies, however; the positions and training are based on Forest Service standards. The system can also support career development planning with on-line access to prerequisites for fire positions. Redcard produces "Redcards" on specified stock paper directly from the system to a laser printer. Redcard also supports workforce analysis, and compares needed positions to number of persons qualified to analyze workforce and training needs.

Primary users:

Fire management officers. Further research required.

Limitations:

Further research required.

Model/Application Status:

Operational. Current release: Version 2.0 Y2K certification complete. Software download available at: <http://www.fs.fed.us/fire/planning/nist/distribu.htm>. Further research required.

Support status:

A downloadable User's Guide is available (Version 2.0; May 2000) at: <http://www.fs.fed.us/fire/planning/nist/distribu.htm>. No national training. Further research required.

Developer:

Further research required.

Contact:

Further research required.

Reference:

Further research required.

Common Name: RERAP

Full Name: Rare Event Risk Assessment Process

Model subject: Fire weather, Fire planning

Description:

Rare Event Risk Assessment Process (RERAP) is a Windows-based program that helps calculate the information needed to manage prescribed fire and wildfires. Historical weather data manipulated with FireFamily Plus is a required input. Output data reports include: Probabilities of the fire or smoke event reaching a predefined target, Average/common rate of spread (ROS), and ROS due to rare weather events (winds, etc.). RERAP performs dynamic calculations of the risk of undesired fire movement or smoke impacts before a season-ending event (precipitation) will halt the fire's spread.

Primary users:

Further research required.

Limitations:

Further research required.

Model/Application Status:

Operational. Note that a Y2K problem has been found within RERAP. The default year/date field goes from 99 to 100. Failure to correct the date to 00 before calculating will cause the program to crash. Efforts are underway to correct the problem in a new version of RERAP. Software download available at: <http://fire.org/tools/RERAP/>. Further research required.

Support status:

Further research required.

Developer:

Mark Wiitila, Pacific Southwest Research Station.

Contact:

National Information Systems Support Group, NIFC, 3833 S. Development Avenue, Boise, ID 83705-5354. Telephone: (800) 253-5559.

Reference:

Further research required.

Common Name: ROSS

Full Name: Resource Order and Status System

Model subject: Fire resource ordering and tracking

Description:

The ROSS Project is an interagency resource ordering and status system that will result in a system that provides automated support to interagency and agency dispatch and coordination offices within the wildland fire organization. The system will: 1) provide current status of resources available to support all-risk activities such as wildfire, flood, 2) enable dispatch offices to exchange and track resource order information electronically; and 3) enable dispatch offices to rapidly and reliably exchange mission-critical emergency electronic messages.

Primary users:

Further research required.

Limitations:

Further research required.

Model/Application Status:

Under development.

Support status:

A downloadable User's Guide is available in draft form (June 2001). A web-based help desk is available at: <http://rosshelp.utanet.com>. A Beta-test version of web-based training is available. Further research required.

Developer:

NWCG under contract to a private developer. Further research required.

Contact:

ROSS homepage at: ross.nwcg.gov

Reference:

Further research required.

Common Name: RXBURN

Full Name: Prescribed Fire Conditions

Model subject: Fire planning

Description:

RXBURN (Prescribed Fire Conditions) provides an analysis of the frequency of occurrence of a set of prescription conditions, using the NIFMID as a database. Up to 15 parameters can be used in a single prescription. Users define a preferable range of prescribed conditions, and a broader range of conditions that is still acceptable. Output tables include a summary table of the percentage of weather conditions that are preferable, acceptable, and unacceptable; a table that shows frequency of occurrence of preferable, acceptable, and unacceptable conditions in each successive 10-day period, and by month; the number of successive days that prescribed conditions have occurred in each 10-day period and each month; and the probability of meeting the prescription 1, 2, and 3 days in the future for each month. As discussed under 2.d., RXWTHR, the duff moisture model that provides a basis for parameter 16 is inaccurate; this parameter should not be used. Further research required.

Primary users:

Prescribed Fire Planners

Limitations:

There are two limitations to the use of RXWTHR and RXBURN. Weather observations are rarely recorded for more than the five months of the year that are the normal "fire season," and many prescribed fires are staged before and after this period. The single observation per day that must represent the entire day's weather is taken during average worst case conditions, 1300 hours (Standard Time), southwest aspect, midslope, and open canopy. This may poorly represent the weather at the time of the day when a prescribed fire would be implemented. Further research required.

Model/Application Status:

Operational. Further research required.

