PERSONAL COMPUTER HISTORICAL ANALYSIS (PCHA99) USER'S GUIDE

USDA Forest Service
USDI Bureau of Land Management
USDI Bureau of Indian Affairs

This document describes the functions of the PC Historical Analysis module of the National Fire Management Analysis System (NFMAS). Individuals from the USDA Forest Service, USDI Bureau of Land Management, and USDI Bureau of Indian Affairs participated in the development. If you find errors, omissions, or items that need correction, please send your comments to the address below.

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To talk to someone at the Support desk with questions and/or comments regarding this site or any of the fire applications mentioned, call us at (800) 253-5559 or email the Support desk at fire_help@dms.nwcg.gov. We look forward to hearing from you.

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INTRODUCTION

Welcome to PCHA99, a new tool to help you analyze historical wildland fire occurrence for wildland fire planning. PCHA99 allows you to import fire and weather data for your planning unit, review and edit the data, generate fire summaries for further fires planning, and use the data in various other ways. PCHA99 offers you a detailed look at local data that you can carefully review and correct.

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. PCHA99 can accept all the old PCHA databases and exports to FireFamily+ (for more information about FireFamily+, see http://www.fs.fed.us/fire/planning/nist/). The PCHA99 program supports the Historical Analysis portion of fire planning required by the National Fire Management Analysis System (NFMAS) and replaces software prior to development of PCHA99.

Even though PCHA99 allows you to use fire occurrence and weather data on local computers, the main data repositories are in national databases. Forest Service data is stored in NIFMID at Kansas City, and Department of Interior agencies store their data in Boise. If your agency has a process to correct errors found in the data, you should request details of that process from your agency support personnel. Keep in mind, however, that PCHA99 exists for one primary purpose: to help you do your Historical Analysis work required as part of the NFMAS process. Other benefits are just those--additional benefits--not the reason PCHA99 exists. The primary reports are listed below.

- Number of fires by Fire Intensity Level (FIL) within each designated Fire Management Zone.
- Percentage distribution of fires by Representative Fire Locations within a Fire Management Zone.
- Percentile Rates of Spread (ROS) for each Fire Management Zone.

PCHA99 is event-driven software. It only does something when you tell it to do something. Events that tell PCHA99 to do something include selecting a menu, pressing a button, hitting the TAB key, clicking the mouse somewhere, etc.

How this Manual is Organized

This User's Guide flows in the same order that you would normally work with your data on a fire-planning project. The General Processing Flow chapter describes the normal steps and provides some background material on external things you

need to do before starting PCHA99 runs. The other chapters describe what to do on each of the screens. The sections, with a few exceptions, have the same name as the commands on PCHA99 menus. The exceptions are for commands that use abbreviations that make more sense when fully identified.

Conventions Used in this Guide

Some terminology in the User's Guide is different from what you will see on the screen. For example, discussions about Fire Management Zones will use that term rather than Fire Management Analysis Zone. This is the agreed upon interagency term that changed during software development; the screens may not change until a future release.

Italic text generally refers to a menu or button.

Setting Up

PCHA99 is available for download from http://www.fs.fed.us/fire/planning/nist/distribu.htm or via CD from the National Helpdesk at 1-800-253-5559.

You install PCHA99 on your computer using the program SETUP.EXE. The setup program installs the programs and support files required to run PCHA99 from the distribution disks to your hard disk. Setup must be run within the Windows environment.

Important: You cannot just copy files from the CD or install files to your hard disk and run PCHA99. You must use the setup program that installs files in appropriate directories.

Before You Run Setup

Before you install PCHA99 on your computer, make sure your computer meets the minimum requirements and that your PCHA99 package contains all the required items.

Check the Hardware and System Requirements

To properly run PCHA99, the following computer specifications are required. *Recommended* specifications are also listed:

Item	Required	Recommended
Operating System	Windows 95, Windows 98, Windows NT	(same)
CPU	80386	Pentium
Monitor Colors	256	65,536
Monitor Resolution	640 x 480	(same)
RAM	4 MB	16 MB
Hard Disk Available	10 MB	(same)
Mouse	Yes	(same)
Printer	Any - configured for Windows	Laser

Installation Instructions

Download PCHA99_install.exe from
http://www.fs.fed.us/fire/planning/nist/distribu.htm

Scroll down the page to software, NFMAS modules. Double-click on PCHA99_install.exe.

The user will be prompted to select a location to download PCHA99.exe. Save to a temp directory (i.e. c:\windows\temp).

When PCHA99_install.exe has been downloaded, open windows explorer and navigate to the temp directory (i.e. c:\windows\temp). Double click on PCHA99_install.exe.

Install Shield will unpack PCHA99.

The user will be prompted throughout the following boxes:

> The Welcome box will open, make sure all applications are closed before continuing. Click next to continue setup.
>
> The user will be prompted to accept the default location of c:\fsapps\fam\nfmas\pcha {C: or D:? currently set for D}or change to another desired location. Click next to accept the default or click browse to change the location. Click next to continue.
>
> The user will be prompted to select a program folder, the default is NFMAS. To accept click next, to change scroll through the list of available choices or enter a new choice, then click next to continue.

PCHA99 will install. The user will be prompted to restart the computer. Select Yes to restart the computer. After the computer has restarted click on Start, Programs, NFMAS and PCHA99 to open PCHA99.

Getting Started

The documentation assumes you know how to use a mouse, open a menu, and choose menu and dialog options. For those who need a refresher, the following brief review may help. If you are very comfortable with Windows navigation, skip ahead.

Navigating in PCHA99

Mouse

Using the mouse to run PCHA99 is much faster than keyboard control, and is much more enjoyable. The mouse moves the "cursor" (usually an arrow) around the monitor screen. To select an item on the screen, click on it by pressing the left mouse button. You only need to use the left mouse button in the PCHA99 program. In some cases you must click the mouse button twice in rapid succession; this action is a double-click.

Menus

Figure 1- 1 PCHA99 Main Menu

The menu bar across the top of PCHA99 allows you to move from one menu screen to another. You can select a menu either by clicking on it with the mouse, or by using the keyboard. Some menu items have a little arrow to the right--that means there is a submenu with more choices. Clicking on the small triangle will open the submenu and give you more choices.

To use the keyboard, press and release the ALT key. You will see the first menu item highlighted. Select the menu you want (such as File) by pressing the highlighted letter or by moving the cursor with the up or down arrow keys. You can also use the arrow keys to move left, right, up or down, and then press the ENTER key once you highlight the desired menu selection. If you press the ALT key by mistake, press the ESC to exit from the menu.

Tab

The TAB key moves the cursor from one field to another field on an edit screen or dialog box. To move backwards, hold down the SHIFT key and press the TAB key. The ENTER key will not move the cursor to a new field; only the TAB key works for that purpose.

Command Buttons

Many screens have Command Buttons such as *OK*, *Exit*, or *Save*. Click on the command button with the mouse to activate that command. If there is an underlined letter, you may also hold the *ALT* key down and press the underlined letter.

Note the line around any Command Button. If it is thicker than the others, it is a "default" button, and pressing the ENTER key acts the same as pressing the button.

Figure 1-2 Command Buttons

Option Buttons

Some screens have Option Buttons (small circles) where you can choose only one from the group. When you choose one, the small black dot moves to the selected option (for example, Import Preferences on the Planning Unit Setup screen). You can select an option by clicking on it with the mouse, or by moving into the option group with the TAB key, and then using the arrows to choose an Option Button.

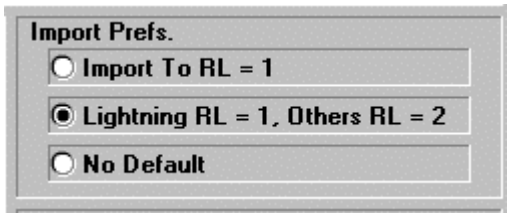


Figure 1-3 Option Box (Black dot shows selected option)

List Boxes

Some screens have List Boxes where you can select an item from a list (for example, Principal Meridian on the *Planning Unit Setup* screen). You choose one item by clicking on it with the mouse, or by moving into the option group with the TAB key, and then using the arrows to pick one item.

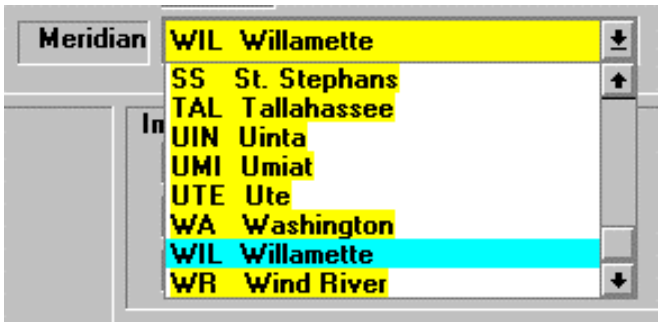


Figure 1-4 List Box with Dropped List

Shortcut: When you highlight a list box, you can press a valid letter or number in the list box and the first item that starts with that letter will appear. If you press the same letter again, the next item will show.

Check Boxes

A check box has an 'x' inside when 'on' and is 'off' when clear. To turn the option off when the x shows, click the box.

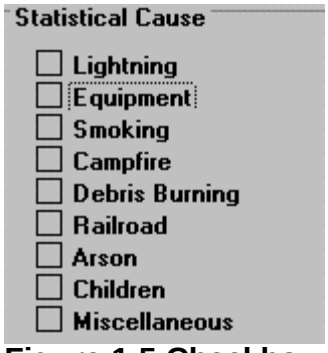


Figure 1-5 Checkbox

Screen Conventions

Labels in Italics

As you review the screens, you will notice that some field identifiers use italic (slanted) text. You can use fields identified in italic text for record searches. For example, the Fire Number field allows you to search for a single fire or a range of fires. See the Search command for each screen for details on how to search for particular records or record groups.

Screen Tabs

Both the Edit Weather screen and Edit Fire screen use folder tabs to display a portion of the information stored for those data groups. The command buttons and some information show all the time above or below the tabs, and they are available all the time. Click on the tab to display the information you want. For example, the Events tab shows fire events (dates and times), and the Size/Topo tab shows acres burned and other data.

Using On-line Documentation and Help

The PCHA99 release includes this documentation in electronic form to help guide you through your fire planning. In addition, there is extensive on-line help for nearly every field and command. Details on how to use on-line help capabilities are in Chapter 8. Many parts of PCHA99 include context-sensitive help; press the F1 key and a screen will pop up that more fully explains possible entries for wherever your cursor is at the time.

Product Support

Several groups and individuals support the PCHA99 software. Federal users should first contact their agency support personnel for assistance. Forest Service and other users should contact local and regional support personnel before contacting the National F&AM Application Helpdesk at: fire_help@dms.nwcg.gov

GENERAL PROCESSING FLOW

PCHA99 processing proceeds from left to right, top to bottom on each of the main menu entries. Some agencies do not use all the program options. Refer to agency guidance for the processing flow and critical steps.

The steps described in this chapter can guide your analysis whether you are doing a standard historical analysis or a fuel analysis. Generally you must go through all the steps for a standard analysis. Fuel analysis does not require all steps; permissible omissions are noted.

Before you start PCHA99

Review agency and local direction

Without a good understanding of agency direction, local direction, and existing local plans that affect your planning work, you are unlikely to build a plan acceptable to local management.

Suggested sources to check include:

- Agency policy manuals and handbooks.
- Local supplements to policy documents.
- Local land management plans, environmental assessments, and similar documents.
- Fire management action plans.

Create an analysis documentation file

Determine how you plan to store documents created during your planning process. Key assumptions and decisions should be stored in the documentation file. Some documents may only be needed for a short time, but key assumptions should remain available for future planning. Someone may need to reproduce your plan, and that will be difficult if you throw away all your assumptions.

Define analysis objectives

Developing a plan with poor objectives (or none) will get the same results, plus frustration. You must make many assumptions during the planning process, and a clear understanding of your goals will guide you in a reasonable direction.

Determine the fire planning analysis period

Someone may have defined the period for you, or you may have some choice in the years to include in your analysis. Generally your plan should cover a period with some years with high fire occurrence and some with low fire occurrence. Careful definition of the analysis period affects your need for weather and fire occurrence data, availability of historical documents, and whether someone might still be around that remembers the early days in your analysis period.

Data sources

PCHA99 has data import modules that use a Pivot Year of 30 for Non Y2K compliant data. (Files that store year in a 2-digit (yy) format). This means yy = 00 to 29 are interpreted as 2000 to 2029. Years of 30 to 99 are interpreted as 1930 to 1999. PCHA99 will correctly import the following standard files:
Fire Weather:
From NIFMID (via KCFAST): 1972 Formatted *.FWX Files (Non Y2K Compliant)
1999 Formatted *.FW9 Files (Y2K Compliant)
From PCHA 1972 Formatted *.FWX Files (Non Y2K Compliant)
Fire Occurrence
PCHA Formatted *.RAW Files (Y2K Compliant)

Identify weather stations needed

Each planning area has different weather stations in the local area that may have data applicable to the planning effort within your analysis period. Identify all stations that have potential along with the range of years covered by each station. Include the list of stations and years in your analysis documentation file.

Define Fire Management Zones

If you plan to use existing Fire Management Zones (FMZ), document the weather stations, fuel models, and representative locations applicable for each zone. Maps showing FMZ boundaries are helpful for future reference. If you plan to create or redefine FMZ boundaries, a map is even more important.

Weather stations. Determine which weather stations are usable for each Fire Management Zone. List the weather stations in priority order. PCHA99 allows up to five stations per FMZ.

Fuel model. Determine the most appropriate National Fire Danger Rating System (NFDRS) fuel model for each Fire Management Zone. Fuel analysis projects can use custom fuel models to represent conditions between the standard models.

Representative locations. Representative Locations (also known as RL) provide a way to more accurately model your fire load. Some reasons to separate fires into representative locations are listed below. The list is not exhaustive, but merely a list of reasons other fire planners split fires into RL's.

- Fires near roads allow attack with engines, plows, and other mechanized equipment.
- Fires away from roads attacked by hand crews only.
- Fires in areas that do not allow mechanized equipment, such as fires in wilderness areas.
- Fires burning during multiple ignitions with reduced resource availability.
- Fires attacked primarily by cooperator forces.
- Fires attacked with little or no cooperator forces.

Document Assumptions

Your work is incomplete until you document all the assumptions in the Historical Analysis portion of your planning work. Ask yourself, “If I need to revise my plan in two years, what will I need to pick up where I ended?" There probably is a point at which you have too much documentation, but few people ever arrive at that point.

Initial PCHA99 Setup

Unit Identity

Enter unit identification and default data. You must define your unit before you can import fire data. Entering the NW and SE corners of your planning area will help ensure your fires are within your planning area instead of somewhere at sea.

Weather Stations

Define each weather station you actually plan to use. You must enter complete data on each of the stations before you can import weather data for a particular station.

Fire Management Zones

Define each Fire Management Zone you plan to use. Enter a descriptive name to help management (and maybe you) relate to the FMZ. After a while, numbers fuzz together into a blur.

Weather Data

Import the data for one station and check for errors. Correct errors that you find, and then proceed to the next station. Document problems along the way so you can notify agency support personnel of errors. Corrections you make in the national record set reduces the work for someone in the future (possibly you. If you don’t find any errors, either someone already cleaned up the data, or you didn’t look close enough.

Import Station Observations

Import weather station files (one station per file) one at a time. Skim through the weather records to get a feel for possible problems.

Repair Invalid Observations

Repair invalid data. Note carefully whether PCHA99 may have fixed some data that you should also repair in the national data base.

Edit Observations

Edit weather data. Pay particular attention to high precipitation days. The data may be correct, but if the record shows 10" when 0.10" is correct, your indices will be **WRONG**! Again, note any corrections that you should make in the national database for future use.

Enter KBDI Values

Enter Keetch-Byram Drought Index (KBDI) starting values if you use NFDRS 88. You must enter the KBDI for each station and year. Skip this step if you do not use 1988 NFDRS calculations.

Calculate NFDRS Indices

Calculate fire weather indices. Review the results to make sure you got what you think you should have. Some errors are not obvious until you review the results.

Fire Data

Import Fire Data

Import fire data file for the planning unit using an appropriate format. Forest Service units will generally use the Forest Service PCHA99 fire format. Department of Interior agencies will generally use the BLM fire format. Run the missing data reports, particularly *Missing Discovery Date*, *Missing Total Acres*, and *Out of Bounds Fires* to find the first errors to repair. Document any corrections you make so those can be corrected in the national database.

Run the *Fires by Size Class* report (Reports section). Closely review to see if you have the expected number of fires. Are any large fires missing? Is the size class distribution correct?

Are there any fires in the data that should not be included. Examples include a series or small fires associated with an outdoor convention that happened once, or slash fires in areas that no longer have timber sale activities. Document problems that you find so you can correct the data in the national database.

Edit Fire Data

Edit fires that appear to have errors based on the reports above. Some planners prefer to edit by themes (fix incorrect event dates and times before dealing with incorrect acres burned). This works very well when fires that may have errors

are on a list. Another approach is to check each fire in some order, such as fire number within a year. Both methods work--the goal is to have complete and accurate data.

Add Missing Data

Add weather station (if missing) and other key planning information. Forest Service fires prior to 1986 did not record FMZ, weather station, Fire Intensity Level, or NFDRS fuel model. Subsequent updates may add that information. No fires include an assignment to a representative location; this is true for all agencies at this time.

Define Priorities

Define Assignment Priorities and FIL Priorities. Think through carefully how you set your priorities. The default priorities will work for nearly all circumstances. If you choose another priority scheme, document your reasons so you can defend your choices. That doesn't mean you are wrong, just be prepared to defend your reasons.

PCHA99 uses the priorities to choose weather stations, FMZ, FIL values, etc. each of which can affect the result. If your results are not what you expected, review these priorities to see if you inadvertently told PCHA99 to do something besides what you intended.

Calculate Fire Behavior Data

You only need to do this once unless you change some key parameters on one or more fires, or change the assignment priorities. The key items include FMZ, NFDRS fuel model, size class, total acres, and discovery date.

Review Data

Now that you have scrubbed the data, found all the errors, added missing fires and deleted the extras, run the reports again and look at the results very critically. If you find a few problems in the data (you probably will the first time), fix the problems indicated and run the reports again. Pay particular attention at this stage to FMZ and FIL distributions. Are the distributions reasonable and what you would expect from the fires on your planning unit?

Remember to recalculate fire indices if you make any changes on the fires.

Generate Reports for the Next Planning Phase

Print reports for further use in IIAA and other programs. File the reports with any notes you make as part of your documentation.

Export Data for the Next Planning Phase

Export data for use in IIAA and other fire planning tools.

Update National Data Repositories

Submit updates if you find errors and your agency has an update process in place. Many fire and weather records have errors, and you should correct problems when you find them. Corrections to weather records should have some corroboration that your correction is right.

FILE

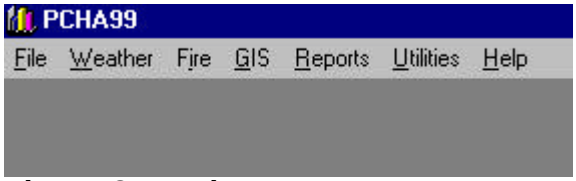


Figure 3-1 Main Menu

The main menu shown lists the broad functions available to you in PCHA99. You can choose items from the menu at any time, although the general processing flow moves from left to right, top to bottom. This chapter describes the choices under the File menu.

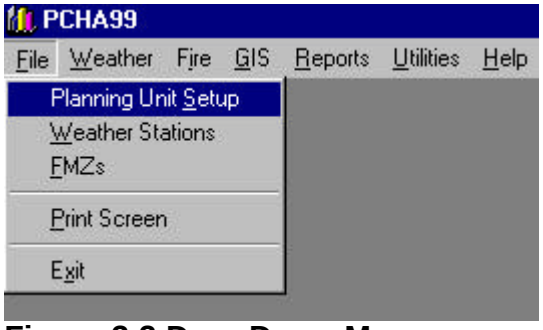


Figure 3-2 Drop Down Menu

The choices available when you select File from the main menu. The functions described in this chapter allow you to identify your planning unit, define weather stations, define Fire Management Zones, print screens, and exit from PCHA99. Print screen is available in nearly all parts of PCHA99. You can also exit PCHA99 anywhere in the program you can see the main menu.

Planning Unit Setup

Before you can import weather and fire data, you must enter the Planning Unit Setup values, particularly unit identification. Once you enter those values, you generally will not need to return to the *File* menu unless you need to add Fire Management Zones or weather stations. The unit identity data controls the import process, and you must define weather stations before you can import weather data.

Many data fields are optional, and some are required depending upon agency. All users must enter Agency and Analysis Years. Forest Service units must enter Unit # and Region. BLM and BIA users must enter State and Unit ID. These fields are required to import data. Entry in the normal range for latitude and longitude is highly recommended if your data includes fire location.