Support status:

Further research required.

Developer:

Systems for Environmental Management, Missoula, MT

Contact:

Systems for Environmental Management, P.O. Box 8868, Missoula, MT, 59807.

Reference:

Intermountain Research Station publication: "A Computer System for Scheduling Fire Use" GTR INT-91 & INT-100.

Common Name: RXWTHR

Full Name: Prescribed Fire Weather

Model subject: Fire planning, Fire weather

Description:

RXWTHR (Prescribed Fire Weather) provides climatological summaries and co-occurrence frequencies of user selected fire weather and fire danger rating parameters. The data base is the computerized fire weather records within NIFMD. Simultaneous occurrence of two or three of fifteen prescription parameters can be summarized, and shown in tables. For example, tables can include summaries of temperatures, two-way co-occurrence tables for wind direction and wind speed, and three way co-occurrence tables for temperature, relative humidity, and wind speed. Once a user has obtained a feeling for the general pattern of occurrence of desired prescribed conditions, screening out those that have a low probability of occurring simultaneously, a more detailed analysis can be conducted using RXBURN. Further research required.

Primary users:

Fire Planners, Fuels Managers, Fire Behavior Analysts

Limitations:

Please note that a sixteenth prescription parameter available for analysis in the program is duff moisture. This value is based upon a duff moisture model that was offered on an experimental basis in RXWTHR and RXBURN. This model does not provide accurate results, and the duff moisture output produced by these two programs should not be used. Further research required.

Model/Application Status:

Further research required.

Support status:

Further research required.

Developer:

USDA Forest Service, Intermountain Research Station, Fire Effects Laboratory, Missoula, MT.

Contact:

Old contact: Cam Johnston, Intermountain Research Station, Missoula, MT. Further research required.

Reference:

Bradshaw, Larry S. and William Fischer. 1981a. A computer system for scheduling fire use. Part 1: The system. USDA, For. Serv. Gen. Tech. Rep. INT-91. Intermt. For. and Range Exp. Sta., Ogden, UT. 63p.

Bradshaw, Larry S. and William Fischer. 1981b. A computer system for scheduling fire use. Part II: Computer terminal operator's manual. USDA, For. Serv. Gen. Tech. Rep. INT-100. Intermt. For. and Range Exp. Sta., Ogden, UT. 34 p.

Common Name: SASEM

Full Name: Simple Approach Smoke Estimation Model

Model subject: Smoke management

Description:

SASEM is a screening and planning model designed to predict ground level dispersion of particulate matter and visibility impacts from single sources in relative flat terrain in the western United States. SASEM utilizes internally calculated plume rise and emission rates based on specified fuel types and configurations.

Primary users:

Smoke Managers

Limitations:

The model is limited to particulate matter and visibility impact assessments; simplicity requires several physical assumption that may limits its generality and applicability in some circumstances.

Model/Application Status:

Further research required.

Support status:

Further research required.

Developer:

Mike Sestak

Contact:

Mike Sestak, USDI, National Biological Service, Environmental Science and Technology Center, Fort Collins, CO, 80526. Telephone: (303) 491-1036.

Reference:

Sestak, M. L. and A. R. Riebau. 1988. SASEM: Simple approach smoke estimation model. USDI, Bur. Land Manage. Tech. Note 382. BLM/YA/PT-88/003 + 7300. Serv. Center, Denver, CO. 31 p.

Common Name: SIAM

Full Name: Structure Ignition Assessment Model

Model subject: Fire effects, Fire planning

Description:

Structure Ignition Assessment Model (SIAM) 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. SIAM, in its most basic form, produces an adjective rating and numerical index indicating the potential ignition risk of a residence. The risk rating is accompanied by an explanation of what factors contributed to the risk. The model can be used to help establish fire safety requirements, integrate a home's exterior design with its landscaping to improve or meet fire safety requirements, and as a means for fire services to assess wildland/urban interface fire risks for pre-suppression and suppression planning and operations.

Primary users:

Fire Planners

Limitations:

Further research required.

Model/Application Status:

Further research required.

Support status:

Further research required.

Developer:

Jack D. Cohen

Contact:

Jack D. Cohen, USDA Forest Service, Intermountain Fire Sciences Laboratory, P.O. Box 8089, Missoula, MT 59087. Telephone (406) 329-4821. Email: jcohen/rmrs_missoula@fs.fed.us

Reference:

Cohen, Jack D. 1995. Structured Ignition Assessment Model (SIAM). USDA Forest Service Gen. Tech. Rep. PSW-GTR-158.