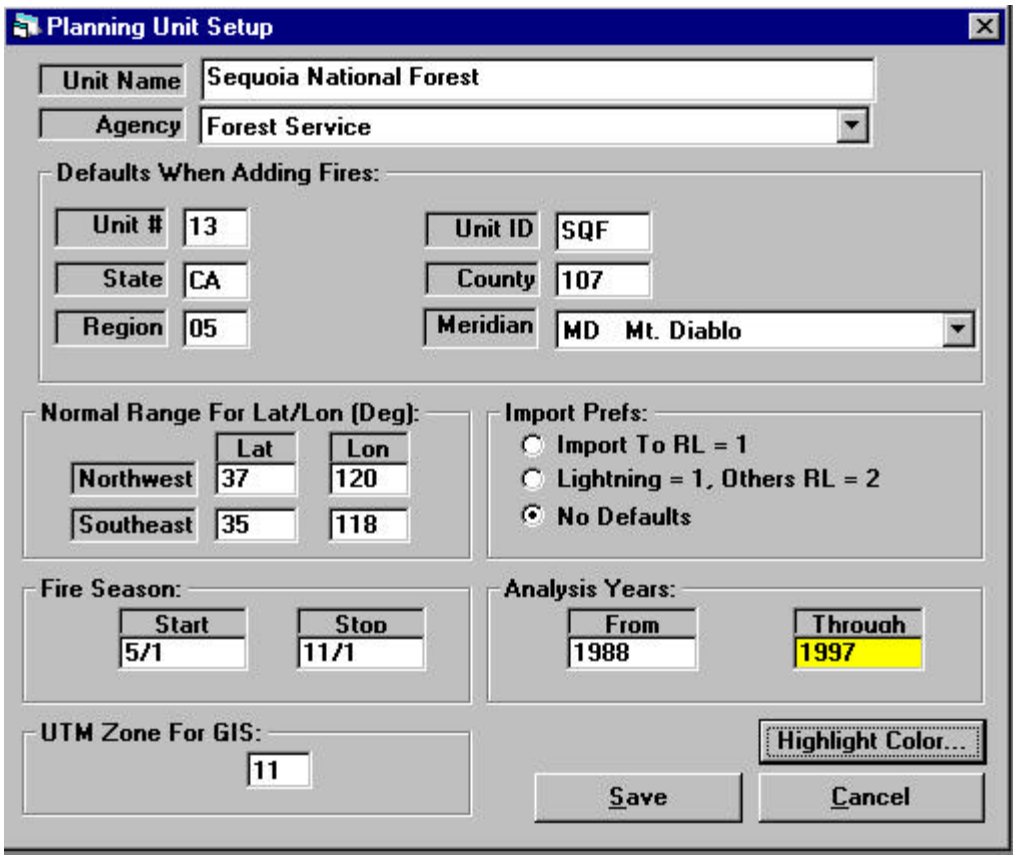


Figure 3-3 Planning Unit Setup

Unit Name

Enter the planning unit name that you want to appear on reports. This is an optional but highly recommended entry.

Agency

Click anywhere in the highlighted box and select the agency group that best describes your planning unit from the choices displayed. Current choices are Forest Service, Bureau of Land Management (BLM), Bureau of Indian Affairs (BIA), and Other. This field affects the fire input format.

Unit #

Enter the unit number (Forest Service Forest ,BLM District, or BIA Agency). Forest Service units must enter Forest number. BLM units can either enter District number or leave the field blank. BIA units can either enter the unit number or leave the field blank. This field becomes part of the file name when you choose to import Forest Service PCHA99 format fire data files.

Unit ID

Enter the three-letter fire unit abbreviation. Most Forest Service codes end with the letter F. Most BLM units end with the letter D, and most BIA units end with the letter A. This field becomes part of the file name when you

import BLM and BIA format fire data files. This is a required entry for BLM and BIA units, an optional (but recommended) entry for Forest Service units.

State

Enter the two-letter state postal abbreviation for the primary state of the planning unit. Some units have lands in more than one state. Choose the state that includes the majority of the lands within the planning unit. BLM and BIA units must enter state since this field becomes part of the file name when you import BLM or BIA format fire data files.

County

This is an optional field. Enter the numerical county code for the primary portion of the planning unit. If your planning unit covers many counties, leave this field blank. PCHA99 automatically enters this value in the county field when you add new fires. You can change county at those times if necessary. A Federal Information Processing Standard (FIPS) publication defines the codes. Lists are available from national support personnel.

Region

Forest Service units must enter the Forest Service region that contains the planning unit; other users should leave this field blank. This field becomes part of the file name when you import Forest Service PCHA99 format fire data files.

Meridian

Enter the principal meridian that covers the majority of fires within the planning unit. If your planning unit includes lands in several principal meridians, leave this field blank. The entry here becomes the default principal meridian when you enter new fires in the fire edit screens, or when you edit fires that do not have a meridian code.

Choose ‘none’ if your planning area is not in one of the 30 public land survey states. The 20 states not included in the public land survey include the 13 original colonies, Tennessee, Kentucky, Maine, Vermont, West Virginia, Texas, and Hawaii. Puerto Rico and other territories also do not use the public land survey system.

Note: Some states not covered by the public land survey system have rectangular surveys, but those surveys are not part of the public land survey system.

Normal Range for Lat/Long (Degrees)

Draw an imaginary rectangle that completely encloses your planning unit. The lines must be on full degree lines and far enough outside your unit so

your entire planning unit is inside the rectangle. Enter the latitude and longitude degrees in the northwest and southeast corners of the rectangle. Entering this data will allow you to find fires that plot outside the rectangle on the out-of-bounds report. Every now and then fire coordinates slip from your planning unit south to the Yucatan Peninsula, north to Alaska, or out into the ocean. This will help you find fires with location problems that you should fix.

For example, the Winema NF in southern Oregon goes from 42º 12' on the south to 43º 25' on the north, and from 121º 20' on the east to 122º 17' on the west. The box for the Winema should be:

Corner	Lat	Long	
Northwest	44	123	North and west boundaries.
Southeast	42	121	South and east boundaries

Import Preferences

When you import fires, the option you choose here can speed your work assigning fires to representative locations within a Fire Management Zone. You can still change representative location on each fire to fix problems regardless of what you choose here. The button with the black dot in the center is the currently selected option.

Click one of the option buttons to mark your preference for tentative assignment of fires to representative location (RL) when you import fires. Note: The RL assignments are tentative because you control the actual assignment on the FIL Priorities screen under the Fire menu.

- **Import to RL=1**. Tentatively assign all fires to representative location (RL) 1 when imported.

- **Lightning RL=1, Others RL=2**. PCHA99 checks Statistical Cause (Forest Service) or Fire Cause Code (BLM and BIA) and assigns the fire to an RL during the import process. All lightning fires are tentatively assigned to RL 1, and all other fires to RL 2. This option separates lightning fires from human-caused fires. Some planners use this option to roughly separate fires near roads (presumably human-caused fires) from those generally away from roads.

- **No Default**. PCHA99 does not make tentative representative location assignments during the fire import process. One downside of this option is you get to manually assign all the fires to an RL if you have more than one RL in a Fire Management Zone.

Analysis Years

Enter the beginning and ending years for the analysis. You can import data that goes beyond the analysis years, but most reports only show fires within the analysis period you define here.

For example, your data file may have fires from 1970 to 1995, but you only want to include fires from 1986 to 1993 for a particular analysis. Enter 1986 (beginning year) and 1993 (ending year) to define the period.

Save Button

The *Save* button stores your entries in the tables for further use. If you really goofed on your entries and want to return to the way it was before you did some changes, choose the *Cancel* button instead of *Save*.

Cancel button

The *Cancel* button does not save your changes, but rather returns directly to the main screen.

Highlight Color button

The default light color (the color shown in the box where you can make entries) is yellow. If you prefer another color, click on this button and then pick from the 48 basic colors or create one of your own. To create your very own designer color, follow the steps outlined below. One caution: some colors are easier to use than others, so you may need to experiment.

- Press the *Highlight Color* button.
- Press the *Define Custom Color* button.
- Click on one of the 16 customer color boxes.
- Move the cursor onto the rainbow on the right and pick a color area you like. Click the mouse when you like the color shown in the box below the rainbow.
- Move the slide (small triangle on the right) up and down until your color looks right.
- Press the *Add to Custom Colors* button.
- Click the *OK* button.

UTM Zone

Enter the UTM zone number used for map displays in your area.

Weather Stations

Enter the data shown in Figure 3-4 for each weather station needed in your analysis. PCHA99 does not allow incomplete information. You must define each weather station before you can import weather observations for that station. One source for most of the information is your WIMS station catalog. KCFAST also offers a report that has most of the required data.

Note: If any station you plan to use for analysis does not have a complete station catalog entry (or maybe does not exist) in WIMS, take the time to gather the information and update the catalog. Some planner next year (maybe you) will thank you for the few minutes it takes. Show the station status as inactive if that is the case.

Station ID

Enter the six-digit weather station number.

Station Name

Enter the station name (up to 12 characters). This entry is optional but strongly recommended. Many people know the station name but not the station number.

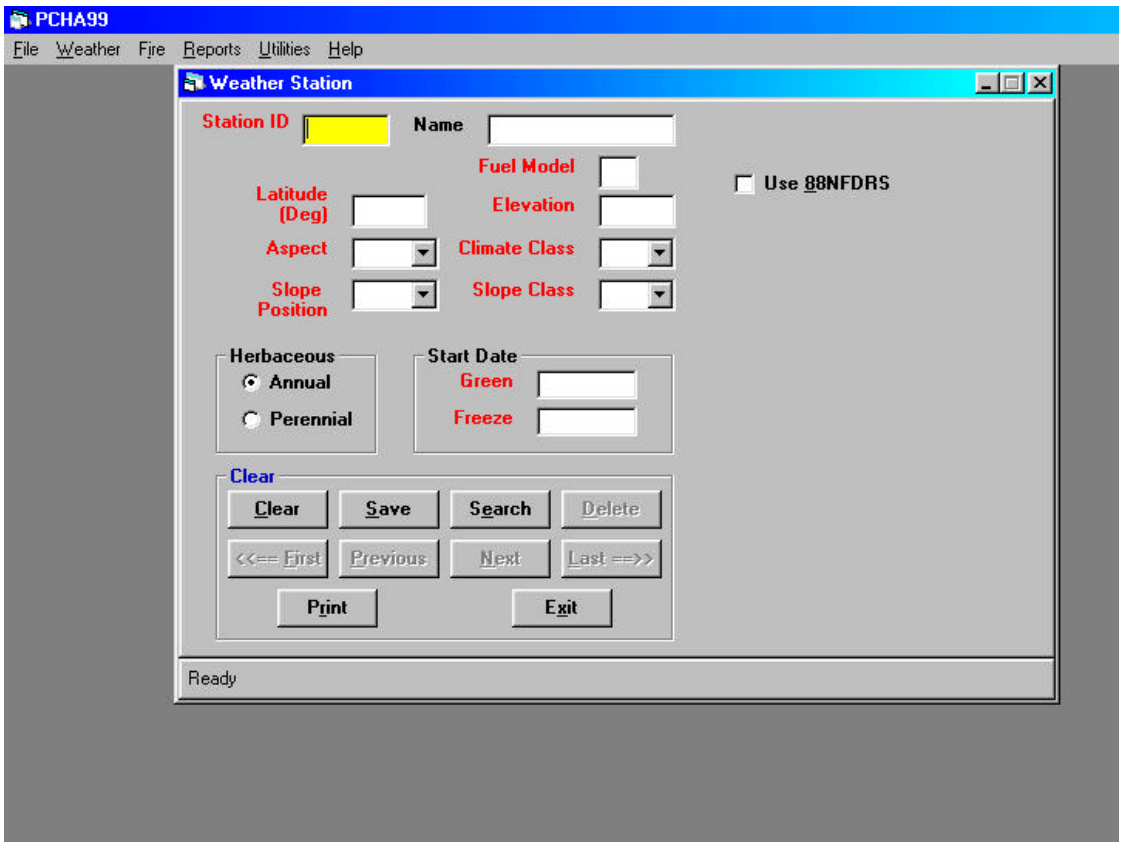


Figure 3-4 Weather Station Data

Fuel Model

Enter the NFDRS fuel model to use for this station. Valid entries are letters A-L and N-U.

This entry controls fire danger calculations for the weather station. When you request PCHA99 to calculate the weather indices, the latitude, elevation, slope class, slope position, climate class, and the fuel model control the calculations. Fire indices are based on data entered on the fire records.

Code	Description.
A	Annual grass
B	Mature chaparral
C	Open timber/grass
D	Southern rough
E	Hardwoods (winter)
F	Intermediate brush
G	Closed, short-needle conifer (heavy dead)
H	Closed, short-needle conifer (normal dead)
I	Heavy slash
J	Medium slash
K	Light slash
L	Perennial grass
N	Sawgrass
O	Pocosin
P	Southern plantation
Q	Alaskan black spruce
R	Hardwoods (summer)
S	Alaskan tundra
T	Sagebrush grass
U	Western long-needled conifer

Latitude (Degrees)

Enter the station latitude in degrees. This value affects fire danger calculations. Daylight length changes with latitude and season, which affects solar radiation on the fuels, so get close if you do not know the actual value.

Elevation

Enter the station elevation in feet above mean sea level. This value affects calculation of fire behavior indices when PCHA99 adjusts fire behavior indices from the weather station to the fire location.

Use 88 NFDRS

Check the box if you plan to use 1988 NFDRS calculations. Keep in mind, however, that your station must have season, woody moisture, woody date, and greenness data for your station. If you check the box, PCHA99 will attempt to calculate NFDRS values using the 1988 NFDRS models. Calculated values will show for each day in the '88 NFDRS tab.

This box should remain unchecked unless you have all the required fuel moisture data.

Aspect

Select the aspect in the planning unit area represented by the weather station. Shortcut: enter the first letter of the direction. The first code that begins with that letter will appear. You can scroll through codes with multiple letters by pressing the first letter again until you get the correct code.

Climate Class

Select the climate class that best describes the rainfall regime in the general area represented by the weather station. Climate class defines variable drying rates for annual, perennial, and woody plants within the live fuel moisture model. Plants have adapted to various moisture regimes and respond differently to rainfall. Those adapted to moist environments lose moisture faster than those from dry environments. Plants growing in drier climates typically respond more quickly to rainfall events. Choose the appropriate climate class that represents how local plants respond to rainfall events.

Code	Definition
1	Arid, semiarid.
2	Subhumid (rainfall deficient in summer).
3	Subhumid (rainfall adequate in all seasons.), Humid.
4	Wet

Slope Position

Choose the slope position that best describes the planning unit area represented by the weather station.

Code	Slope Position.
L	Lower 1/3
M	Middle 1/3
U	Upper 1/3

You can also use the following table to convert the numeric codes in the WIMS station catalog to slope position.

From	To
1 Valley bottom or flat	L
2 Midslope	M
3 Ridge or peak top	U

Slope Class

Enter the slope class that best describes the planning area represented by this weather station. Percent slope is the rate of elevation gain or loss in feet per 100 feet horizontal distance. Slope classes include a range of slopes as defined below.

Code	Slope Description.
1	0 -- 29 %
2	30 -- 39 %
3	40 -- 59 %
4	60 -- 79 %
5	80+ %

Herbaceous

Select the option for either annual or perennial vegetation that best represents the herbaceous vegetation in the planning area represented by this weather station.

Start Date

Enter the date herbaceous vegetation typically greens-up, and the date herbaceous vegetation freezes in a typical year for the area represented by this weather station. Entries must be month and date numbers separated by a slash or period.

> **Shortcut**: You can use the number pad to enter dates in the start dates. Enter mm.dd and PCHA99 will convert the period to the required slash. For example, enter 4.15 and it will convert to 04/15.

Clear Button

The *Clear* button flushes the screen boxes so you can enter a new station, or search for an existing station.

Save Button

The *Save* button records the information for the weather station. If you do not want to save the information, press the *Clear* or the *Exit* buttons. A message appears with a list of items to add if one or more required entries are blank. Click *OK* to clear the message and then add the missing data.

Search Button

Press *Search* to find the first weather station record in the database. Once you display a station, you can use the *First*, *Previous*, *Next*, and *Last* buttons to move through the stations. You can also search for a particular weather record.

Delete Button

This button deletes the current record from the database. If there are no weather station records displayed, this button will be light gray and inoperative.

First, Previous, Next, and Last Buttons

The *First* button displays the first weather station record in the database. The *Previous* and *Next* buttons display the record just before or after the current record. The *Last* button displays the last weather station in the database. These buttons show light gray if there are no weather station records displayed.

Print Button

The *Print* button tells your computer to generate a page that looks like the weather station screen. This is a nice way to document your entries, and allows someone else to check your data.

Exit Button

The *Exit* button closes the *Weather Station* entry screen and returns you to the main PCHA99 screen.

FMZs

Enter one record per Fire Management Zone you plan to use in your analysis. All items are required on the screen shown below. You must define your weather stations before Fire Management Zones since each FMZ must identify at least one weather station.

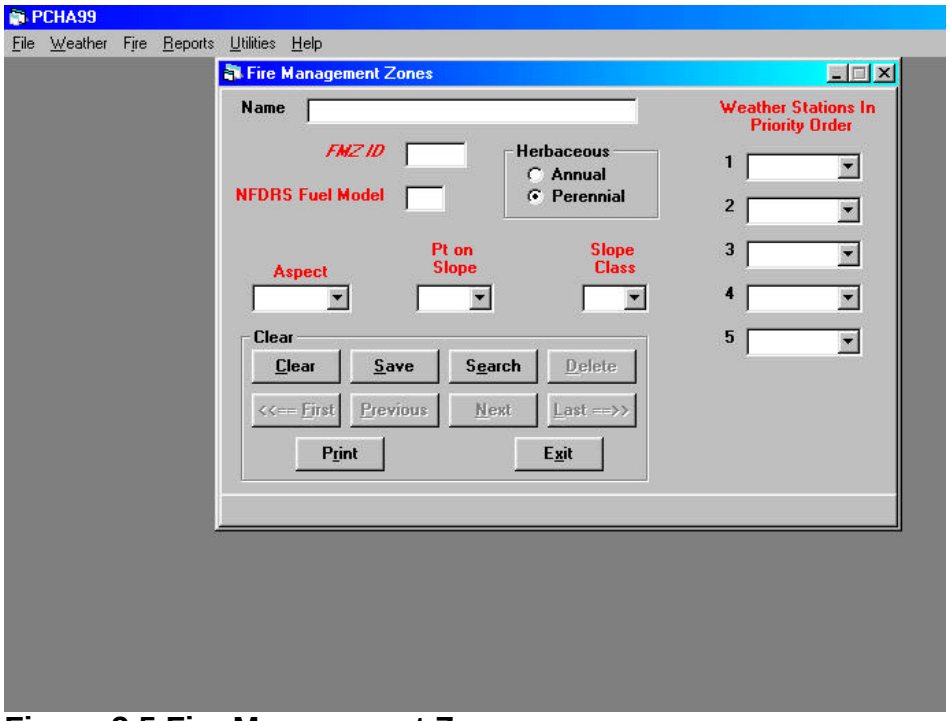


Figure 3-5 Fire Management Zone

FMZ Name

Enter the name that describes the FMZ. This entry is optional but useful; most managers respond better to a name than a number.

FMZ Number

Enter a new or search for an existing two-character identifier assigned to the Fire Management Zone (FMZ). You can use numbers or letters. Single character identifiers (such as 1 or A) will have a zero inserted in front to make the identifier two characters.

NFDRS Fuel Model

Enter the NFDRS fuel model letter that best represents the fuels found in the Fire Management Zone. Valid choices are the letters A-L and N-U.

Herbaceous

Select the herbaceous vegetation type that best represents the herbaceous vegetation in the Fire Management Zone.

Aspect

Select the aspect that best represents the lands within the Fire Management Zone.

Slope Position

Select the slope position that best describes the lands within the Fire Management Zone.

Slope Class

Select the slope class that best represents the slopes found within the Fire Management Zone.

Weather Station Priority

Enter the primary weather station for the Fire Management Zone. Each Fire Management Zone must have at least one weather station assigned. You may also identify up to four additional stations that PCHA99 will use to fill gaps in the weather observations of your primary weather station. Enter the secondary stations in priority order.

When PCHA99 does not find a weather record for a particular date on your primary weather station, the program searches each station in your list from the first to the last assigned priority. Up to five stations can be used to find weather records for fire days in the Fire Management Zone.

Clear Button

The *Clear* button flushes the screen boxes so you can enter a new FMZ, or search for an existing FMZ.

Save Button

The *Save* button records the information for the FMZ. If you do not want to save the information, press the *Clear* or the *Exit* buttons. A message appears with a list of items to add if one or more required entries are blank. Click *OK* to clear the message and then add the missing data.

Search Button

Press *Search* to find the first FMZ record in the database. Once you display an FMZ, you can use the *First*, *Previous*, *Next*, and *Last* buttons to move through the FMZs. {Note: tell how to search.}

Delete Button

This button deletes the current record from the database. If there are no FMZ records in the database, this button will be light gray and inoperative.

First, Previous, Next, and Last Buttons

The *First* button displays the first FMZ record in the database. The *Previous* and *Next* buttons display the FMZ record before or after the current FMZ. The *Last* button displays the last FMZ in the database. These buttons show light gray if there are no FMZ records in the database.

Print Button

The *Print* button tells your computer to generate a page that looks like the FMZ screen. Nice way to document what you entered.

Exit Button

The *Exit* button closes the FMZ entry screen and returns you to the main PCHA99 screen.

Print Screen

This command allows you to print any screen for documentation purposes. You will find this command very useful.

Exit

The *Exit* button closes all PCHA99 files and screens, then returns control to the Windows program manager.

WEATHER

The functions described in this chapter are available when you choose Weather from the main menu. You can import, edit, and export weather data. You can edit individual weather observations, enter Keetch-Byram Drought Index (KBDI) starting values, repair certain problems on observations, and calculate National Fire Danger Rating System values.