Common Name: SIMPPLLE

Full Name: Simulating Processes and Patterns at Landscape Scale

Model subject: Fire planning

Description:

SIMPPLLE is a spatially explicit, stochastic system that simulates disturbance processes with and without management treatments. The model provides simulation capabilities to identify the frequency and locations of disturbance processes, particularly fire. For example, SIMPPLLE can be used to identify locations having high potential for extensive crown fires. The results from SIMPPLLE are used to help formulate treatment priorities for input into MAGIC. MAGIC uses inputs from SIMPPLLE to develop a schedule of treatments that are then utilized in SIMPPLLE to verify the treatment effects on disturbance occurrence.

Primary users:

Fuels ecologists, Fire planners

Limitations:

Further research required.

Model/Application Status:

Operational. Has been applied in a number of locations, including the Interior Columbia River Basic, the Siuslaw NF, the Siskiyou NF, and the Shasta-Trinity NF.

Support status:

An information page can be found at: <http://www.rfl.psw.fs.fed.us/jfs/modeldsc.html>.

Developer:

Further research required.

Contact:

Further research required.

Reference:

Further research required.

Common Name: SIMS

Full Name: Safety Management Information System

Model subject: Fire safety

Description:

SMIS contains a fire addendum to the SMIS database. This addendum to SIMS provides fire managers a resource for fire-related accident information. This system is currently under development. Further research required.

Primary users:

Fire Management Officers, Fire Safety Officers

Limitations:

Further research required.

Model/Application Status:

Under development. Beta test expected in Spring, 2002.

Support status:

Further research required.

Developer:

Federal Fire & Aviation Safety Team (FFAST) and DOI Safety Office

Contact:

John Gould, FFAST, BIA, NIFC, Boise, ID

Reference:

Further research required.

Common Name: SIS

Full Name: Smoke Impact Spreadsheet

Model subject: Smoke management

Description:

The Smoke Impact Spreadsheet (SIS) model is a screening-level modeling system for calculating PM_{2.5} emissions and airborne concentrations downwind of natural or managed wildland fires. As a screening model, SIS provides conservative (e.g., higher than actual) predictions of the downwind air concentrations at user-selected receptors for comparison with appropriate federal or state air quality standards for PM_{2.5}. The SIS model has four main components: a graphic user interface based on a series of Excel spreadsheets for easy data entry and model execution, an emissions module based on the Emissions Production Model (EPM 3.5), a dispersion module based on the CALPUFF dispersion model (version 5.5), and graphical output for presenting the results. As an alternative to EPM, the SIS model can utilize emission data generated from the First Order Fire Effect Model (version 5, FOFEM5). The SIS model can evaluate the impacts for up to 10 co-located burn units, each with different sizes and start times, under a single set of meteorological conditions (wind speed, ambient temperature, stability class, mixing height). The model can be run assuming either flat terrain or a simple terrain profile.

Primary users:

Fire planners. Further research required.

Limitations:

Further research required.

Model/Application Status:

Operational. Software download available at: <http://www.airsci.com/SIS.htm>.

Support status:

A downloadable User's Guide (Version MAR 2002) available at: <http://www.airsci.com/SIS.htm>. User's Guide contains tutorial exercises.

Developer:

Mark D. Schaaf, Air Sciences, Inc.
Bob Hammer. Email: bhammer@fs.fed.us. Further research required.

Contact:

Air Sciences, Inc., 421 SW 6th Avenue, Suite 1400, Portland, Oregon, 97204.

Reference:

Further research required.

Common Name: SIT Report

Full Name: National Interagency Situation Report

Model subject: Fire planning

Description:

The National Interagency Situation Report (SIT) captures incident activity and resource status information in a brief summary intended for use by managers. Information covers such items as fire danger, resource availability, fire activity, prescribed fire and other events. Once the information has been submitted via the web site, it is used at the local Dispatch Offices, Geographic Area Coordination Centers (GACCs) and the National Interagency Coordination Center (NICC) to produce summary reports, which are then distributed to agency managers for their use as a decision making tool. The SIT program is a web application; instead of the information being mailed through the GACCs to NICC, the GACCs and NICC go directly to the SIT web server and run reports to retrieve the data that the Dispatch Offices entered. The GACCs have edit access to all of the Dispatch Offices within their area. NICC has edit access to all Dispatch Offices. During the active fire season, the report is prepared on a daily basis. In the off-season, it is submitted on a more limited basis, depending on the level of incident activity.

Primary users:

Fire Management Officers, Fire Staff

Limitations:

Further research required.

Model/Application Status:

Operational. Current release: Version 2.04.13. Y2K certification completed. Official release date: 2/2/99.

Support status:

Online help available at: fire?/wo_nifc@fs.fed.us Computer-based training is available. A downloadable User's Guide is available (Version: February, 2001). User support available directly from the Fire Applications Helpdesk (800-253-5559).

Developer:

Further research required.

Contact:

Further research required.

Reference:

Further research required.

Common Name: SMSINFO

Full Name: same as above

Model subject: Smoke management

Description:

SMSINFO is a computer model designed for use by resource managers who have an elementary knowledge of Paradox relational database software. It uses the latest research knowledge to predict the amount of fuel consumed and emissions produced at sites treated with prescribed fire. These predictions are based on fuel loading, fuel moisture, weather data, and a number of other factors. The application can be used for broadcast burns, underburns, landing, and pile burns in the western states if the fuels are relatively homogenous and composed of evergreen conifer species.

Primary users:

Fuels management planners

Limitations:

Further research required.

Model/Application Status:

Further research required.

Support status:

Further research required.

Developer:

David V. Sandberg

Contact:

David V. Sandberg, USDA Forest Service, Pacific Northwest Research Station, 3200 SW Jefferson Way, Corvallis, Oregon 97331. Telephone: (541)750-7265. FAX: (541)758-7760. Email: dsandberg@fs.fed.us

Reference:

Further research required.

Common Name: TELSA

Full Name: Tool for Exploratory Landscape Scenario Analyses

Model subject: Fire planning

Description:

TELSA is a spatially-explicit extension to VDDT that simulates forest succession, natural disturbances, and forest management activities. The model simulates multiple scenarios, each characterized by different assumptions about management actions and natural disturbances. Since wildfires and other natural disturbance events that affect vegetation dynamics are inherently unpredictable, the model can use multiple stochastic simulations of each scenario to provide estimates of the mean, range, and variability of the selected performance indicators.

Primary users:

Fuels ecologists, Fire planners

Limitations:

Further research required.

Model/Application Status:

Operational. Software available from Essa Technologies Ltd. Download includes software, documentation, and a User's Guide. A password is required to uncompress the downloaded file. Contact Don Robinson (Essa Technologies Ltd.).

Support status:

A downloadable User's Guide is available. Further research required.

Developer:

Further research required.

Contact:

Don Robinson, ESSA Technologies Ltd., #300-1765 W. 8th Ave., Vancouver, BC CANADA V6J 5C6.
Telephone: (604) 733-2996. FAX: (604) 733-4657. Email: drobinson@essa.com.

Reference:

Further research required.

Common Name: TOM/FETM

Full Name: Programmatic Fuels Management Tradeoff Model

Model subject: Fire Planning

Description:

TOM/FETM is a stochastic, dynamic, non-spatial model designed to simulate the expected tradeoff between wildland fire and prescribed fire emissions, acreage burned, and fire intensity levels under different fire weather conditions, land management strategies, and wildland fire protection policies. Results are assessed by fuel condition classes without regard to how those classes are distributed in space. The model automatically links a user to the appropriate database files containing weather station information, fire management zone (FMZ), and other information needed to run the model.

Primary users:

Prescribed fire planners, Fuels managers

Limitations:

Further research required.

Model/Application Status:

Model appears to be late-stage development, pre-operational. Further research required.

Support status:

An information website is available at: <http://www.cira.colostate.edu/smoke/fetm.htm>. Further research required.

Developer:

Further research required.

Contact:

Further research required.

Reference:

Further research required.

Common Name: VALBOX

Full Name: Ventilated Valley Box Model

Model subject: Smoke management

Description:

VALBOX is a screening model designed to predict ground level concentrations of particulate matter and gaseous pollutants under stagnation conditions in mountain valleys.

Primary users:

Smoke Managers

Limitations:

The model assumes a completely mixed valley with a defined top; simplicity requires several physical assumptions that may limit the model's generality and applicability in some circumstances. .

Model/Application Status:

Further research required.

Support status:

Further research required.

Developer:

Mike Sestak

Contact:

USDI - National Biological Service, Environmental Science and Technology Center, 2401 Research Blvd., Suite 205, Fort Collins, CO 80526. Telephone: (303) 491-1036.

Reference:

Further research required.