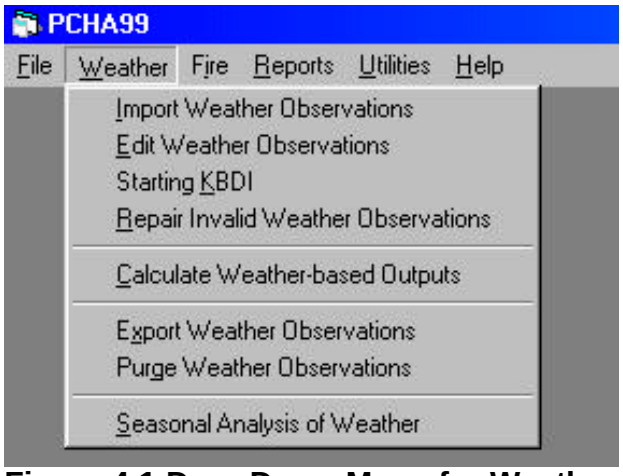


Figure 4-1 Drop Down Menu for Weather

Import Weather

Importing weather data into PCHA99 for review, editing, and use as part of the fire planning effort is a powerful tool. This release of PCHA99 requires weather data in the short observation format (also known as short obs); see Chapter 9 for details. Data for each weather station must be in separate files (one file per station). You must define each station as described in chapter 3 before you can import weather data.

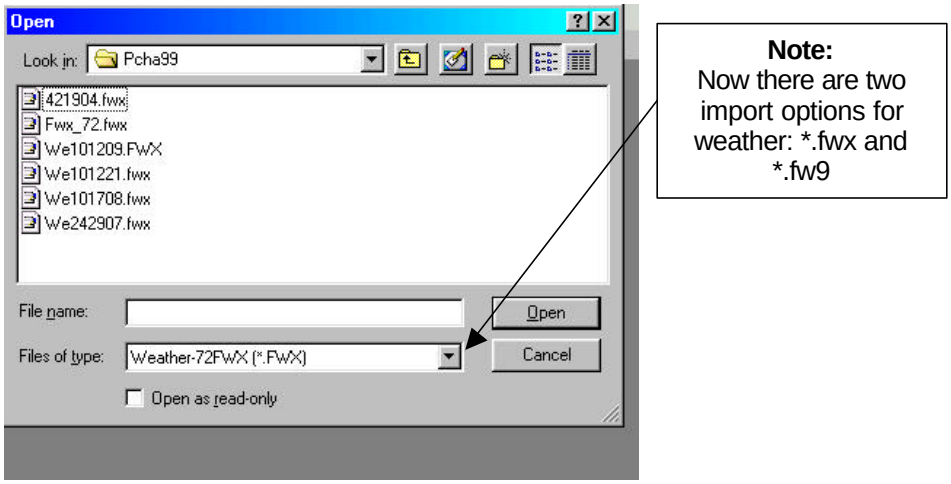


Figure 4-2 Weather Import Selection

The file naming convention requires that the last six characters be the weather station number. The file extension must be FWX. You can use filenames with 0, 1, or 2 characters before the station number. Recommendation: Use the letters WX as the first two characters of the file name. For example, data for station 353309 would use the file name of WX353309.FWX.

When you select *Import Weather*, a dialog box appears that lists files with the FWX extension. You can either double click on the file name, or click once to highlight it and then click the *OK* button.

The following screen will appear. See Figure 4-3. You must choose one of the following three options listed on the screen (See Appendix A for options in weather import formats).

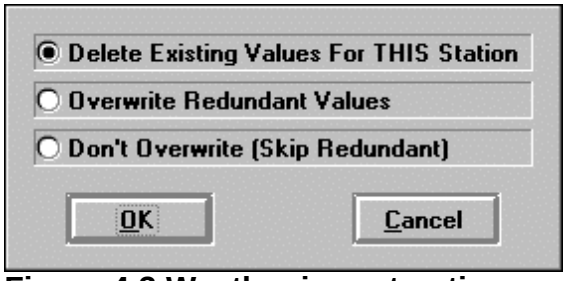


Figure 4-3 Weather import option screen

- **Delete Existing Values For THIS Station.** The default option deletes any and all weather records for this station that currently exist in PCHA99. Use this option to delete all existing records from the database and import a new data set.

- **Overwrite Redundant Values.** This option imports new observations and replaces any duplicate observations. You might use this option to replace some data that had errors but keep records not in the new data file.

- **Don't Overwrite (Skip Redundant).** This option does not delete duplicate observations. You may end up with more than one observation for the same day. Use this option to add new records to the database, but keep all the existing records without changing them. This is especially useful if you have already made numerous corrections to the existing database.

After you choose an option, click the *OK* button to start the import process. If you change your mind, click the *Cancel* button instead. A progress bar will appear along the bottom of the screen. There is another *Cancel* button in case you need to stop the import part way through the import process.

Edit Weather Observations

After importing weather data, you should check the data closely. Some observations may be incomplete, or there may be significant gaps in the weather observations. You can repair mistakes by editing the individual weather records, or you can add weather records to fill gaps. Once your weather records are correct, you can tell PCHA99 to calculate the dead fuel moisture values. If you add new records, be sure to check the User-Estimated Weather box.

Top of Weather Screen

The station number and observation date is always visible so you know what station and observation date you have displayed.

Station ID

This field identifies the weather station at which the displayed weather observation was taken. You can use this field to search for specific or groups of records as described under the *Search Criteria* button.

Observation Date

This field is the date of the weather observation. You can search for observations on specific or a range of dates in searches as described under the *Search Criteria* button.

Daily Observations Tab

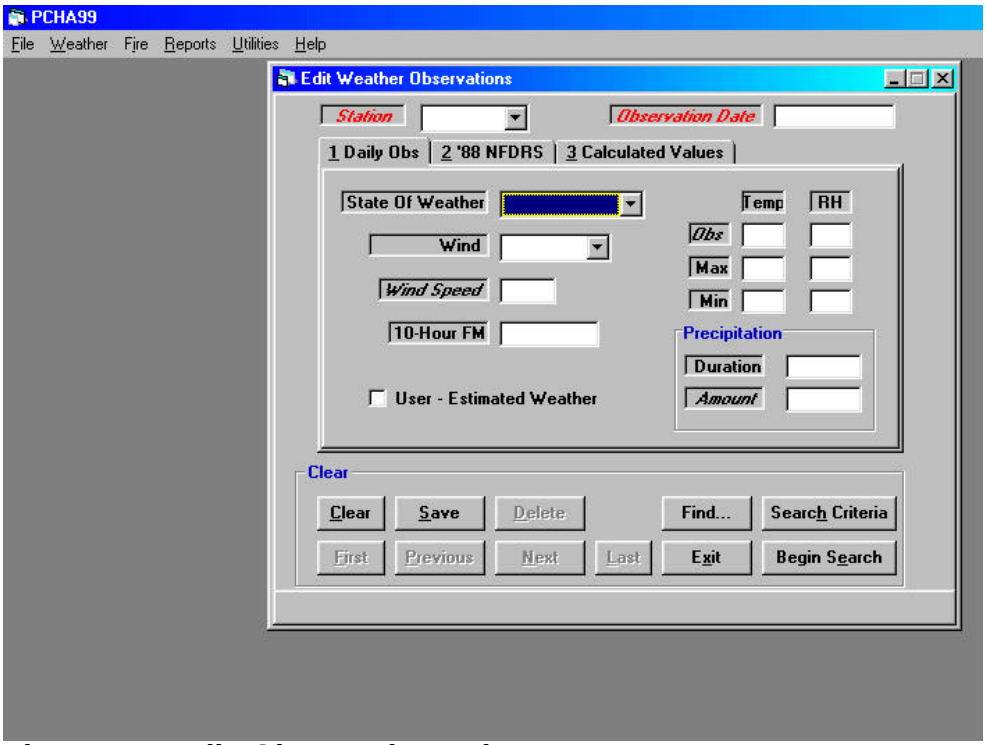


Figure 4-4 Daily Observation Tab

The above figure shows the daily observation tab on the weather edit screen. Initially the screen displays blanks in each box. Click on the *Begin Search* button at this point to display the first weather station and the first observation for the selected station. If you want to find a specific record or group of records, click on the *Search Criteria* button. Enter data into any of the display boxes with descriptive text in italics, define the records you want, and then click on the *Begin Search* button. You can limit the records you see based on the search criteria you enter, and then change data as necessary.

Examples:

- Find observations with over 10" rainfall: click the *Search Criteria* button, enter >10.0 in the Precipitation Amount box, and then click the *Begin Search* button.

- Find temperatures over 100° temperature: click the *Search Criteria* button, enter >100 in the Obs Temp box, and then click the *Begin Search* button.

You can click on any of the command buttons at the bottom any time to clear the display boxes, delete a record, save a record you changed, or change which record shows on the screen. You can also change what part of an observation is displayed by choosing which tab is visible. Click on the tab to select the display.

The data shown on this allows to view and change the daily weather observation imported into PCHA99. The daily weather observations were entered through AFFIRMS (1972-1993), WIMS (1993 to present), or loaded independently from pre-1972 data. Some of the data has hidden problems. If you find serious errors in the data, please contact your agency support personnel and describe the problem you found. Support personnel need at least the following information:

- Station number(s)
- Dates on which you found the problem
- Brief description of the problem, with any recommendations you might have.

State of Weather

State of the weather indicates the amount of cloud cover, kind of precipitation, and/or restrictions to visibility at the weather station at basic observation time.

Code	State of Weather.
0	Clear
1	Scattered clouds
2	Broken clouds
3	Overcast
4	Foggy

5	Drizzling
6	Raining
7	Snow or sleet
8	Showering
9	Thunderstorms in progress

Wind Direction

This field shows the direction from which the wind blew at observation time coded into one of 8 directions.

Code	Wind Direction.
0	Calm
1 NE	Northeast
2 E	East
3 SE	Southeast
4 S	South
5 SW	Southwest
6 W	West
7 NW	Northwest
8 N	North

Wind Speed

Wind speed in miles per hour measured at 20 feet above the ground or at average height of the vegetative cover is an average over at least a 10-minute period.

10-Hour Fuel Moisture

This is the moisture content of the 10-hour timelag roundwood fuels, and is typically measured by weighing calibrated fuel sticks.

Temperature

This field is air temperature in degrees Fahrenheit measured at the standard observation time.

Relative Humidity (RH)

Relative humidity is the ratio expressed as a percentage of the actual amount of water vapor in the air to the amount necessary to saturate the air at that temperature and pressure.

Precipitation

- Precipitation duration is the time in hours that precipitation events lasted during the last 24-hour period.
- Precipitation amount is the amount of atmospheric moisture that reached the ground within the previous 24-hour period. You can use this field in a search. For example, you can find observations with really high rainfall amounts that may be errors. After you find

the records, you can edit the amounts if necessary. See the *Search Criteria* button for more details.

User-Estimated Weather

Check this box is you enter weather observations to fill gaps in the record.

1988 NFDRS Tab

The data on the NFDRS tab shows the additional data required to support the 1988 version of NFDRS.

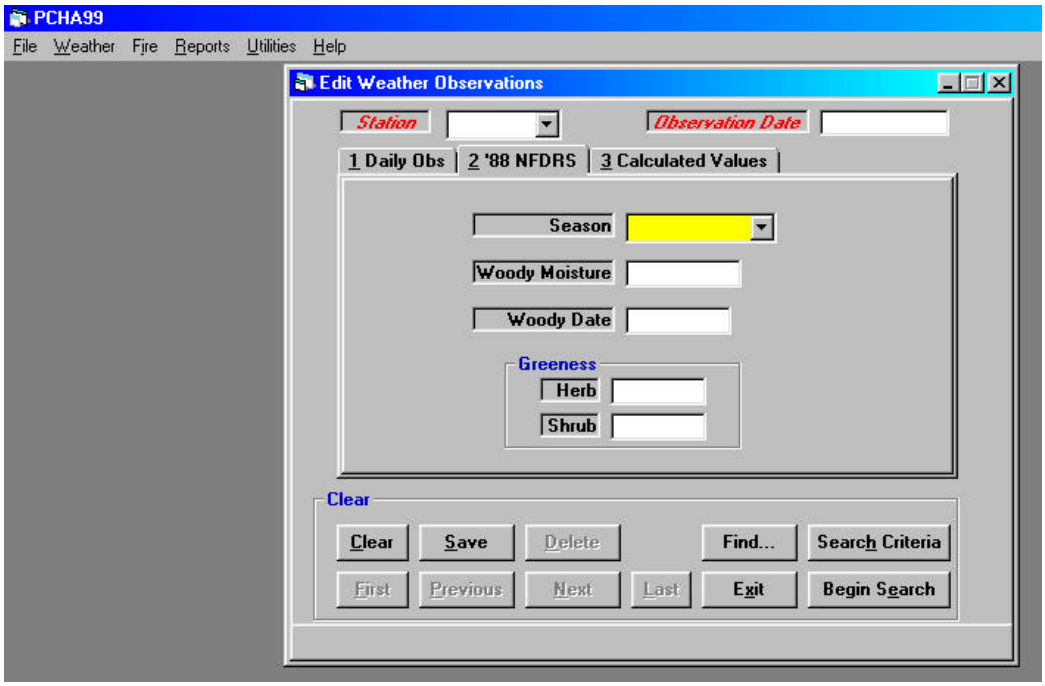


Figure 4-5 1988 NFDRS Tab

Season

This field identifies one of the four seasons of the year.

Woody Moisture

The moisture content of woody fuels the ratio between the moist and dry weight of the wood expressed as a percentage of the dry weight of the wood. Values can range up to 250 percent.

Woody Date

This field is the observation date of the woody fuel moisture.

Greenness

This is the greenness factor from 0 through 20 that indicates the relative level of shrub greenness. Zero indicates that all leaves have fallen off deciduous shrubs or that evergreen shrubs are dormant. Twenty indicates fully developed shrub leaves that are not under moisture stress. Use

intermediate values during spring greenup, fall curing, or during drought conditions.

There are separate entries for herbaceous greenness and shrub greenness.

Calculated Values Tab

The data on this tab shows the calculated values for the national fire danger rating system based on the weather observation. The calculations use the 1978 NFDRS formulas unless you checked the *Use 88 NFDRS* box on the weather station definition screen .

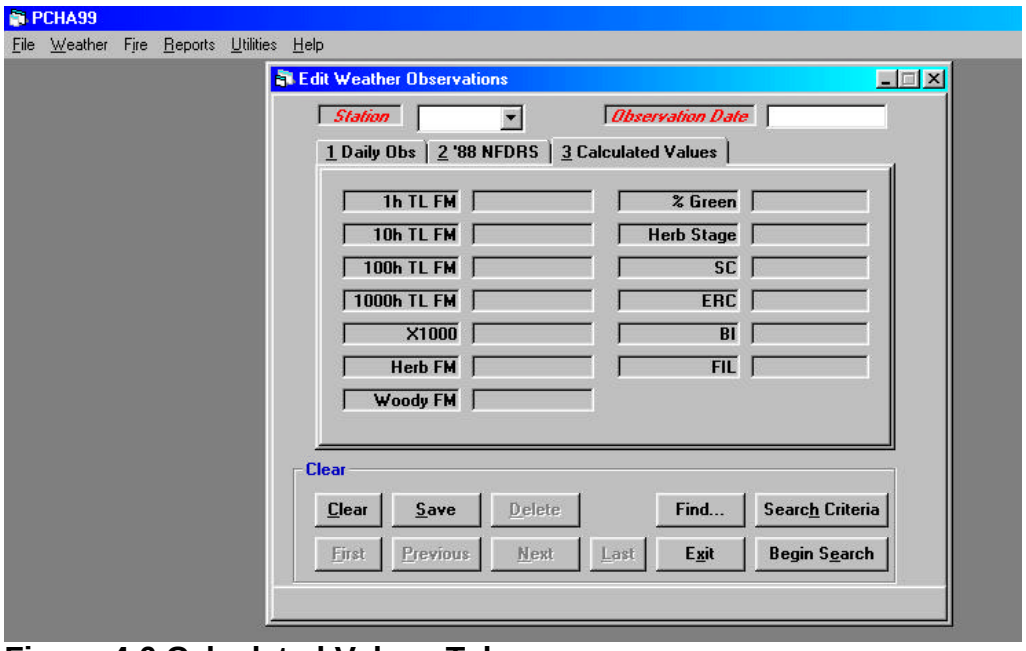


Figure 4-6 Calculated Values Tab

1 hr. Timelag FM

Observation time, relative humidity, and temperature measured at 4.5 feet above the ground are the weather values used to calculate the 1-hour timelag fuel moisture. Observed weather values are adjusted from a 4.5 foot observation to an estimated condition at ground level using factors determined by the *State of the Weather* codes.

10 hr. Timelag FM

The preferred method to obtain the 10-hour timelag fuel moisture is to weigh fuel moisture sticks at the weather station, corrected for stick aging. When fuel sticks are not measured, the 10-hour fuel moisture is estimated in a manner similar to that for the 1-hour timelag fuel moisture.

100 hr. Timelag FM

The 100-hour timelag fuel moisture is determined from the weather observation values of precipitation duration, maximum and minimum temperature, and relative humidity. The maximum and minimum values are for the 24-hour period that begins at observation time yesterday (in relation to the weather record date) and ending at observation time today.

1000 hr. Timelag FM

The 1,000-hour timelag fuel moisture calculation uses the same basic methodology basic format as the 100-hour timelag fuel moisture, but bases calculations on conditions over a 7 day (168 hours) period.

X1000 Timelag FM

The X1000 value limits the increase in herbaceous fuel moisture due to precipitation. The 1,000-hour timelag fuel moisture controls the drying rate of herbaceous fuel moisture, and the X1000 value controls the rate of increase of herbaceous fuel moisture content due to precipitation.

Herb FM

Plants that do not develop persistent woody tissues such as grasses, forbs, and ferns make up live herbaceous fuels. These fuels are further subdivided into annual and perennial vegetation types. The herb fuel moisture is estimated using National Fire Danger Rating System (NFDRS) calculations. When the fuel moisture falls below 30 percent, these plants are considered cured and the moisture content defaults to that of the 1-hour timelag fuels.

Woody FM

Plants that develop persistent woody tissue such as brush, or any perennial woody shrub, make up this second category of live fuel. These fuels are considered dormant when the moisture content falls to 50 percent. Above this value these plants are allowed a maximum moisture content of 250 percent during the growing season. The woody shrub fuel moisture model does not allow the estimated shrub moisture content to fall so low that the shrubs would have to be considered dead. However, shrubs are considered dormant when at the low end of their moisture range.

Percent Green

The 1988 NFDRS requires users to enter greenness factors that express actual greening and curing of both live herbaceous and live woody vegetation. Greenness factors represent a visual estimate of the current general greenness of herbs and grasses, and shrubs, compared with their maximum greenness. The greenness factors range from 0 to 20. Zero (0) represents fully dried herbaceous plants or dormant shrubs, and 20 represents a condition in which the herbs and/or shrubs are as green as they can ever get.

Herb Stage

There are four herbaceous stages in the live fuel model. Each stage is utilized in the model to determine fuel load transfer from live herbaceous to dead 1-hour timelag fuel moisture. The four herbaceous stages and their effect on live fuels are as follows:

- **Cured** - All live herbaceous fuel load is transferred to 1-hour timelag fuel load (1-h TL FL).
- **Green-up** - Previously transferred herbaceous fuel load is transferred back from 1-hour timelag fuel load to herbaceous live category.
- **Green** - All live fuel load is transferred from the 1-hour timelag fuel load into the live herbaceous fuel load.
- **Transition** - During transition, live fuel load is progressively transferred from the live category to the 1-hour timelag fuel load category.

Rate of Spread (ROS)

Rate of spread is the forward spread measured in chains (66 feet) per hour at the fire head, and is the same as Spread Component (SC) as defined in National Fire Danger Rating System (NFDRS). This value is based on a mathematical fire spread model developed at the Northern Forest Fire Laboratory (Rothermel 1972; Albini 1976a, 1976b).

The spread model integrates the effect of wind, slope, fuel bed, and fuel particle properties to predict the forward rate of fire spread. The slope class and fuel model (fuel model specifies the fuel particle and fuel bed characteristics) are constants in the calculation of the spread component. The daily variations of spread component are caused by the daily changes in the wind and moisture contents of the live fuel and the dead fuel timelag classes of 1-hour, 10-hour, and 100-hour timelag fuel moistures.

Energy Release Component (ERC)

This value is based on the estimated potential available energy released per unit area in the flaming zone of the fire. The ERC is dependent on the same fuel characteristics as the *Spread Component*. The day-to-day variations of the ERC are caused by changes in the moisture contents of the various fuel classes, including the 1,000-hour timelag fuel moisture class. The ERC is derived from predictions of the rate of heat release per unit area during flaming combustion, and the duration of flaming.

Burning Index (BI)

The *Burning Index* is derived from the *Spread Component* and *Energy Release Component*. The rate of fire spread and the energy released in the flaming zone, considered together, are the means of rating the difficulty of containment within a fireline. The BI is linearly related to the length of flames at the head of the fire. It is calculated from the *Spread Component* and *Energy Release Component* using the relationships originally developed by Byram for calculating flame length. The BI is scaled so that it equals 10 times the predicted flame length. A BI of 78 equals a flame length of 7.8 feet.

Fire Intensity Level (FIL)

The Fire Intensity Level is a measure of fire intensity, as it influences fire effects (rather than fire behavior), and is represented by flame length. The six FILs and their associated flame lengths are listed below.

FIL	Flame Length.
1	0 -- 2 feet
2	2 -- 4 feet
3	4 -- 6 feet
4	6 -- 8 feet
5	8 -- 12 feet
6	12 + feet

Bottom of Weather Screen

All of these buttons are usable from any of the tabs. You can enter a new record or a search.

Save Button

The *Save* button records the information for the weather observation. If you do not want to save the information, press the *Clear* or the *Exit* buttons. You only need to press the *Save* button if you changed data on the displayed weather record.

Delete Button

This button deletes the current record from the database. If there are no weather observation records in the database or displayed on the screen, this button will be light gray and inoperative.

Find Button

This button deletes the current record from the database. If there are no weather observation records in the database or displayed on the screen, this button will be light gray and inoperative.

Search Criteria Button

Press the *Search Criteria* button to clear the screen and define the fields that will control which weather observation records you want to find in the database. Items written in italic text are available for searches. Station ID, observation date, precipitation amount, observed temperature, and observed relative humidity are search items. After you enter the criteria, press the *Begin Search* button. Remember that you can enter search criteria in several fields. If you find no records when you expected to find some, loosen your criteria.

For example, you can search for all observations with temperatures greater than 50. Press the *Search Criteria* button, click on the Obs Temperature, and enter “>50” (do not include quote marks). Then press the *Begin Search* button.

Another example: suppose you want to find precipitation events between 2 inches and 10 inches. Press the *Search Criteria* button, click on the Precipitation Amount field and enter “>=2.0 and <=10.0” (do not include quote marks). Then press the *Begin Search* button. This search will find all weather observations that have at between 2 inches and 10 inches of precipitation for the day.

Begin Search Button

Press *Begin Search* to find the first weather observation record in the database or the first record that meets your search criteria. Once a record shows on the screen, you can use the *First*, *Previous*, *Next*, and *Last* buttons to move through the weather observations.

First, Previous, Next, and Last Buttons

The *First* button displays the first weather observation record in the database or the search list. The *Previous* and *Next* buttons display the weather observation before or after the current observation. The *Last* button displays the last observation in the database or search list. These buttons show light gray if there are no weather observation records in the database or displayed on the screen.

Exit Button

The *Exit* button closes the weather observation entry screen and returns you to the main PCHA99 screen.

Starting KBDI

This screen is only necessary if you checked the *Use 88 NFDRS* checkbox on the *Planning Unit Setup* screen. At the beginning of the fire season, enter a starting Keetch-Byrum Drought Index (KBDI) value. Normally, this value would be near 0 because winter rainfall or snow melt recharged soil moisture. However, this entry

provides an opportunity to enter an estimated value if significant drying occurred before the date the weather station observations and KBDI calculations began. It is preferable to begin calculations after a significantly wet period, when soils are fully charged with moisture. Table 1 in Burgan (1988) can help you develop this estimate.

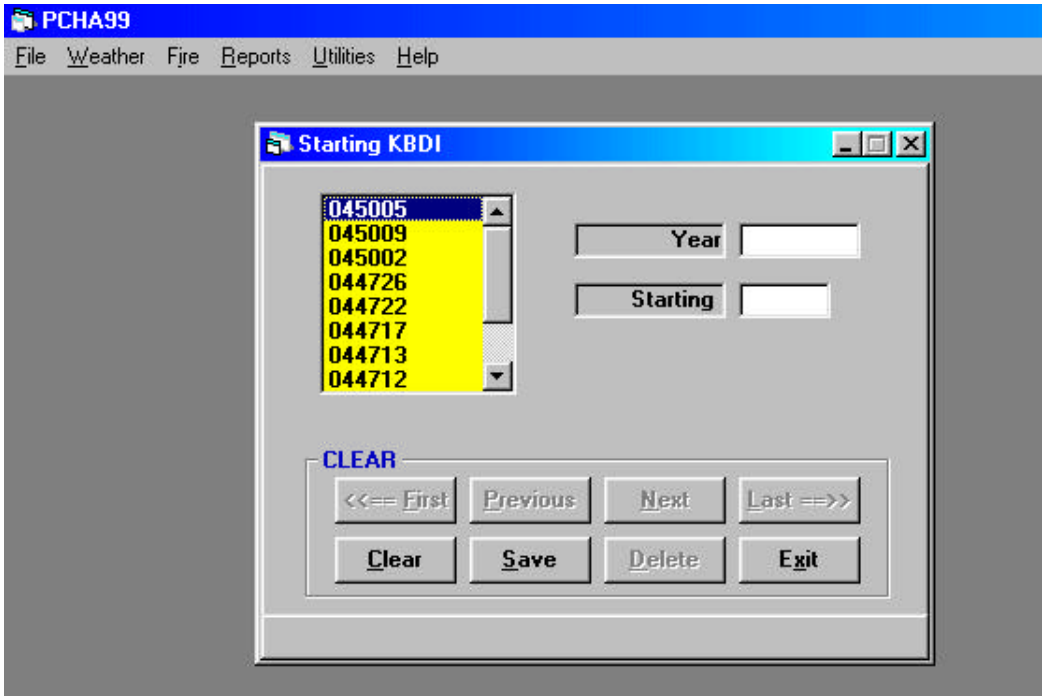


Figure 4-7 Keetch-Byram Drought Index Entry

Year

Enter the year for the KBDI value.

Starting KBDI

Enter the starting Keetch-Byram drought index value for the year identified in the year field.

Repair Invalid Observations

This function will review all the weather records and correct weather records that have certain incorrect information. A box will pop up and ask for you to confirm whether or not you really want to have the weather records corrected. If you click on Yes, PCHA99 will proceed with the repairs. If you click No, you will return to the main menu. The status bar across the bottom shows progress through the weather records.

After PCHA99 finishes the repairs, a display box will pop up with the message "xxx invalid weather observations were written to file INVWX.DAT." The INVWX.DAT is a text file. After you click OK, the report will appear on your screen.

If you want to print the report, click on the *Print* button. Click on the *Exit* button to escape. You can scroll through the report by moving the scroll bars on the right and bottom. The report lists station number, observation date, field name affected, original value, new value, and a description of the problem.

Errors corrected include:

- Maximum humidity less than yesterday's or today's observed relative humidity. Maximum relative humidity is set to the greater of yesterday's or today's relative humidity.

- Minimum humidity greater than yesterday's or today's observed relative humidity. Minimum relative humidity is set to the lesser of yesterday's or today's relative humidity.

- Maximum temperature is less than yesterday's or today's observed temperature. Maximum temperature is set to the greater of yesterday's or today's temperature.

- Minimum temperature is greater than yesterday's or today's observed temperature. Minimum temperature is set to the lesser of yesterday's or today's temperature.

- Maximum relative humidity is less than minimum relative humidity. Maximum and minimum relative humidity values are swapped.

- Maximum temperature is less than Minimum temperature. Maximum and minimum values are swapped.

Calculate Weather-Based Outputs

This function calculates the NFDRS values for each weather observation stored in PCHA99. The fuel model you entered on the *Weather Station* definition screen and the weather observation for each day affects the calculated NFDRS indices. You only need to calculate NFDRS indices once unless you change any weather data.

A message box will pop up and ask if you really want to calculate the 'uncorrected' fuel moistures and NFDRS components. Choose Yes to begin the calculations, or choose No and you will return to the PCHA99 main menu. A progress bar and a record count along the bottom show the processing status. When PCHA99 finishes the calculations, look at the results in *Edit Weather* to make sure you got what you expected.

Export Weather

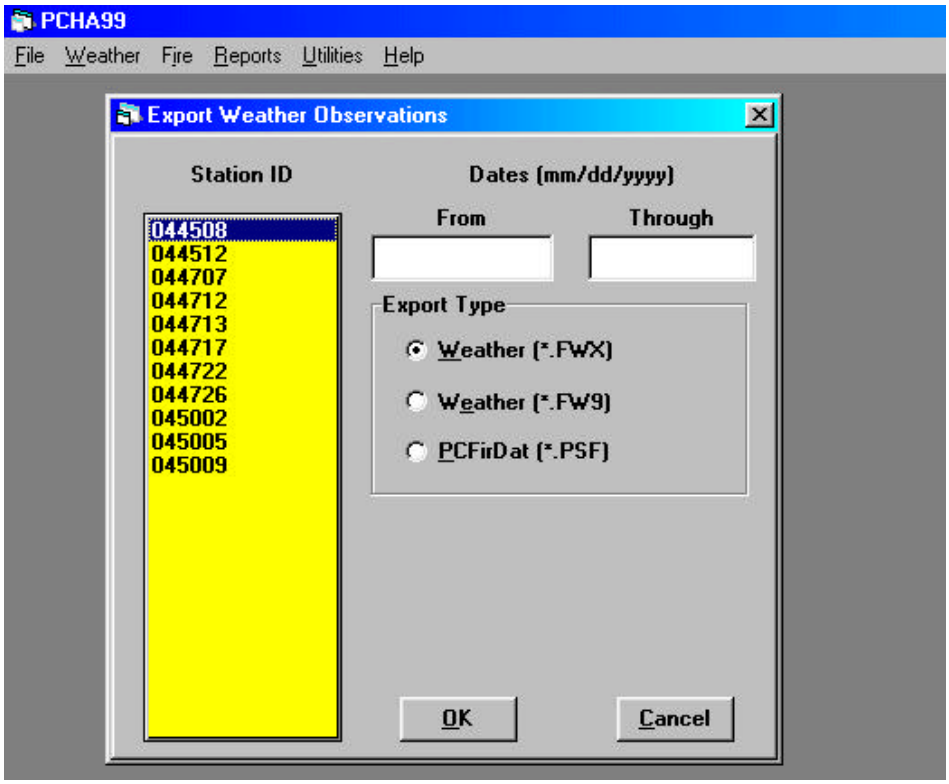


Figure 4-8 Weather data export selection screen

Now that you've cleaned up your weather, fixed the high precipitation amounts, and are comfortable the weather data is correct, you can export the data and use the clean data file for further analysis in other programs. You must export each weather station one at a time. Choose the station number, date range, and file type for each export. If you get no records out, go to the Edit Weather screen and check to see if you have data for the selected station in the date range you entered.

Station ID

PCHA99 will list the stations you defined in the *Weather Station* screen. Choose the station you want to export. Remember that you must have data in the files to export data

Dates

Enter the beginning and ending dates you want to export in the From and Through boxes. Enter the dates in mm/dd/yyyy format. PCHA99 will export only the weather observations for the requested station whose observation date falls between the two dates.

Export Type

- **FWX (Short observation).** This is the same format as the PCHA99 import file format.

- **FW9 (WXOBS98).** This is the Y2K compliant format.

- **PSF (FirDat Passing File).** This format can be used by other weather analysis software. This file format contains weather values and calculated NFDRS indices.

Purge Weather Observations

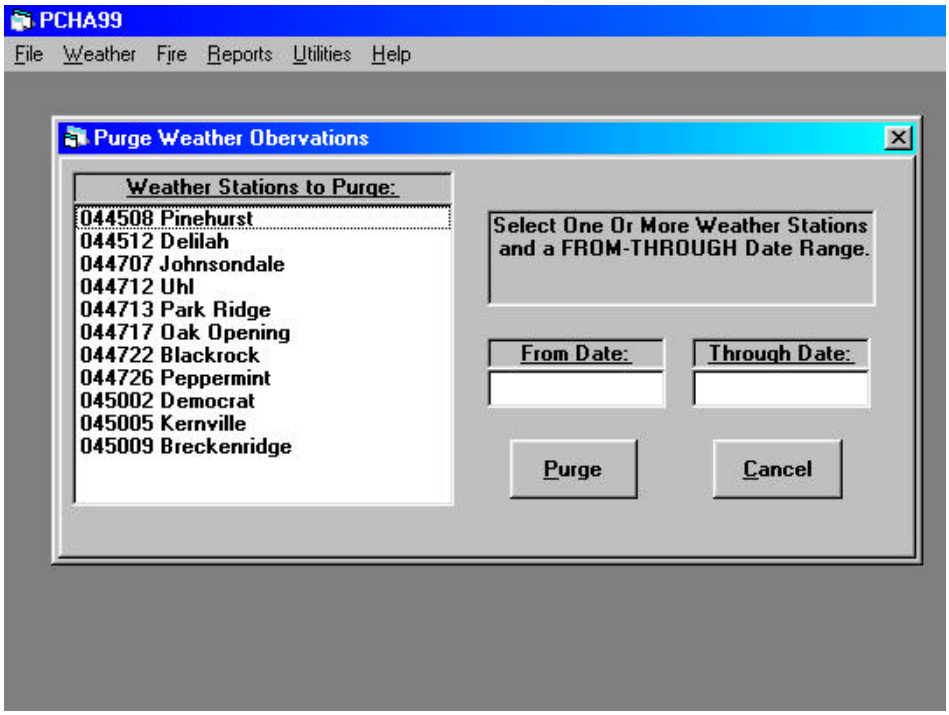


Figure 4-9 Purge Weather Observations

This option will remove selected sets of previously imported weather observations. The user can select one or more weather stations and a range of weather observations to be deleted from the PCHA99 database. The From date is the first weather observation (month, day and year) that is to be deleted and the Through date (month, day and year) is the last weather observation that is to be deleted. All weather observations for the selected station(s) between the From and Through dates will be deleted when the Purge button is selected. The From and Through date range format is mm/dd/yyyy.

Seasonal Analysis of Weather

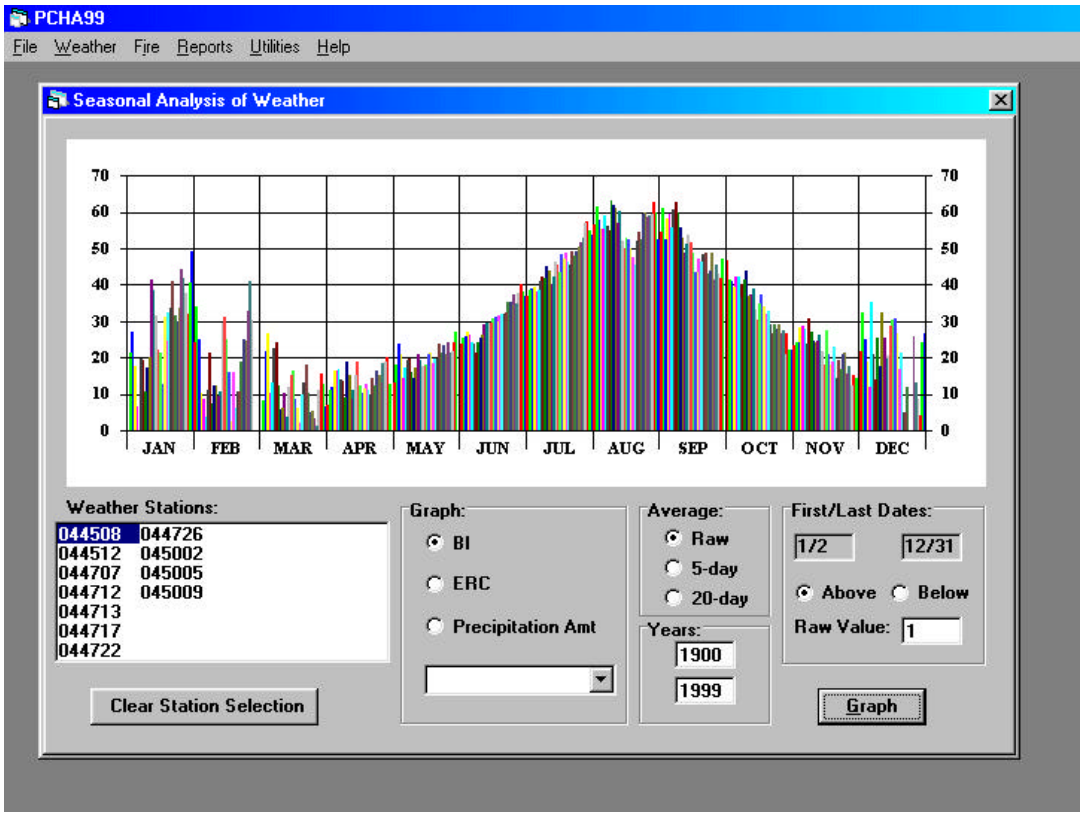


Figure 4-10 Seasonal Analysis of Weather

This option produces a graph of the observed weather values or NFDRS calculated values for selected weather station(s) for a specific period of years. The Weather Station, Average, and Years must have an entry to activate the Graph button.

Weather Stations

The user selects one or more weather stations by highlighting them with a click of the mouse. To clear the selected Weather stations press the Clear Wx Station button.

Graph

The user selects B1 (Burning Index) ERC (Energy Release Component) or Precipitation Amt (Precipitation Amount) for the graph by clicking the mouse on the circle next to the value. A variety of other weather and NFDRS values are available for graphing by selecting the down arrow and choosing one of the following values from the drop down list:

SOW	State of the Weather
Temp	Observation time Temperature (^{o}F)

RH	Observation time Percent Relative Humidity
Wdir	Observation time Wind Direction
WS	Observation time 10 minute Wind Speed at 20 feet above ground
OMC10	Observation time 10 hr. Timelag Fuel Moisture content
OMCWood	Measured Woody Fuel Moisture content
TmpMax	Maximum Temperature for the 24 hours period from previous day Observation time to today's Observation time
TmpMin	Minimum Temperature for the 24 hours period from previous day Observation time to today's Observation time
PPTDUR	Precipitation Duration for the 24 hours period from previous day Observation time to today's Observation time
MC1	Calculated NFDRS 1 hr. Timelag Fuel Moisture content
MC10	Calculated NFDRS 10 hr. Timelag Fuel Moisture content
MC100	Calculated NFDRS 100 hr. Timelag Fuel Moisture content
MC1000	Calculated NFDRS 1000 hr. Timelag Fuel Moisture content
MCHerb	Calculated NFDRS Herbaceous Fuel Moisture content
MCWood	Calculated NFDRS Woody Fuel Moisture content
ROS	Calculated NFDRS Rate of Spread
FIL	Calculated Fire Intensity Level

Average

The data can be displayed RAW in its current condition (no averaging) or displayed using a 5 or 20 day running average.

Years

A range of years can be selected with all available data for the selected weather station(s) being utilized between the tow dates specified. The format for the Years entry is yyyy.

First/Last Dates

Calculates the first and last occurrence either above or below the value selected. The dates (month/day) are calculated and displayed when the Graph button is selected. The First/Last dates entry will not change the graph display.

FIRE

This chapter describes the functions available to manage fire data. Import loads fire data into the PCHA99 database. Edit allows you to correct and modify fire data, and calculate latitude and longitude from legal locations estimates geographic locations. Assignment and FIL priorities affect calculation of planning values on each fire. Reports help you find problems in your data, and you can export the clean data for further use.

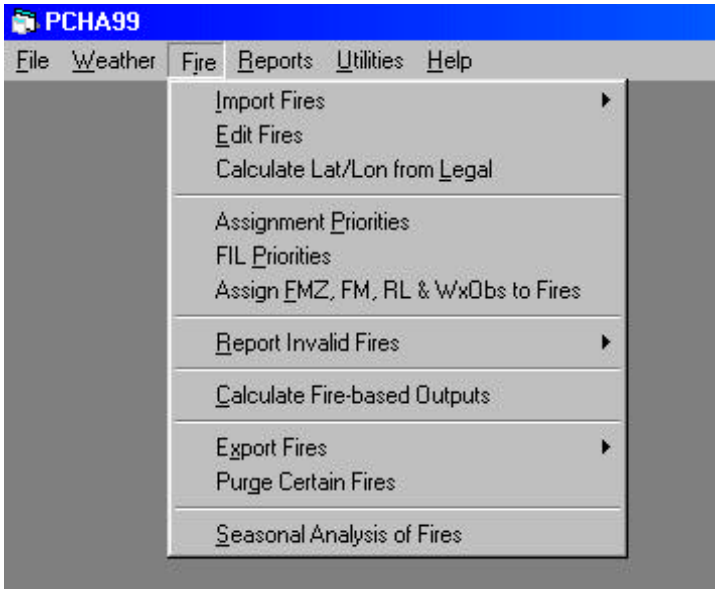


Figure 5-1 Fire Menu

During the edit process, look closely for missing or incorrect values in acres burned, fire size, location, weather station, and fire intensity level. A missing fire of significant size can seriously affect the accuracy of your results. Generally you should complete all your preparation work with weather data before you start working on the fire data so you can focus on the particular problems of each data type.

Import Fires

Your fire data must be in one of the formats described below, and the file name must exactly follow the naming convention for each agency. PCHA99 is very particular in this regard.

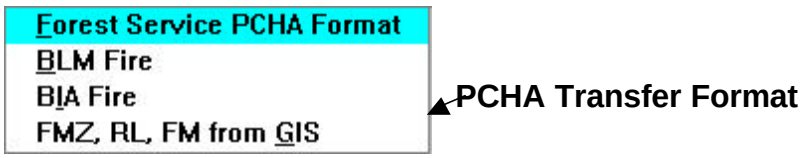


Figure 5-2 Import Fire Formats

If you have access to KCFAST (either DG or PC versions), you can download weather data from NIFMID. Forest Service units can also download fire data using KCFAST. Other agencies should contact their planning support staff for instructions on how to obtain fire and weather data.