Common Name: VCIS

Full Name: Ventilation Climate Information System

Model subject: Smoke management

Description:

The Ventilation Climate Information System (VCIS) allows users to assess risks to values of air quality and visibility from historical patterns of ventilation conditions. The data can be used to help develop plans for avoiding smoke impacts and optimizing the use of prescribed fire at specific places or certain times of year. Spatial patterns of risks to air quality and visibility are illustrated on maps of monthly-averaged values. Frequency statistics at selected points show the temporal dimension of risk. Values at risk can be assessed for specific airsheds and compared over time or with other airsheds. VCIS is available through an interactive, Internet map server. The Internet server allows maps of ventilation potential to be overlaid with sensitive receptors, terrain features, or political boundaries. The data apply to local, regional, or national scales.

Primary users:

Prescribed fire planners

Limitations:

Further research required.

Model/Application Status:

Operational as a web-based application.

Support status:

Further research required.

Developer:

David V. Sandberg

Contact:

David V. Sandberg, USDA Forest Service, Pacific Northwest Research Station, 3200 SW Jefferson Way, Corvallis, Oregon 97331. Telephone: (541)750-7265. FAX: (541)758-7760. Email: dsandberg@fs.fed.us

Reference:

A reference list of studies used to support the development of VCIS is available on the FERA website. Further research required.

Common Name: VDDT

Full Name: Vegetation Disturbance Dynamics Tool

Model subject: Fire planning

Description:

VDDT was developed to support the Interior Columbia River Basin Assessment. The model simulates changes in vegetative composition and structure using disturbance probabilities and successional pathways data. In VDDT disturbances are defined for each succession class according to type (e.g., wildland fire, harvest), succession class destination, probability of occurrence, and the relative ages for which each probability applies.

Primary users:

Fuels ecologists, Fire planners

Limitations:

Further research required.

Model/Application Status:

Operational. Software available from Essa Technologies Ltd. Download includes software, documentation, and a User's Guide. A password is required to uncompress the downloaded file. Contact Don Robinson (Essa Technologies Ltd.).

Support status:

A downloadable User's Guide is available. Further research required.

Developer:

Sarah Beukema (ESSA Technologies Ltd., Vancouver, Canada) and Werner Kurz (Canadian Forest Service).

Contact:

Don Robinson, ESSA Technologies Ltd., #300-1765 W. 8th Ave., Vancouver, BC CANADA V6J 5C6. Telephone: (604) 733-2996. FAX: (604) 733-4657. Email: drobinson@essa.com.

Reference:

Weise, D.R.; R. Kimberlin, M. Arbaugh, J. Chew, G. Jones, J. Merzenich, J.W. van Wagtendonk and M. Wiitala. 2000. A risk-based comparison of potential fuel treatment trade-off models. In: L.F. Neuenschwander and K.C. Ryan (tech. eds.). Proc. Joint Fire Sci. Conf. and Workshop, Vol II. Univ. Idaho and Int. Assoc. Wildland Fire. pp. 96-102.

Common Name: Ventura_Tools

Full Name: same as above

Model subject: Fire planning

Description:

Ventura_Tools is a complete set of ArcView 3.2 extensions to create and edit critical incident data. After the data has been developed, a map layout tool is employed to create IAP, Planning and Public Display Maps. Three Arcview extensions make up this application: ShapeMaster (creates and edits GIS incident data), ICS (creates standard incident command features commonly used on an incident such as fire origin, incident perimeter, fire-line types), and QuickMap (creates standard and custom mapping layouts). This application duplicates what has been done traditionally by the Display Processors on an incident. If a GIS unit is available during an event this program will make it more efficient, able to respond to changes quicker, and work in concert with the display processors.

Primary users:

Further research required.

Limitations:

Further research required.

Model/Application Status:

Further research required.

Support status:

Further research required.

Developer:

California Emergency Mapping Community. Further research required.

Contact:

Jim Kniss, Ventura County Fire Department, 165 Durley Ave., Camarillo, California 93010. Telephone: (805) 389-9750.

Reference:

Further research required.

Common Name: WFAS

Full Name: Wildland Fire Assessment System

Model subject: Fire weather, Fire behavior

Description:

The Wildland Fire Assessment System (WFAS) is an internet-based system that provides national fire potential and weather maps. The information provided by WFAS includes fire danger, fire weather, weather observations, next-day forecasts, fuel moisture, drought conditions, lower atmospheric stability index, and the state of live vegetation from satellite imagery. WFAS provides an assessment of broad area fire potential for fire managers and the public.