The file name for your fire data must match the unit identity data entered on the *Planning Unit Setup* screen. When you import fires, you must choose one of the import formats on the submenu. After you choose an import format, a dialog box will appear that shows the files consistent with the format you chose. Select the file to import and click *OK*. If the file you want to import doesn't show, the file may either be in a different directory, or the file name does not conform to the required naming convention.

Some fields contain data that is valid in the agency database, but is not valid in PCHA99. One item in particular--NFDRS fuel model--may contain fuel model 'X' in Forest Service data, but PCHA99 converts fuel model 'X' to a blank during the import process.

- **Forest Service PCHA99 Format.** Forest Service PCHA99 data files use the naming convention PCHA99rrff.RAW where *rr* is the region and *ff* is the forest number defined on the *Planning Unit Setup* screen. The first four characters must be PCHA99 and the file extension must be RAW. For example, the input file for the Angeles NF in Region 5 would be PCHA990501.RAW.

- **BLM Fire**. BLM fire input files use the naming convention BLMssuuu.RAW where ss is the state code and uuu is the Unit ID from the *Planning Unit Setup* screen. The first three characters must be BLM and the file extension must be RAW. For example, the input file for the Roswell, NM District would be BLMNMROD.RAW.

- **BIA Fire**. BIA fire input files use the naming convention BLMssuuu.RAW where ss is the state code and uuu is the Unit ID from the *Planning Unit Setup* screen. The first three characters must be BLM and the file extension must be RAW. For example, the input file for the Warm Springs, Oregon Agency would be BLMORWSA.RAW. Note: the convention (BLM instead of BIA) will likely be changed in a future release.

- **PCHA** Transfer Format

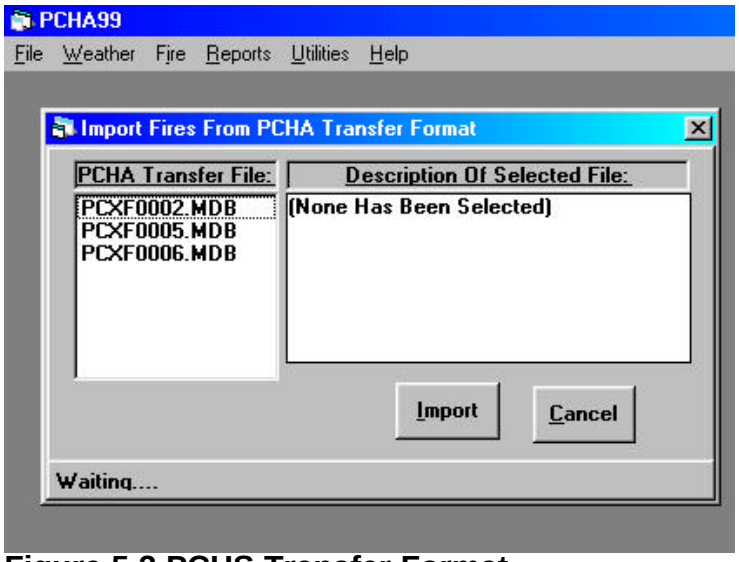


Figure 5-3 PCHS Transfer Format

- **FMZ, RL, FM from GIS**. GIS input files generated from a geographic information system (GIS) database use the naming convention GISxxxxx.RAW where xxxxx can be any legal file name characters. GIS files contain data items separated by commas (also called comma delimited).

After you select the file to import, you must tell PCHA99 how to deal with the new fires (see). Pick the option that best fits your need. PCHA99 will then start the import process. A progress bar at the screen bottom will move as the import occurs.

- **Delete ALL Fires.** Default option. This option deletes any and all fires that currently exist in PCHA99. Use this option to delete all existing records from the database and import a new data set.

- **Overwrite Redundant Values.** This option imports new fires and deletes any duplicate records. This option is very useful if you made extensive edits to some records and want to keep the changes.

- **Don't Overwrite (Skip Redundant).** This option does not delete duplicate fires. You may then end up with more than one record for the same fire

When PCHA99 begins reading your input file, it may detect a non-standard format to denote the end of each record. If so, the message below will pop up. Click on Yes and PCHA99 will convert the file and import the data.

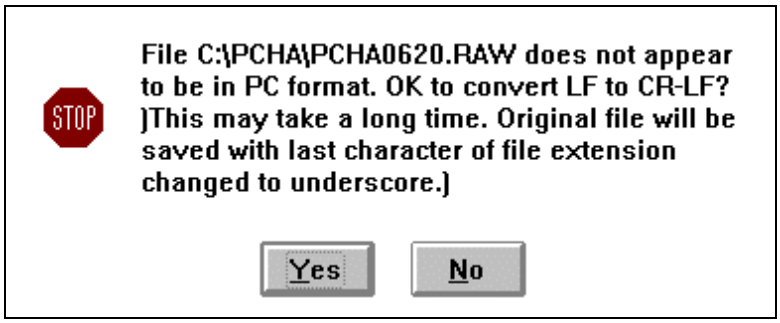


Figure 5-4 File not in PC format

Edit Fires

Now that you have loaded the fires needed for your planning area into PCHA99, you must determine if you have all the fires you should have, and find any serious problems that need repair. The six tabs on the Edit Fire screen allow you to see the data you imported or added to your fire data. Each tab (except miscellaneous) displays a group of related data items; the miscellaneous tab shows data that did not fit elsewhere. You can add missing data, revise incorrect values, and print reports. Some agencies have procedures to let you send corrections back to the agency fire data base so future data extracts will have the benefit of the corrections you made.

Look closely at your fire data to ensure your planning work accurately reflects the planning unit's fire history. Are any large fires missing? If so, find the report and add it to your planning database. Also contact your agency support personnel for instructions on how to add the missing fire(s) to the national database.

Do any class A fires have large FIL values? Consider assigning all size class A fire to FIL=1 for your historical analysis. Is the breakdown by cause and size what you expected? Check size class distributions--some may be incorrect. Remember, however, that some fires with FIL greater than 1 were caught by available suppression forces, so not all size class A fires need be FIL=1.

Are there any fires included in your data that you should exclude from the plan? Delete those that should not be part of the historical base for your plan. Examples of fires to exclude are fire associated with activities that are unlikely to recur. A series of small fires at a rock concert, slash fires associated with timber harvest where timber harvest no longer occurs, or rail equipment-caused fires along a now abandoned railroad right of way may fit this criteria.

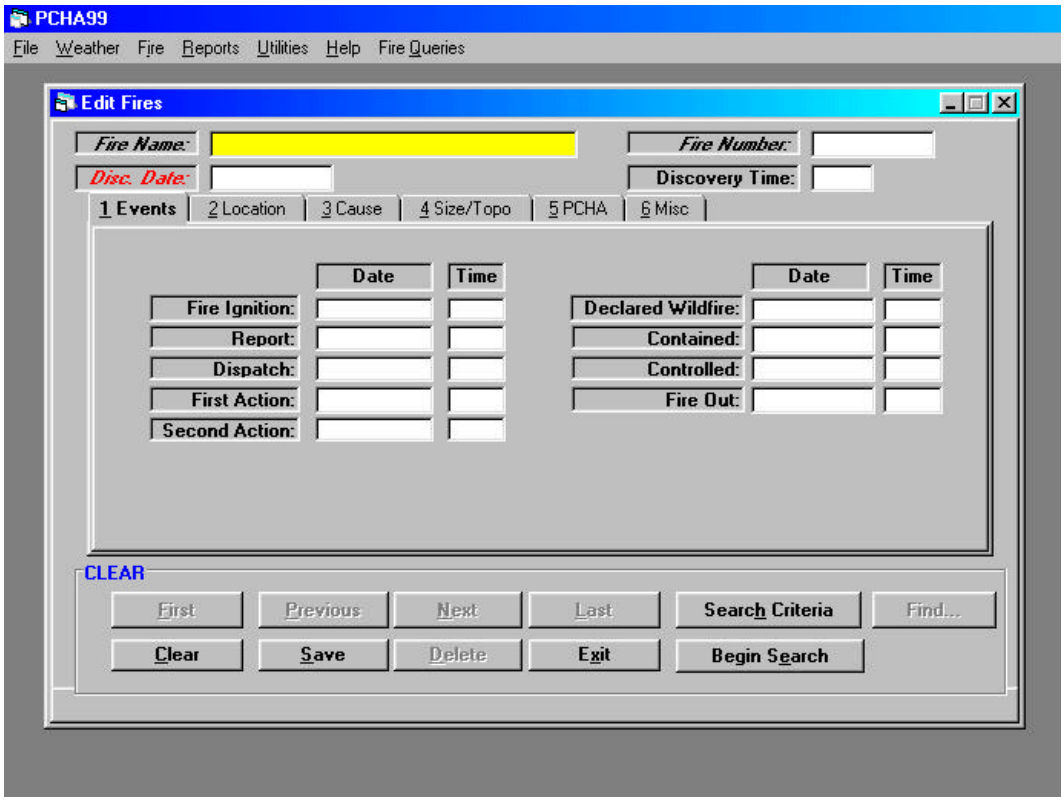


Figure 5-5 Edit Fires

Top of Fire Screen

The four fields on the top portion of the screen are visible regardless of which tab you select below. They help to identify the fire.

Enter all dates as mm/dd/yyyy and all times as military time. Note that Forest Service times range from 0000 (midnight) to 2359. BLM and BIA fire times range from 0001 to 2400 (midnight). PCHA99 does not accept times outside those ranges.

Fire Name

Fire name is an optional but very useful entry field. You can search for particular fire names (note the item is in italics on the screen). If you add fire names, do not include the word "Fire" as part of the name.

Fire Number

Fire number can be up to six characters long. Forest Service fires use a 3-digit numerical value. BLM and BIA fires use a 4-character identifier (first character is a letter followed by a 3-digit number). Fire number and discovery date give each fire record a unique identity.

Discovery Date

This field is the date someone discovered the fire. If you are entering a new fire, you must define the date of discovery. Discovery year determines the year in which the fire becomes a part of the fire record.

Discovery Time

This field is the time when someone discovered the fire.

Events Tab

This tab displays events recorded for the fire. Note that discovery date shows on the top portion of the screen, and is the second recorded event associated with a fire. Not all events are necessarily known for any given fire; events with no data will be blank. BLM and BIA fires, for example, generally only include discovery date and time in the imported data. Few (if any) Forest Service fires include Report, Dispatch, Declared Wildfire, or Contained events at this time. As you submit updates to your agency database (if allowed), some of those events will begin to show in data extracts. PCHA99 does not require you to fill in missing events. That is strictly your choice.

Each event has a date and associated time. Enter dates in month, day, year format (i.e., 6/15/1995) and time in hours and minutes in military time format (such as 1425).

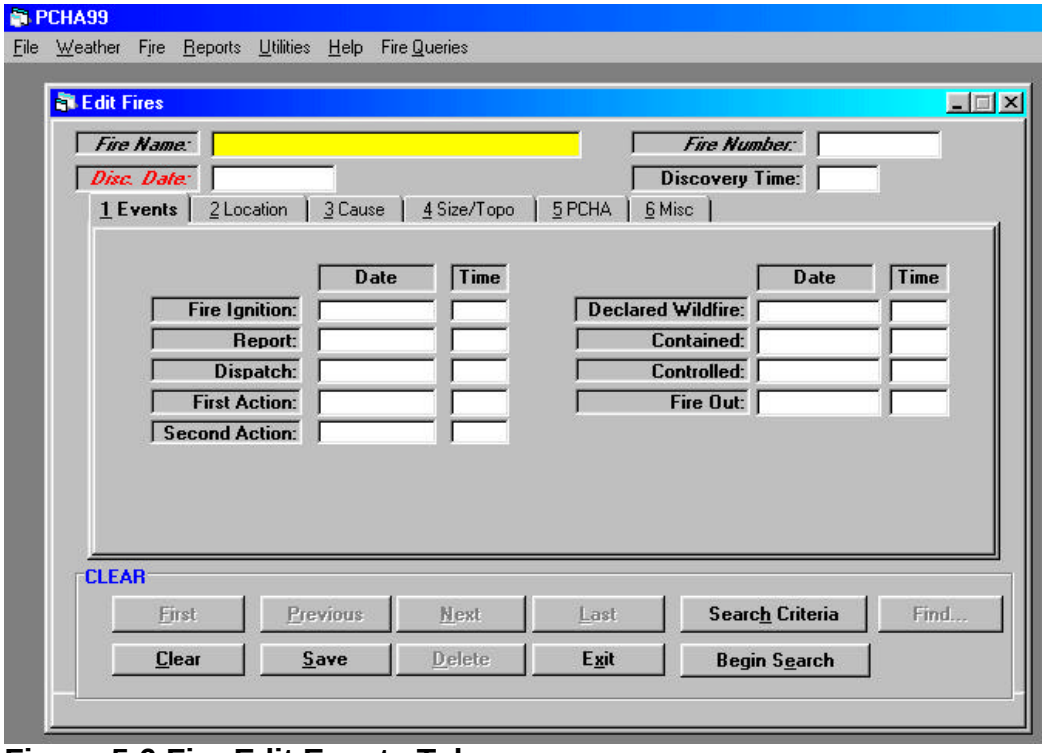


Figure 5-6 Fire Edit Events Tab

Fire Ignition

This event is the best estimate of the date and time the fire ignited. If the date and time are not known for certain (which is often the case), this should be the best estimate of the date and time.

Report

The Report field records the date and time when the reporting suppression agency learned about the fire. Some early Forest Service fire reports included this data.

Dispatch

This field is the date and time when fire suppression units were dispatched to the fire. Some early Forest Service fire reports included this data.

First Action

This field is the date and time that initial suppression action began at the site of the fire. This time must be at least one minute after discovery.

The first action for a prescribed natural fire might be an aerial reconnaissance flight, or a determination by management on the type and kind of fire suppression or management activities.

Second Action

This field is the date and time that reinforcements arrived at the fire site. In Forest Service use, this field records when the first reinforcements arrived; these are units that arrive at least 5 minutes after the initial resources arrived.

Declared Wildfire

This field is the date and time when a fire manager declared that a prescribed fire would be managed as a wildfire. This is applicable regardless of whether the ignition was from natural sources such as lightning or from a resource management decision to ignite the fire. Agency policy dictates the circumstances for the change in status. There are various management reasons this declaration or change in status may occur. Leave this field blank if the fire was not a prescribed fire at some point in the fire life.

Contained

This field is the date and time when the fire was contained, meaning a line or natural barriers surrounded the fire.

Controlled

This is the date and time when the fire was controlled. Other terms used include Suppression Strategy Attained or Suppression Strategy Met. This

would also be the date and time when the strategy was met for a prescribed natural fire.

Fire Out

This is the date and time when the fire was declared out. At least one minute must elapse between the control date and time and fire out date and time.

Location Tab

Location tab shows the data recorded for the administrative and geographical locations of the fire. One note: if the location is wrong, that error might call the accuracy of the entire fire report into question. If you fix nothing else on the fire, fix the location! It is really hard to justify expending federal suppression dollars on fires in the Atlantic or Pacific oceans.

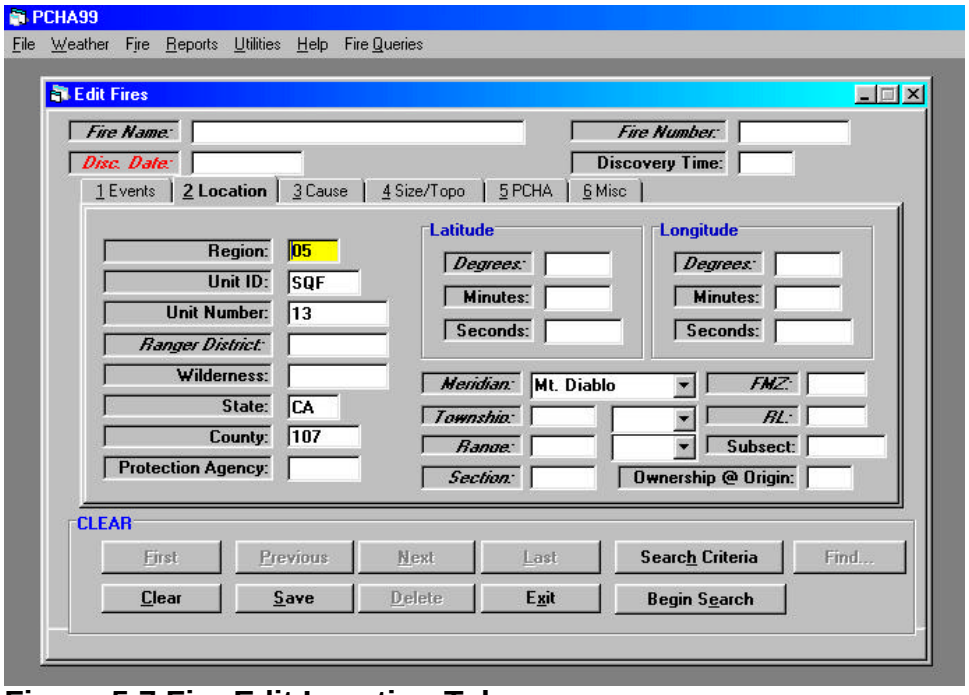


Figure 5-7 Fire Edit Location Tab

Region/State Office

This field is the two-digit Forest Service Region number, or is the two letter State Office code for BLM and BIA. Other agencies should leave this field blank.

Unit ID

This field is the three-letter fire unit designator. These identifiers must be unique within a state.

Unit Number

This field is the two-digit Forest Service National Forest number, BLM District number, or BIA Agency number.

Ranger District/Resource Area

This field is the two-digit Ranger District number within a National Forest or the Resource Area with a BLM District or BIA Agency.

Wilderness

The three-digit Forest Service wilderness code uniquely defines the wilderness area designated and set aside by Congress in which the fire began. By definition, only fires that occurred within wilderness boundaries after the congressional declaration are considered wilderness fires. If the fire did not occur in wilderness, leave this field blank or zero.

State

The two-letter postal abbreviation identifies the state in which the fire began.

County

This three-digit county code identifies the county in which the fire started. The codes are defined by a Federal Information Processing System (FIPS) publication. County numbers are available in the County table in the Forest Service Atlas, and from national support personnel.

Protection Agency

This field identifies the agency legally responsible to provide primary protection for the land on which the fire started. For federal agencies, use the three-letter codes below. For state, local, private, or other protection agencies, use the standard two-letter state codes.

Codes	Federal Agencies.
USF	USDA Forest Service
BLM	Bureau of Land Management
BIA	Bureau of Indian Affairs
NPS	National Park Service
FWS	Fish and Wildlife Service
ARM	DOD Army
AFS	DOD Air Force
NAV	DOD Navy
OTH	Other Federal Agency

Latitude and Longitude

The latitude and longitude values locate the fire point of origin. Report degrees, minutes, and seconds in whole numbers.

Legal Location (Meridian, Township, Range, Section, Subsection)

For fires in the 30 public land survey system states, enter township, range, section, subsection, and principal meridian to locate the fire origin. The legal description should correspond very closely to the geographical coordinates (latitude and longitude). Fires in areas not covered by the public land survey system should leave all these fields blank.

- **Meridian.** The meridian field has a list of all the principal meridians defined in the US. Enter your principal meridian

- **Township**. Enter township number and direction (N or S from the baseline). Note: If you enter a township without a direction (N or S), an error message will not appear until you save the record. You must then correct the error before PCHA99 will let you save the changes. If the township is a special township (such as a quarter, half, or three-quarter township), change the value in the box to the right of township to show that fact.

- **Range**. Enter range number and direction (E or W from the principal meridian). Note: If you enter a range without a direction (E or W), an error message will not appear until you save the record. You must then correct the error before PCHA99 will let you save the changes. If the range is a special range (such as a quarter, half, or three-quarter range), change the value in the box to the right of range to show that fact.

- **Section**. Enter a section number from 1 to 36.

- **Subsection**. You can show subsection to the nearest quarter section (160 acres) or quarter quarter section (40 acres). By convention, enter the smallest subdivision first. As an example, SWSE means the southwest quarter of the southeast quarter section.

FMZ

Enter a 1-2 character Fire Management Zone identifier only if the zone recorded on your fire report or from GIS input is not correct. PCHA99 will pad a one character zone identifier with a leading zero. Valid entries are numbers 1-99, letters A-Z, and any combination. FMZ value of 00 is not valid. Note that the import process currently takes the two rightmost characters as the FMZ identity, so the value in this field may be different than you expect.

Representative Location (RL)

Enter the representative location if you have more than one RL in the Fire Management Zone.

Ownership at Origin

Only Forest Service units use this field. It shows the one-digit code that corresponds to land ownership at the point of origin.

Code	Definition.
1	National Forest, National Grassland, or Land Utilization Project.
2	State and private lands inside Forest Service protection boundary.
3	Lands outside Forest Service protection boundary.
4	Other Federal lands inside Forest Service protection boundary.

Cause Tab

The fire cause tab displays the known fire cause codes for each fire. In addition, check boxes show whether the fire was an escaped fire and/or a prescribed fire (blanks mean no). For most fire planning purposes, statistical cause is very important, and the other cause codes further define the actual cause. Prevention planning relies heavily upon accurate fire causes, so if the data is wrong or coded as *miscellaneous* cause, it will pay to correct the data.

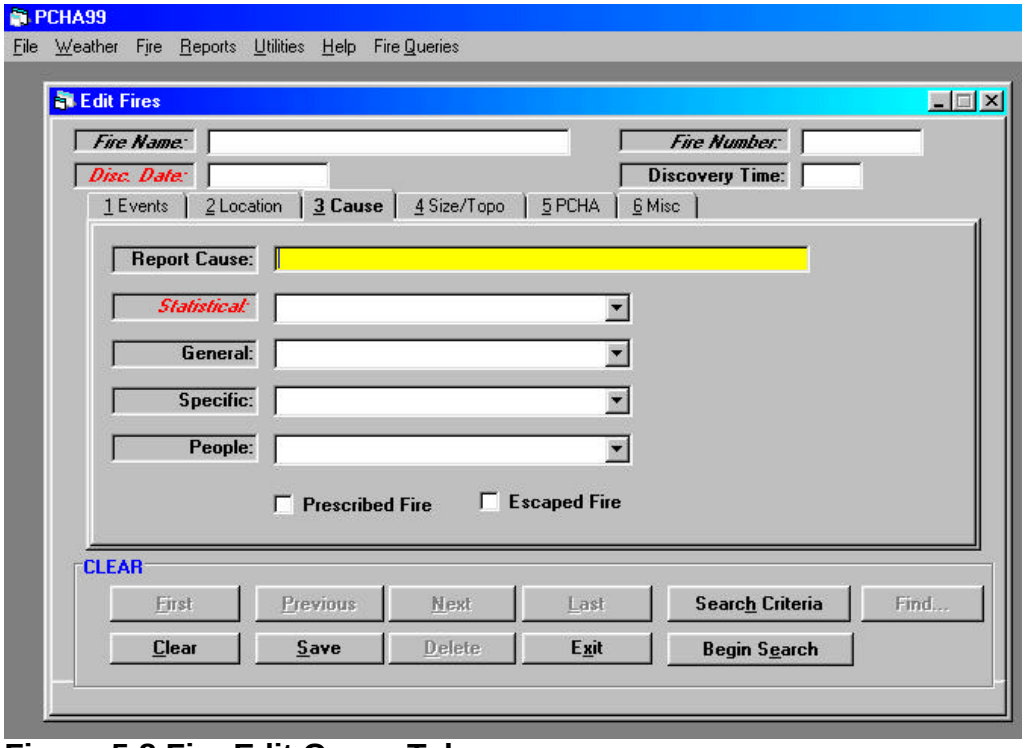


Figure 5-8 Fire Edit Cause Tab

Report Cause

This is an optional use field that allows you to enter a brief description of the fire cause. This is a particularly useful field if the other fire causes do not

adequately describe the actual fire cause. Many fires do not fit easily into the current fire cause coding system, and this field allows you to better describe what really caused the fire.

Statistical

This field identifies the broad statistical cause for the fire. All fires attributable to *railroads* or *children* regardless of the specific fire-starting agent should use those respective categories. Group fires of unknown causes into the *miscellaneous* category. Note that the code numbers are different between Forest Service and BLM/BIA codes, but the definitions are the same. PCHA99 translates from the external agency codes to the internal codes.

General

General cause supplements statistical cause to better identify the human activity associated with the fire ignition. The list box shows the available categories. Code unknown activities and lightning fires into the other category.

Specific

Specific cause attempts to narrow down the exact fire cause. Group unknown causes into the *other* category.

People

This field identifies the group or class of people associated with the fire ignition. Code lightning fires as *not person caused*. Code persons whose status cannot be determined as *other.*

Prescribed Fire

If someone with authority decided to manage an unplanned ignition as a prescribed fire, then check the box. If the ignition was suppressed as a wildfire, leave the box unchecked.

Escaped Fire

If the planned first action and first reinforcement forces achieved the suppression strategy for the fire, then leave the box unchecked. If the fire escaped fire suppression efforts of the planned response, check the box.

Size/Topo Tab

You can edit the fire size and the topographic features at the fire site. You must include total acres burned for every fire.

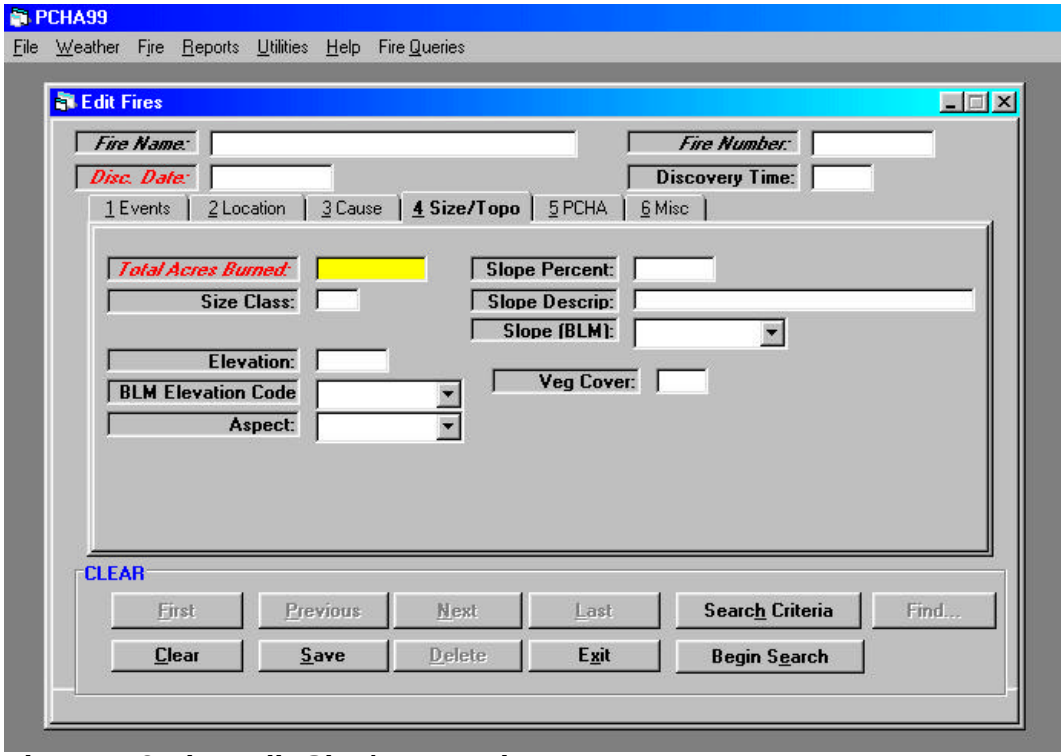


Figure 5-9 Fire Edit Size/Topo Tab

Total Acres Burned

This field shows the total acres burned regardless of ownership. Code fires that burn less than an acre to the nearest 0.1 acres. Code fires that are larger than 1 acre in whole acres. If your data only includes size class, most size class *A* fires are less than 0.1 acres; enter 0.1 as the total acres for those fires. This is a required field for every fire.

Size Class

This one-letter code categorizes fires into size classes. Size class is based on the total acres burned, not just the area burned within the planning unit. Note: Fires before 1970 only used codes A-E with E defined as 300 acres and larger. If you enter fires that occurred before 1970, use the more recent codes if you have acres burned to determine the revised size class.

Code	Definition.
A	Spot -- 0.25 acres
B	0.26 -- 9.9 acres
C	10.0 -- 99.9 acres
D	100.0 -- 299.9 acres
E	300.0 -- 999.9 acres
F	1000.0 -- 4999.9 acres
G	5000.0 acres and larger

Slope Percent

This field is the percent slope at the fire origin (i.e., 35).

Slope Description

This is an optional entry field to briefly describe the slope and topographic position of the fire (i.e., lower, middle, upper, ridgetop and so forth).

Slope (BLM)

This field is the slope code at the fire origin used on BLM and BIA fires.

Elevation

This field is the elevation in feet above mean sea level at the fire head during the initial attack.

BLM Elevation Code

This field is the elevation class above mean sea level at the fire head during the initial attack.

Aspect

This field is the general aspect (direction the land faces) on which the fire was burning at the time of initial attack.

Vegetation Cover

This two-digit code identifies the general cover type in which the fire burned during the initial attack. Each Forest Service Region has defined the important cover types within the region and assigned a two-digit numerical code to each.

One complication to the coding scheme is that most Regions change the definition of their codes about every decade. That means that a particular code on a 1970 fire may not mean the same as the same code in 1995. Generally the Regional codes identify both cover type and the conditions within a vegetation type that are significant to fire protection activities. Examples include cutover, seedling and saplings, bug-killed pole stands, thinning slash, and so forth.

If you plan to rely heavily upon this data, you should obtain a copy of the applicable vegetation cover class codes for the period in your analysis so you can correctly interpret the codes.

PCHA99 Tab

The PCHA99 screen displays the current values of selected fire information contained in the fire report, generated from GIS maps, calculated by PCHA99, or entered manually. You can only enter values in manual fields on this screen.

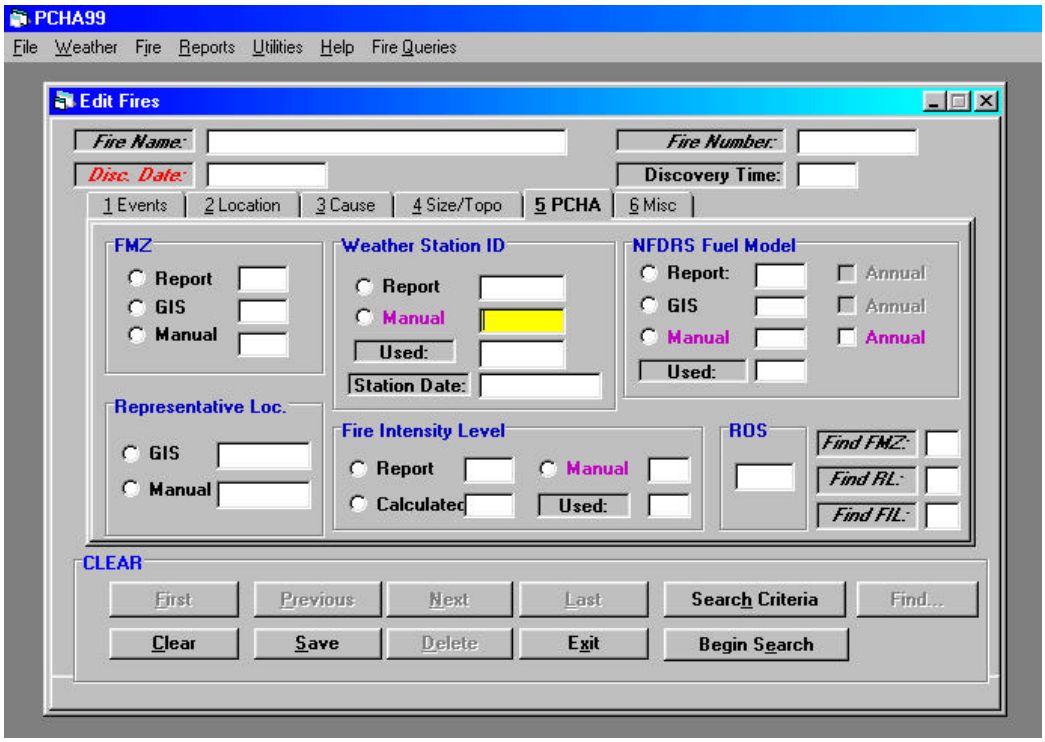


Figure 5-10 Fire Edit PCHA99 Tab

FMZ

This field displays the current FMZ information on the fire contained in the fire report, calculated from GIS maps, or entered manually.

Representative Location

This field displays the representative locations assigned to fires calculated from GIS maps or entered manually.

Weather Station

This field displays the station number and observation date that could be used for the fire based on data from the fire report, assigned by the program, or entered manually. The Used field shows the weather station

actually assigned to the fire based on the rules you entered on the Assignment Priorities screen. The *Station Date* field displays the date of weather assigned to the fire. Weather date could be different from the actual fire date due to missing weather data or other factors driven by the assignment priorities.

NFDRS Fuel Model

This field shows the National Fire Danger Rating System (NFDRS) fuel models assigned to the fire based on data from the fire report, generated from GIS maps, or entered manually. Check the Annual box if the herbaceous vegetation is annual, and leave it unchecked if perennial.

Fire Intensity Level

This field displays the fire intensity levels assigned to the fire based on the fire report, calculated by the program, or entered manually. The Used field shows the data source actually used to determine fire intensity level based on your Assignment Priority rules.

Rate of Spread (ROS)

This field shows the calculated rate of spread in chains (66 feet) per hour.

Misc Tab

This tab shows fire data that did not easily fit anywhere else, but that some planners wish to keep and use.

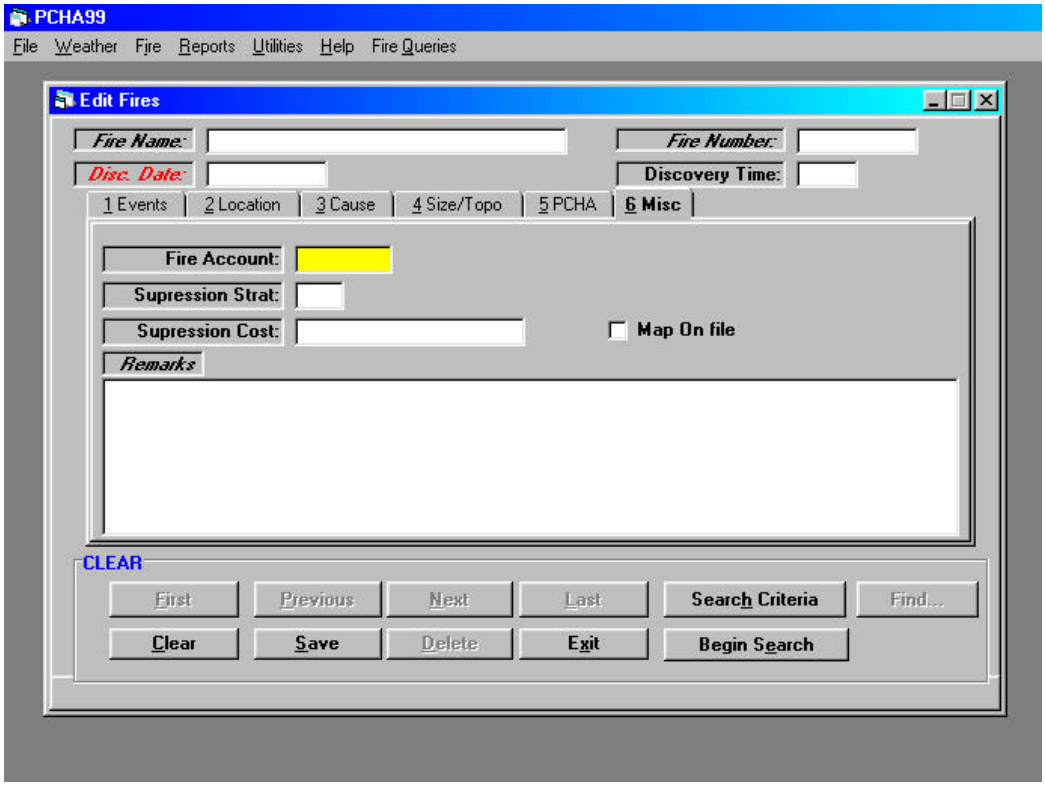


Figure 5-11 Fire Edit Miscellaneous Tab

Fire Account

This field shows the fire cost account code (also known as a “P” code in the Forest Service). If you choose to enter this value, enter the five-digit “P” code value assigned to the fire without the leading "P" or "R". “P” code is now required for all Forest Service D class (100 acres) and larger fires, but is recommended for all fires if you have the data.

Suppression Strategy

This field is a Forest Service code that identifies the predominant strategy for the kind, amount, and timing of the initial dispatch and initial suppression action.

Code	Strategy
1	Confine
2	Contain
3	Control

Suppression Cost

This field stores the estimated total emergency fire fighting funds expended by the protection agency as a result of this fire.

Map on File

Check this box if a map is attached to the report or if a map is on file. This can serve as a reminder that more detailed location and perimeter information is available locally.

Remarks

Enter remarks that you may have.

Bottom of Fire Screen

You can use these buttons from any of the tabs to control which fire shows on the screen and to exit the edit screen.

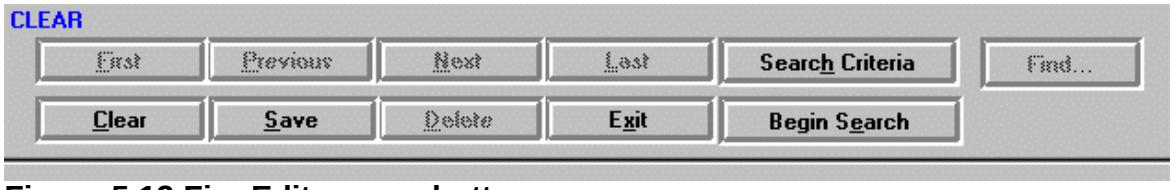


Figure 5-12 Fire Edit screen buttons

Clear Button

The *Clear* button flushes most screen boxes so you can enter a new search or a new record. Fields that are not cleared include Region/State Office, Unit Number, State, County, and Meridian on the Location Tab. If you left the equivalent field blank on the *Planning Unit Setup* screen, those fields will be blank. The *Begin Search* button clears all fields without exception.

Save Button

The *Save* button records the information for the fire displayed on the screen. If you do not want to save any changes you made, press the *Clear* or the *Exit* buttons.

Delete Button

This button deletes the current fire from the database. If there are no fire records in the database, this button will be light gray and inoperative.

Exit Button

The *Exit* button closes the fire entry screen and returns you to the main PCHA99 screen.

Begin Search Button

To see all your fires without search criteria (meaning you want all your fires shown), click the *Search Criteria* button to clear all search criteria followed by the *Begin Search* button. A number should appear where it says "CLEAR" in the top left that shows the total number of fires that met the search criteria; in this instance it should be all the fires.

If you click the *Clear* button followed by the *Begin Search* button, all fires that match the key values in your *Planning Unit Setup* screen will show. The number of fires may be less than the total number in the database. For example, if you entered meridian on the *Planning Unit Setup* screen but some fires do not have meridian coded, those fires without meridian will not meet the selection criteria. See the text under the *Clear* button for a list of the fields.

If you only want to see certain fires, use the *Search Criteria* button to set the selection criteria before you click the *Begin Search* button. You can also use the *Find* button to find specific fires.

Search Criteria Button

The *Search Criteria* button clears all fields on the fire edit screens. You can enter values or ranges in any field to identify which fires you want to review and/or edit. After you enter the values, press the *Begin Search* button to find the first fire record in the database that meets the criteria you entered. Once a record is displayed, you can use the *First*, *Previous*, *Next*, and *Last* buttons to move through the fires.

The fields you can use for searching have their names written in italic (slanted) text. Fire name, fire number, and discovery date are on the top of the screen are searchable. Subunit (Ranger district or Resource Area depending on agency), latitude and longitude degrees, meridian, township, range, section, fire management zone, statistical cause, and total acres burned are other fields you can use in searches. You can use none, one, or several search criteria. PCHA99 will find the set of fires that meet your criteria and display the first. If PCHA99 cannot find any fires, it will display a message. Use fewer search criteria or loosen the constraints if you don't find any fires.

To search for all fires within a single year (1990 in the example below), press the *Clear* button, then enter <u>>=1/1/1990 and <=12/31/1990</u> in the discovery date field. Press the *Begin Search* button to start the search.

First, Previous, Next, and Last Buttons

The *First* button displays the first fire record in the database. The *Previous* and *Next* buttons display the fire record before or after the current fire record. The *Last* button displays the last fire record in the database. These buttons show light gray if there are no fire records in the database.

Find Button

The *Find* button operates similarly to the *Search Criteria* and *Begin Search* buttons with some key differences. Click the *Find* button and then choose *Clear for Find* from the menu; this will clear all fields. Enter the values to determine which records will be in the list of fires, and then click the *Find* button again. This time choose *Find* from the menu. . To move from fire to fire after a Find command, click the *Find* button and then choose *Next* or *Previous* from the menu, operates similarly to the *Search Criteria* button.

Calculate Latitude and Longitude from Legal Locations

For some planning activities, latitude and longitude coordinate values are very useful. Latitude and longitude are essential if you want to use GIS tools to assign fires to Fire Management Zones. Some fire records only have legal description locations (township, range, and section). To get latitude and longitude on each fire, you can edit each fire, or you can run the convert routine that will calculate latitude and longitude values from legal locations. This process only works for public land survey states, and only if the conversion factors exist for your state. The Latitude and longitude values determine Out of Bounds Fires.

Convert calculates latitude and longitude values at the center of the section. Since in most cases PCHA99 only knows the township, range, and section number, the section center is the point of least error. The convert routine generates some errors when assigning Latitude and longitude values from legal descriptions (township, range, and section), particularly in areas with half townships. Therefore, you may need to use topographic maps, unit maps, or other sources to manually assign latitude and longitude values.

Note: Some GIS planners advocate randomly spreading fires throughout the section so you get more than one dot on a GIS map plot. Many GIS programs cannot show how many fires each dot represents. This option sounds attractive, but there are pitfalls in that approach. Once you spread the fires away from the section center randomly, how can you tell which fires are located accurately and which are randomly distributed?

Choose the options you prefer on the box that pops up and the calculations will begin. Review the results carefully before you attribute great accuracy to the calculations.