Primary users:

Fire Planners, Fire Management Officers, Public Information Officers

Limitations:

WFAS is currently based on weather observations taken at fire weather stations throughout the U.S. and entered into the Weather Information Management System (WIMS). NFDRS calculations are done at the National Computer Center at Kansas City (NCC-KC). The fuel model, index, and fire danger levels are set by local managers. National WFAS maps are produced from fire danger levels using simple inverse distance square interpolation. Satellite "greenness" products are currently stand-alone indicators of fire potential and not integrated into the calculations except in experimental projects. Further research required.

Model/Application Status:

Operational. Further research required.

Support status:

A website is available at: <http://www.fs.fed.us/land/wfas/welcome.htm>. WFAS is supported and maintained at the National Interagency Fire Center (NIFC), Boise, ID. USDA Forest Service, Fire and Aviation Management, National Information Systems Team. Email: fire_help@dms.nwcg.gov. Phone: 800-253-5559. No national training available. The USDA Fire Applications Directory Website (<http://www.fs.fed.us/fire/planning/nist/applicat.htm>) notes that a User's Guide is available, but it is not referenced on the WFAS homepage.

Developer:

Patricia L. Andrews (pandrews@fs.fed.us), Larry S. Bradshaw (lbradshaw@fs.fed.us). Fire Sciences Laboratory, USDA Forest Service, Rocky Mountain Research Station, P.O. Box 8089, Missoula, Montana 59807. WFAS was updated through cooperative work with Matt X. Hunter (hunter@fire.org), Systems for Environmental Management.

Contact:

See above.

Reference:

Burgan, R.E.; Andrews, P.L.; Bradshaw, L.S.; Chase, C.H.; Hartford, R.A.; Latham, D.J. 1997. WFAS: wildland fire assessment system, Fire Management Notes, 57(2):14-17; 1997. Note: A set of references is available through the Internet on the WFAS homepage. Further research required.

Common Name: WFSA (WFSA Plus 99)

Full Name: Wildland Fire Situation Analysis

Model subject: Fire planning

Description:

WFSA Plus99 is a software package designed to assist managers in developing and documenting the Wildland Fire Situation Analysis and Wildland Fire Use assessments and plans. The software guides the user step by step through Wildland Fire Situation Analysis (WFSA) and Wildland Fire Use (WFU) assessments and plans. The program automatically retrieves stored data and makes all the necessary calculations to help prepare and display the significant tradeoffs between alternatives. WFSA Plus99 provides managers with a means to acquire data and organize information prior to an incident occurring. During the off-season, managers can organize their data and work with specialists in other disciplines to develop general scenarios based on land management concerns and other local considerations. When a wildland fire occurs, these scenarios can then be retrieved to become the foundation for developing more specific spatial and temporal WFSAs and WFU assessments. For managers who do not regularly prepare WFSAs or WFU plans, the software can serve as a guide for navigating through the various steps of an analysis. With changing incident management needs, WFSA or WFU files can easily be transferred between users or administrative sites for updates and adjustments.

Primary users:

Line Officers, Fire Management Officers, Fire Staff

Limitations:

Further research required.

Model/Application Status:

Operational. Further research required.

Support status:

A website is available. A downloadable User's Guide is available. A web-based online help system is available. No national training.

Developer:

John Anderson, Balance Technologies, Missoula, MT.
Carl Dammann, USDA Forest Service (retired).

Contact:

Further research required.

Reference:

Further research required.

Common Name: WIMS

Full Name: Weather Information Management System

Model subject: Fire weather

Description:

The Weather Information Management System (WIMS) is a comprehensive system that helps users manage weather information. WIMS replaces the Administrative Forest Fire Information Retrieval and Management System (AFFIRMS) as the host for the National Fire Danger Rating System (NFDRS), incorporating both the 1978 and 1988 fuel models. WIMS is an ORACLE-based Internet application that accesses the National Interagency Fire Management Integrated Database (NIFMID), a relational database that contains historic fire weather and historic fire record information. WIMS and NIFMID are available on a twenty-four hour basis. WIMS allows users to retrieve weather information by providing access to many weather information sources, tools for managing data, data manipulation and display functions, and an interactive communications environment.

Primary users:

Fire Planners, Fire Management Officers

Limitations:

Further research required.

Model/Application Status:

Operational. Further research required.

Support status:

A downloadable User's Guide is available (Version: 6/5/2001). No national training. Further research required.

Developer:

Further research required.

Contact:

Further research required.

Reference:

Further research required.