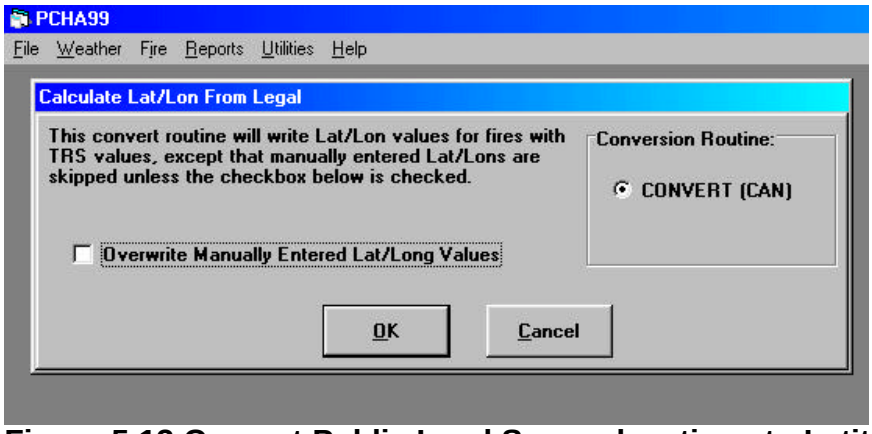


Figure 5-13 Convert Public Land Survey locations to Latitude /Longitude

Overwrite Manually Entered Lat/Long Values

Check this box if you want to replace the existing latitude and longitude values already entered into the database with the new latitude and longitude values generated by the convert routine. If the existing latitude and longitude values are accurate, then do not select this option.

Conversion Routine

Convert (CAN). This program covers 16 principal meridians. Conversion factors for several states have minor errors, and partial townships are not handled well. Overall this choice works for most people.

Assignment Priorities

This screen can profoundly affect your results. You define priority rules that PCHA99 uses to choose which of several sources defines Fire Management Zone, representative location, NFDRS fuel model, and weather observation for each fire. You define these priorities once per historical analysis. You essentially tell PCHA99 the order of accuracy for selection.

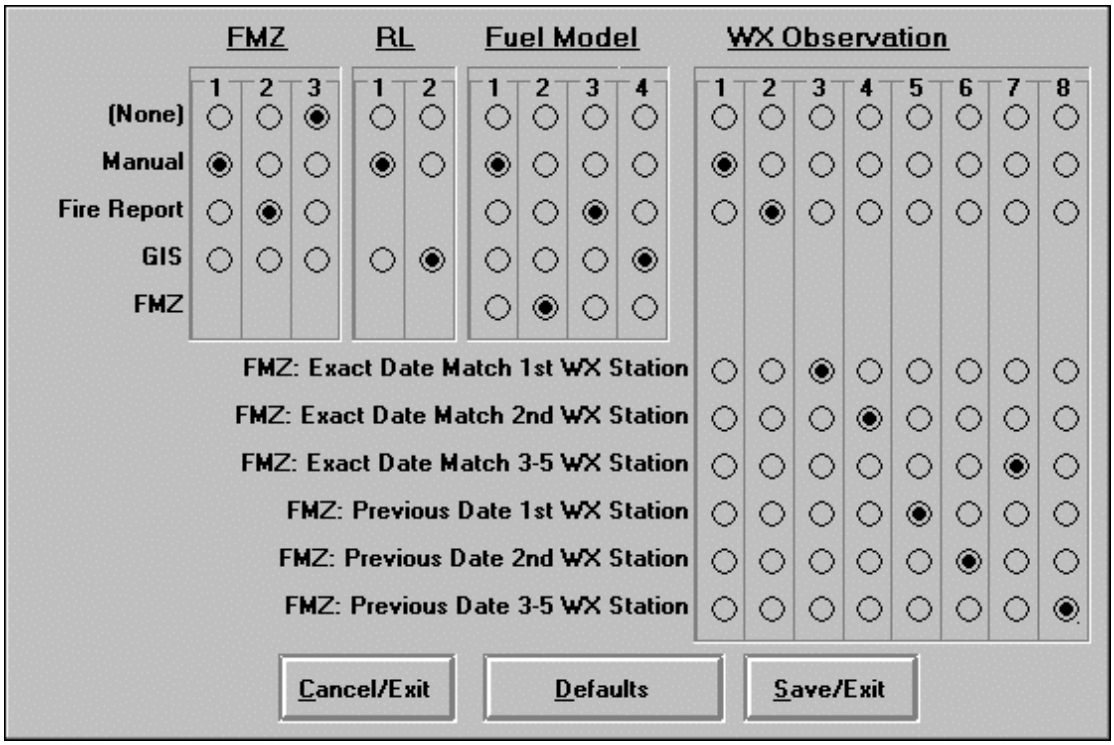


Figure 5-14 Fire Data Assignment Priorities

The default settings are a good place to start. If you choose another scheme, carefully think through what you are doing so you can defend your reasons. Your choice of alternative assignment priorities may fit your situation well, but if you cannot explain your reasoning, stick with the defaults. Generally you should choose manual as your first source on the premise that the records you manually changed did not fit the general rules. The options available are listed below.

- **None:** The prioritization process stops when it finds the *None* code.
- **Manua**l: PCHA99 searches for individual records that you edited. If you edited any records in PCHA99, set the first priority to *Manual*.
- **Fire Report**: PCHA99 uses data from the fire report records imported from NIFMID.
- **GIS:** The GIS choice tells PCHA99 to search records imported from a GIS source. This selection only includes FMZ, RL, and Fuel Model data.
- **FMZ:** The selection of FMZ is a source of Fuel Model information. These values are set in the FMZ screen in the File menu.
- **FMZ Exact Date Match Options**: This is for weather observations only. The selection of one of these will match weather observations to a fire record based on the list of weather stations defined for the Fire Management Zone.

- **FMZ Previous Date Match Options**: This is for weather observations only. The selection of one of these will match weather observations to a fire record based on the previous date of a record from the first through fifth Weather Stations listed in the FMZ screen. This method uses the persistence principle that states today's weather is generally similar to yesterday's weather.

FIL Priorities

The FIL priorities screen contains the following choices. If you made any changes to fire intensity levels, you should generally choose Manual as the first priority.

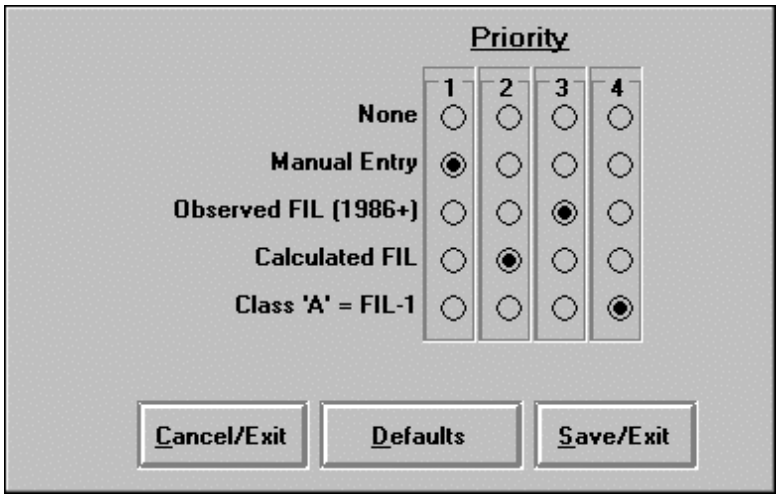


Figure 5-15 Priority for Setting Fire Intensity Level

- **None:** The FIL prioritization process stops following the selection of "None."

- **Manual:** PCHA99 will search for the individual records that you edited. If you edited any FIL values on fires, you should set this option as the first priority.

- **Observed FIL**: This selection takes the observed FIL from the 1986 and later Forest Service fire reports.

- **Calculated FIL:** This selection calculates fire intensity level based on weather observations and site-specific corrections. Many planners use this method since results are consistent based on weather. However, the fire behavior in some planning areas does not track as closely with weather observations.

- **Class "A" = FIL 1**: This selection forces all class A fires to FIL=1 regardless of other data.

Assign FMZ, FM, RL and Wx Obs to Fires

This choice does the actual assignment of fire management zones (FMZ), fuel models (FM), representative locations (RL), and weather observations (WxObs) to each fire record based on the Assignment Priorities. During the process, a progress bar and messages along the screen bottom will show progress.

Report Invalid Fires

The reports described in this section list fires that have missing or apparently incorrect information in required data fields. The reports can help find data problems that you should repair before you proceed to later steps in the analysis.

Missing Discovery Date

This will print a report named MISSDISC.TXT that lists the fire number of those fire records without discovery dates.

Missing Total Acres

This prints a report of those fire records with missing total acres burned.

Missing Weather Match

This will print a report named MISSWX.TXT that shows those fires that are missing weather observations. You can then go back and manually assign a weather station to that specific fire record. The report lists fire date, fire number, FMZ, and size class.

Missing FMZ

This will print a report named MISSFMAZ.TXT that lists fire records that are not assigned to a Fire Management Zone. The report shows discovery date and fire number.

Out of Bounds Fires

This will print a report named OUTBOUND.TXT that lists fire reports that fall outside the box defined by the latitude and longitude coordinates you entered on the *Planning Unit Setup* screen for the analysis area. If you find some fires on this list with correct latitude and longitude values, you should adjust the rectangle on the *Planning Unit Setup* screen to include those fires. Data shown on the reports includes the analysis area box, discovery date, fire number, township, range, section, subsection, meridian, latitude, and longitude.

Calculate Fire-based Outputs

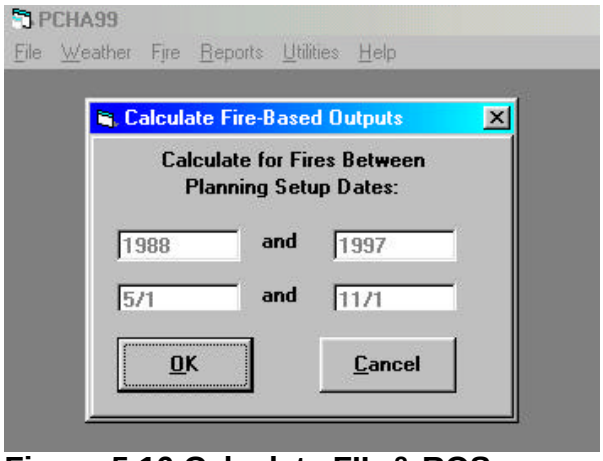


Figure 5-16 Calculate FIL & ROS

This function assigns fire intensity levels for each fire record. PCHA99 first calculates NFDRS indices, and then determines Fire Intensity Level from that information for each fire. You can review the calculated indices for each fire on the PCHA99 Tab. Remember to calculate the indices for weather records before you calculate the fire-based outputs.

A message box will pop up and ask if you really want to calculate the 'corrected' fuel moistures and NFDRS components. Choose Yes to begin the calculations, or choose No to return to the main PCHA99 menu screen. Progress is shown by displaying the current record being worked on in the bottom left corner of the screen and by a moving red status bar in the bottom right corner.

Export Fires {sub-menu now offers ASCII or GIS or PCHA Transfer Format}

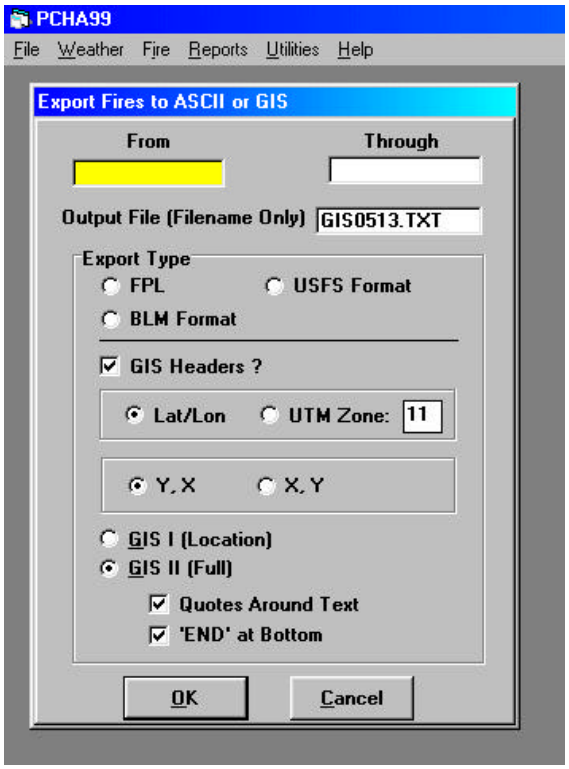


Figure 5-17 Export Fires to ASCII or GIS

This function builds fire records for export and use by other processes and programs. Agencies that have an update process can use the exported data file to correct selected data and add missing information to the national database.

Enter the beginning date and ending dates in mm/dd/yyyy format. You must enter a value for both dates; year only is not an acceptable value. Next, choose one of the export types described below. The upper formats are equivalent to the import format. The GIS reports allow you to create data for import to a geographic information system. You can request headers as the first record of the GIS formats so you can tell what data you have; check the box to request.

The chapter on Import and Export formats describes each record type in detail. PCHA99 can generate output in any of the listed formats regardless of the original import format. Any corrections you made during your analysis are included in the export.

- **Fire Planning (FPL)**. This format is the original NFMAS fire format that is used by several existing applications.

- **BLM Fire**. This record is the same format as the BLM import record, and includes information you changed during your review.

- **Forest Service PCHA99**. This format is identical to the import format, and includes information you changed during your review.

- **GIS I (Short latitude and longitude).** This choice generates a comma-delimited text file with fire number, latitude, and longitude. Latitude and longitudes are degrees and decimal degrees. Note that only fires with latitude and longitude values will be exported.

- **GIS II (Full).** This option writes a text file with comma-delimited values for the PCHA99 ID, fire number, fire name, discovery date, four-digit year, two-digit month, two-digit day, Julian date, day of the week, latitude and longitude (in decimal format), statistical cause, total acres burned, FMZ, RL and NFDRS fuel model. Note that only fires with latitude and longitude values will be exported.

- **Purge Certain Fires.** This function deletes a selected range of fires from the PCHA99 database. The user species a From Date (mm/dd/yyyy) and a Through Date (mm/dd/yyyy) for the fires to be deleted. The fires to be deleted can be limited to a specific FMZ or multiple FMZ(s) by selecting one or more FMZ identifiers. The FMZ identifiers displayed are the FMZ Assigned to the Fires from the Assign FMZ, FM, RL & WxObs to Fires menu. If you only want to copy Fires from this database for use in another and not remove them from the current PCHA99 database go to the Export Fires menu for this purpose.
  Example 1:
  To delete all fires between January 1, 1998 and December 31, 1998. Select from the Choose frame Purge ALL fires date range, and enter 01/01/1998 in the From Date: and 12/31/1998 in the Through Date: fields. Select the Purge button.
  Example 2:
  To delete all fires between January 1, 1998 and December 31, 1998 and are assigned to a FMZ 01 and 03. Select from the Choose frame Purge ONLY FROM THESE FMZs [Only if in the date range], and enter 01/01/1998 in the From Date: and 12/31/1998 in the Through Date: fields. Select the Purge button.

- **Seasonal Analysis of Fires.** This option graphs the fire occurrence or Total Acres Burned by date for a specified period of years. A selection must be made in the Graph, Average and Years boxes to activate the Graph button. The X axis is displayed from Jan through Dec.

  Graph

  The user selects the Y axis for the graph by selecting either Fires or Acres by clicking the mouse on the circle next to the value.

Average

The data can be displayed RAW in its current condition (no averaging) or displayed using a 5 or 20 day running average.

Years

A range of years can be selected to display all available fire occurrence or Total Acres Burned data between the two dates specified. The format for the Years entry is YYYY.

First/Last Dates

The First/Last Dates entry will calculate a range of dates in which the % entered occurs. The calculation occurs when the Graph button is selected. For example if 50 is entered, and the Graph button is pressed, a beginning and ending date will appear that contains 50% of the fire occurrences or acres burned depending on which is selected. Entries are a percent entered as a whole number from 0-99. The displayed graph will not change based on this entry.

GIS

The GIS (Geographic Information Systems) chapter describes PCHA99's capabilities to display and manipulate spatial data.

Figure 6-1 GIS Menu

You are able to list the GIS layers to be viewed, prepare certain GIS layers, view the map, assign FMZs and RLs to fires based on a GIS layer, define polygons, and view reports of fires within those polygons.

Define Map Layers

Use this screen to list the GIS layers you wish to utilize in PCHA99:

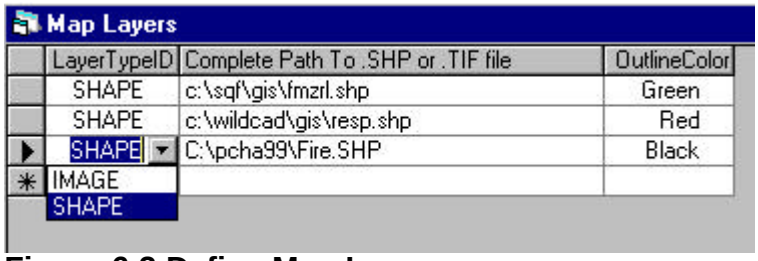


Figure 6-2 Define Map Layers

Layer Type ID

Use the pull-down box to select either IMAGE or SHAPE.

An IMAGE file must be a TIF file, which has been georeferenced to appear in the correct area of the map display. A TIF file which has been georeferenced will have two files. One will have the extension TIF, and the second will have the extension TFW.

A SHAPE file is a GIS layer in the ArcView SHAPE file format, consisting of three files with extensions SHP, SHX and DBF. All three files must exist in the same folder.

Complete Path to .SHP or .TIF File

Type the complete path to the .SHP or .TIF file. PCHA99 will expect the associated files (.TFW or .SHX, .DBF) to have the same filenames and to be in the same folder.

Outline Color

If the layer is a SHAPE file, you may select a color for the layer to use when displayed on the map. If you omit the color, it will be shown in black. Use the pull-down list to select one of the listed colors.

Click on the small "x" in the upper right corner of the Map Layers window when done to save all information and close the window.

Make Fire.SHP

PCHA99 has the ability to create a SHAPE file containing all of your PCHA99 fires. Use this menu item to bring up the following window:

Figure 6-3 Make Fire.SHP

Select either "Lat/Lon" or "UTM" for the desired map coordinates. If you select UTM, the UTM Zone which you entered on the File-Planning Unit Setup screen will be used.

If you want PCHA99 to automatically add this layer to your list of Map Layers (as described in preceding section), leave the "check" on the line reading "Add To Layer List When Done".

Click "OK" to begin. PCHA99 will work for several minutes preparing the SHAPE file, and will then display:

Figure 6-4 Make Fire.SHP Done

Click "OK".

View Map

To view the map with the layers you have listed, use this menu item. The PCHA99 map display will appear:

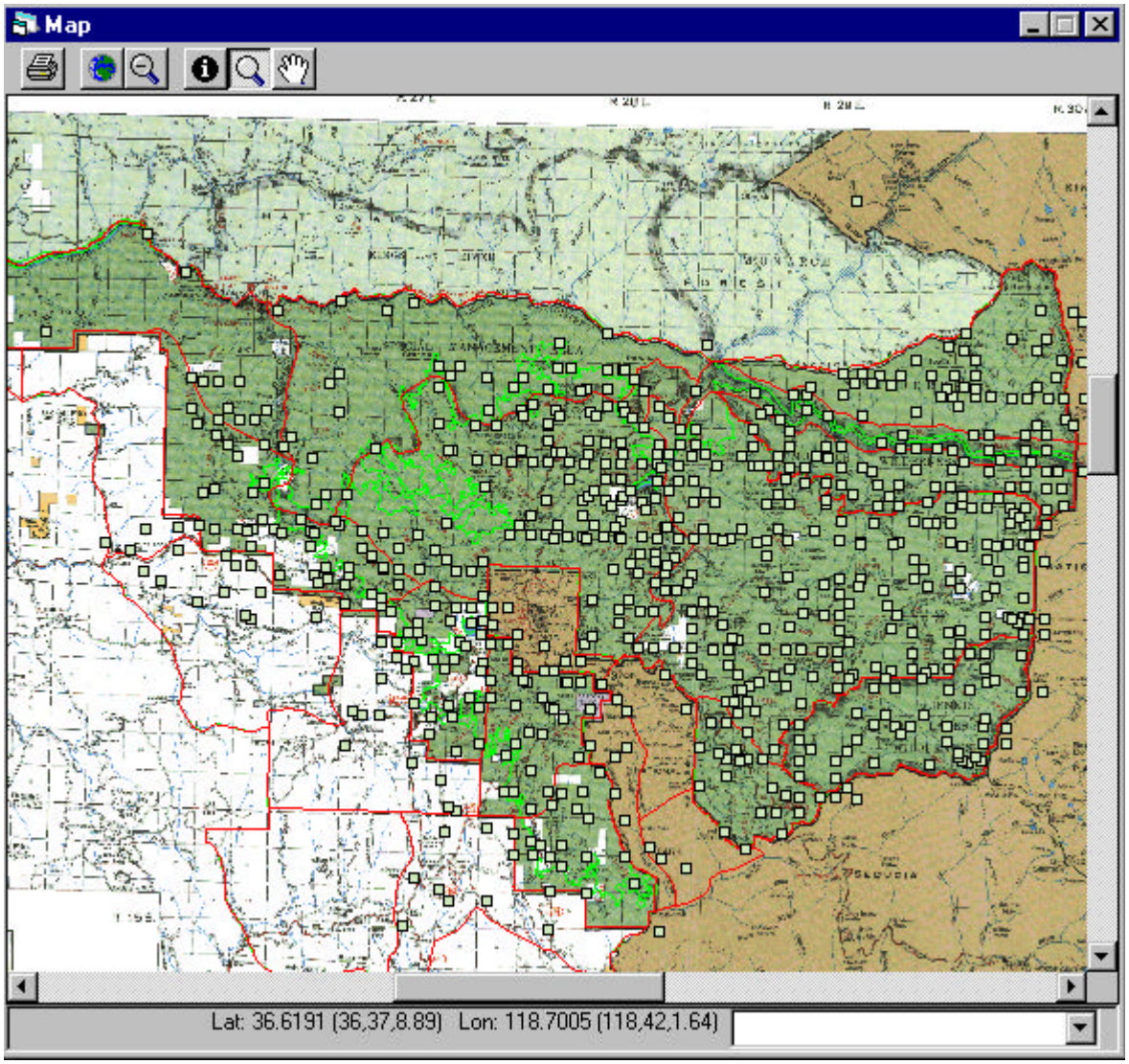


Figure 6-5 View Map

The buttons at the top of the map perform different functions:

PRINT the map.

Return to the FULL EXTENT.

ZOOM OUT, so that the map shows twice as much area.

IDENTIFY the feature you click on. You must first select a layer from the pull-down list at the bottom right:

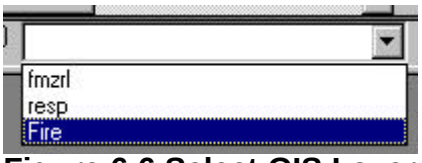


Figure 6-6 Select GIS Layer

Once you have selected the layer, and clicked on the "i" button, you may then click on any map feature. For example, you may click on one of the dots representing a fire. Information about that feature will pop up in a new window:

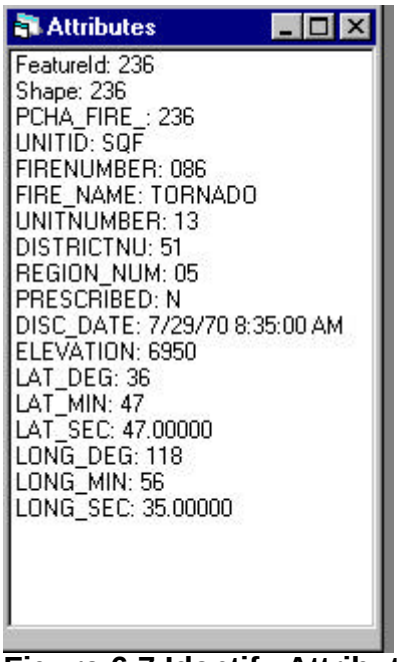


Figure 6-7 Identify Attributes

ZOOM IN. Click this button, and then "click and drag"

on the map to define a rectangular area you wish to zoom into. Once you release the mouse, PCHA99 will redisplay the map showing the area you defined in your rectangle.

PAN - after clicking this button, use the mouse to "click and drag" the map display in any direction(s). Release the mouse to complete the click and drag operation.

Assign FMZ/RL To Fires

PCHA99 can automatically assign the FMZ and RL to each fire in the database if you have an FMZ/RL SHAPE file. The SHAPE file must:

- Be a polygon layer
- Have each polygon attributed with the 2-character FMZ and numeric RL
- Be in either lat/lon or UTM

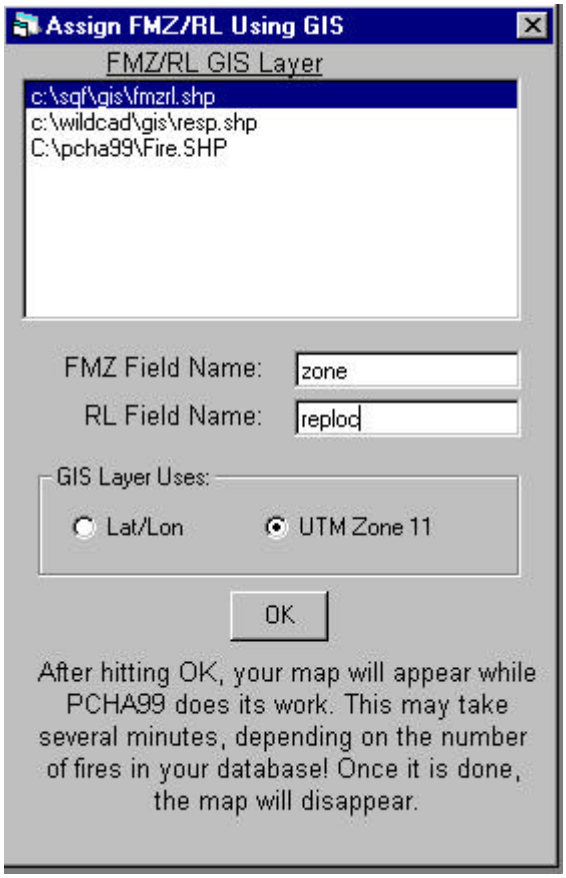


Figure 6-8 Assign FMZ/RL Using GIS

FMZ/RL GIS Layer

From the list of Map Layers you previously created, select the SHAPE file which is your FMZ/RL layer.

FMZ Field Name

Type the name of the field which contains the 2-character FMZ ID. You might need to consult with the person who prepared your GIS layer.

RL Field Name

Type the name of the field which contains your numeric Representative Location number.

GIS Layer Uses

Select either Lat/Lon or UTM.

Hit the OK button, and the assignment process will begin. It might run for several minutes, depending on the number of fires in your database. During this process, PCHA99 will show and utilize its map display. You do not need to take any actions.

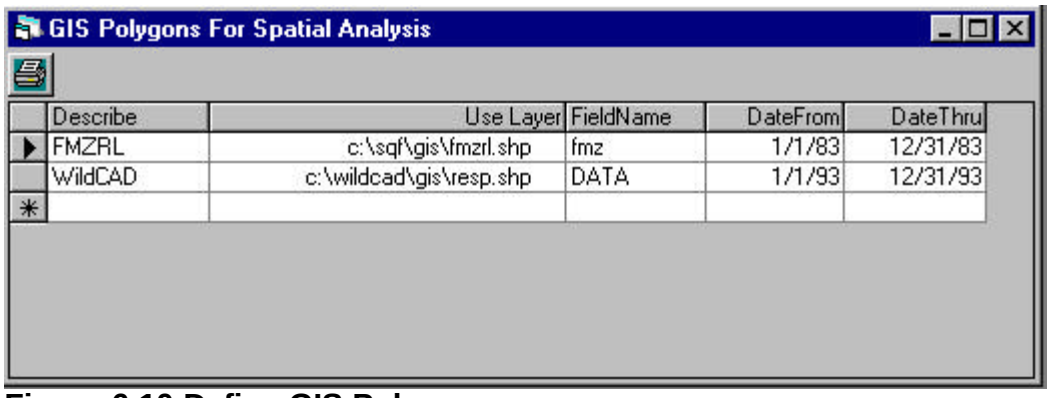
Once the assignments of FMZ and RL have been completed, the map will disappear.

Be sure to verify that you are using GIS in your Assignment Priorities, as described in the Fire Menu chapter above.

Define Polygons

PCHA99 has the ability to count the number of fires and acres within each polygon of a GIS SHAPE file. For example, you could use a watershed polygon SHAPE file to count the number of fires within each watershed.

Prior to preparing such a report of fires and acres by polygon, you must first tell PCHA99 about the polygons you want to use:



Describe	Use Layer	FieldName	DateFrom	DateThru
FMZRL	c:\sqf\gis\fmzrl.shp	fmz	1/1/83	12/31/83
WildCAD	c:\wildcad\gis\resp.shp	DATA	1/1/93	12/31/93

Figure 6-10 Define GIS Polygons

Describe

Enter a brief description of the polygons you want to use.

Use Layer

Use the pull-down list to select the GIS layer you have previously entered into your list of Map Layers.

Field Name

Enter the name of the field in this layer which you want to use to label the polygons. For example, you might want to use a watershed ID or name.

Date From

Enter the starting date for the fires you want to count.

Date Thru

Enter the ending date for the fires you want to count.

Click on the "x" in the upper right corner to save and exit.

Fires By Polygon

Use this menu item to count the number of fires and acres burned within each polygon of a layer you have already listed in the preceding section.

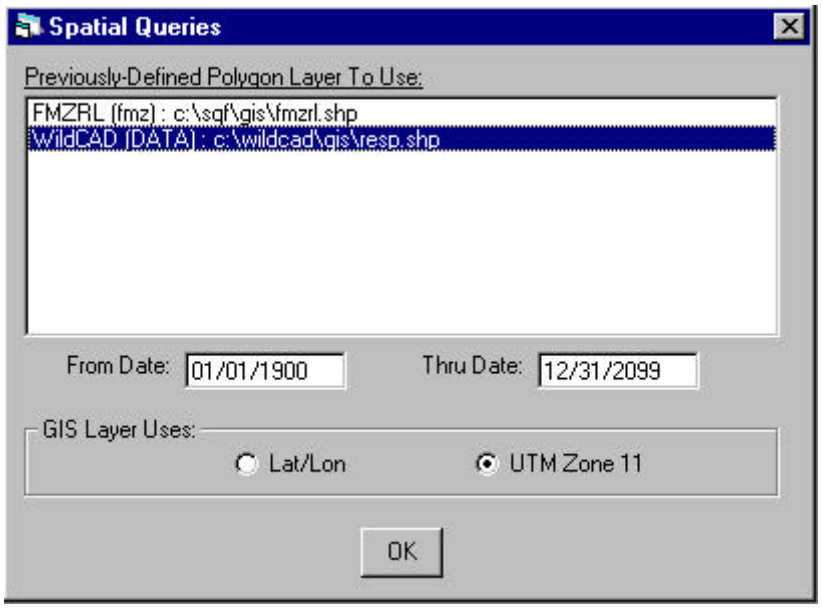


Figure 6-11 Fires By Polygon

Previously-Defined Polygon Layer To Use

Select from the list of polygons you have created.

From Date

Enter the starting date for fires.

Thru Date

Enter the ending date for fires.

GIS Layer Uses

Select Lat/Lon or UTM.

Click "OK" and the process will begin, using the PCHA99 map display. When it has completed, the map will disappear, and the two-section report will be shown. The following portion of the first section shows the number of fires, by statistical cause, for each of the polygons:

File: C:\pcha99\FireHist.TXT

Sequoia National Forest
PCHA99
Fire History By GIS Polygon: 01/01/1900-12/31/2099
WildCAD
Part I: Fire Frequency

DATA	Unknown	Lightning	Equipment	Smoking	Campfire	Debris Bu	Railroad	A
12		1						
17		14		4	5			
18		89	4	11	32	3		
19		13			1			
20		11	1		1			
21		28		1	3	1		
22		58			2			
23		49		1	3	1		
24		173	3	15	23	5		
25		44		2	15			
3				1	2			
4		3						
5		5	2	1	2	2		
A		561		9	28			
A2		2	5	1	7			
A3		6		2	4			
A4		8	3	2	3	1		
B		122	5	19	17	5	1	
C		31		2	5	3		
D		26	2	1	2			

Figure 6-12 Fire Count By Polygon

The second portion of the report shows acres burned by statistical cause within each polygon:

File: C:\pcha99\FireHist.TXT

PCHA99
Fire History By GIS Polygon: 01/01/1900-12/31/2099
WildCAD
Part II: Acres Burned

DATA	Unknown	Lightning	Equipment	Smoking	Campfire	Debris Bu	Railroad	A
12								
17		19		8	1			
18		32	1	1	60	5		
19		9						
20		53	4					
21		329		25	240			
22		5,571						
23		65						
24		111		4	4	1		
25		6		1	2			
3				40	5			
4								
5		1	2			38		
A		901		21	17,256			
A2			26		6			
A3		1		15				
A4		22		2				
B		27	1	8	322	6		
C		37		1	6	2		
D		11	2	1				
D6								

You may send this report to the printer by clicking on the printer icon in the upper left corner. The name of the file holding this text file is shown on the window title bar.

REPORTS

PCHA99 can generate and print a variety of reports and graphs. Some reports allow you to type in a report name. For detailed information about each report, please use the Help Function.

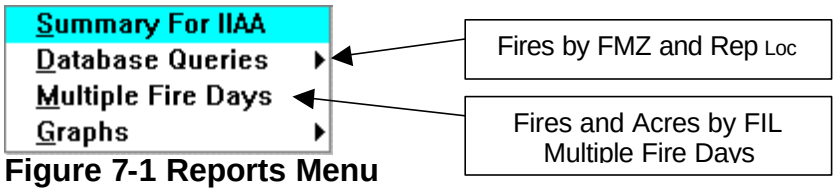


Figure 7-1 Reports Menu

Summary for IIAA

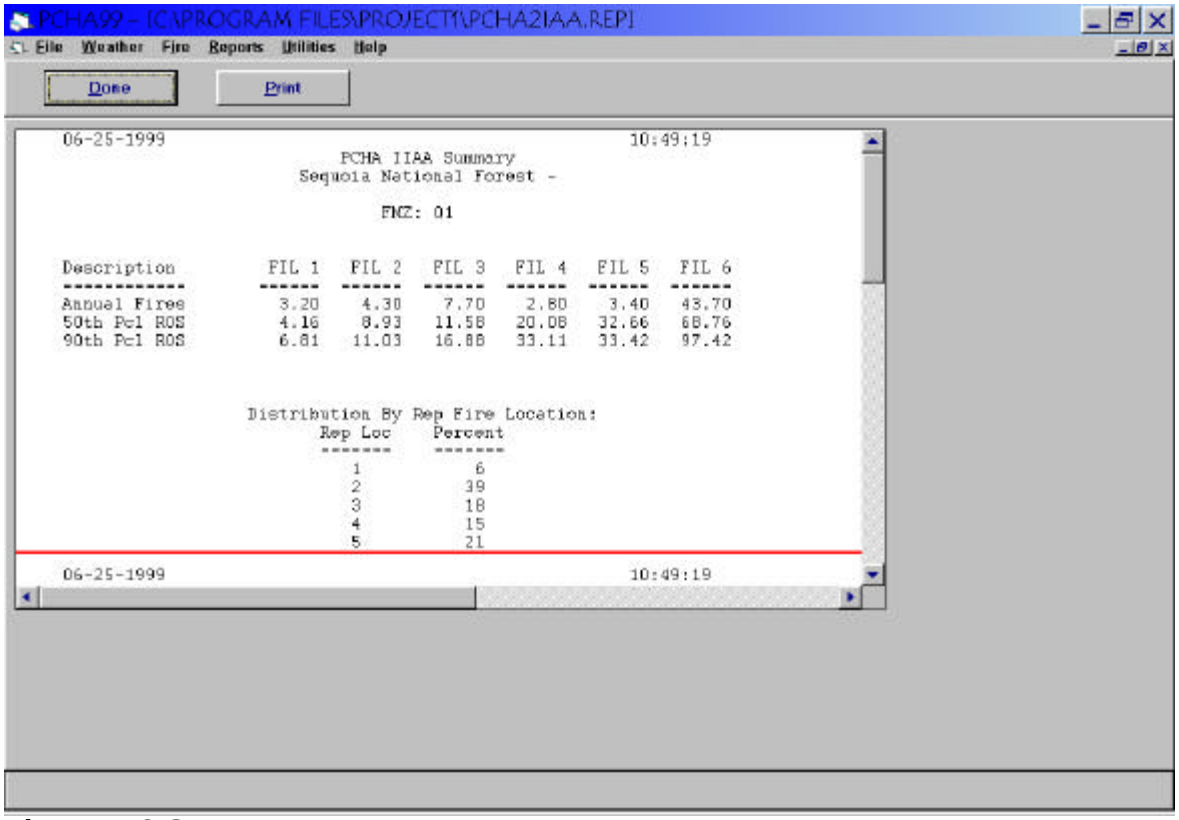


Figure 7-2 Summary For IIAA

The fire summary generated to transfer data in the Interagency Initial Attack Assessment (IIAA) program is named PCHA992IAA.REP. The report lists for each Fire Management Zone the annual number of fires, 50th, and the 90 percentile rates of spread by Fire Intensity Level.

Reports for Custom Years

Each of these reports allows you to enter the period of years to include in the report, and enter a special title. Enter the beginning and ending years for the period and click the *OK* button. Then enter a title and press the *Enter* key, or just press *Enter* to generate the report.

When the report displays, click the *Print* button to print the report, and press the *Exit* button when you want to escape.

Fires by FIL

This will print a report named CTBYFIL.TXT that shows the number of fires by Fire Management Zone (including none) and Fire Intensity Level (FIL). Average annual number of fires and a summary of fire assignment to an FIL are also listed.

ROS by FIL

This will print a report named 5090ROS.TXT that shows the number of fires per year for each Fire Management Zone (including none) for the 50th and 90th percentile rate of spread by Fire Intensity Level (FIL).

Fires by FMZ and Rep Loc

This will print a report named REPCTZL.TXT that shows the number of fires by Fire Management Zone (including none) and Representative Location (RL). Several breakouts are shown.

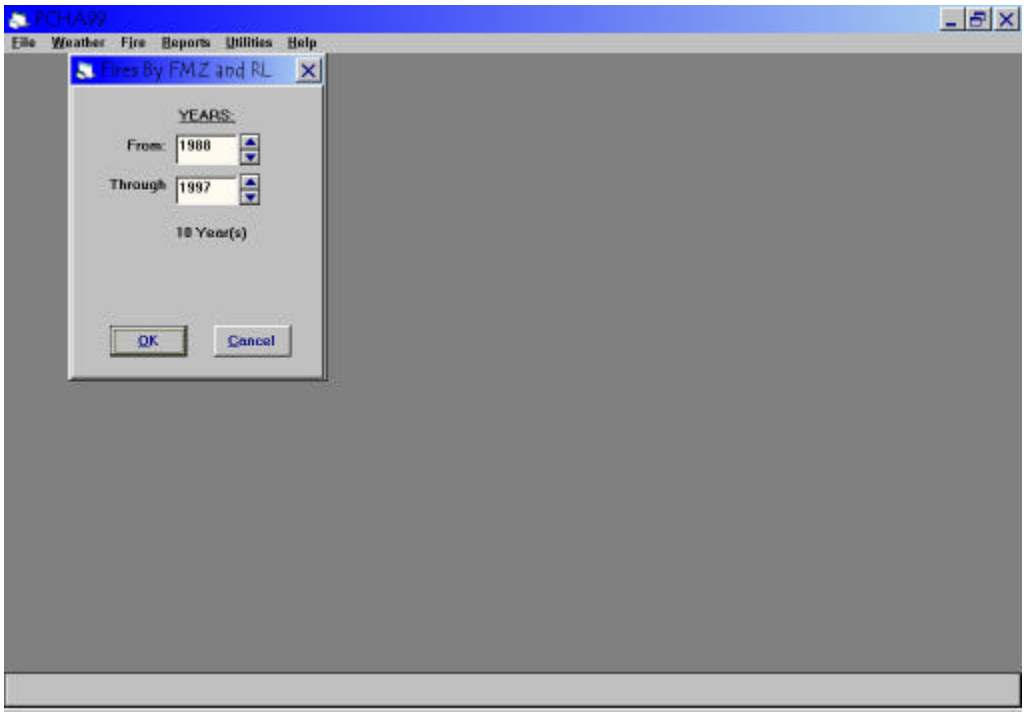


Figure 7-3 Fires by FMZ and Rep Loc

Database Queries

Each of these reports allows you to enter the period of years to include in the report, and enter an optional title. Enter the beginning and ending years for the period and click the *OK* button. Then enter a title and press the *Enter* key, or just press *Enter* to generate the report.

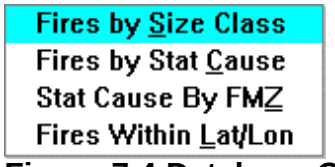


Figure 7-4 Database Queries Menu

When the report displays on the screen, click the *Print* button to print the report, and press the *Exit* button when you want to escape.

Fires by Size Class

This will print a report named FBYSZ.TXT that lists the number of fires and acres burned by year and size class. The top line of each pair shows the number of fires, and the lower line shows acres burned. The setup screen allows you to select only lightning fires, only human caused fires, or any combination of fires by statistical cause.

Fires by Statistical Cause

This will print a report named FBYSTAT.TXT that shows the number of fires by statistical cause. The setup screen allows you to select only lightning fires, only human caused fires, or any combination of fires by statistical cause.

Stat Cause by FMZ

This will print a report named STATFMAZ.TXT that shows the number of fires by statistical cause by Fire Management Zone.

Fires within Latitude and Longitude Rectangle

This will print a report named REPLL.TXT that lists fires within a box you define. Enter the latitude and longitude in degrees and minutes for the northwest and southeast corners. The report lists the boundaries you entered, plus discovery date, fire number, township, range, section, subsection, meridian, latitude, and longitude.

Multiple Fire Days

This report lists the number of fires per day and the number of days that situation occurred in the analysis period. For example, if your planning unit had six fires, three of which occurred on a single day, and the other three were on different days, the report would show two lines: one line for 3 fire days with 1 fire per day, and 1 day with 3 fires per day. The report is named MULTFIRE.DAT.

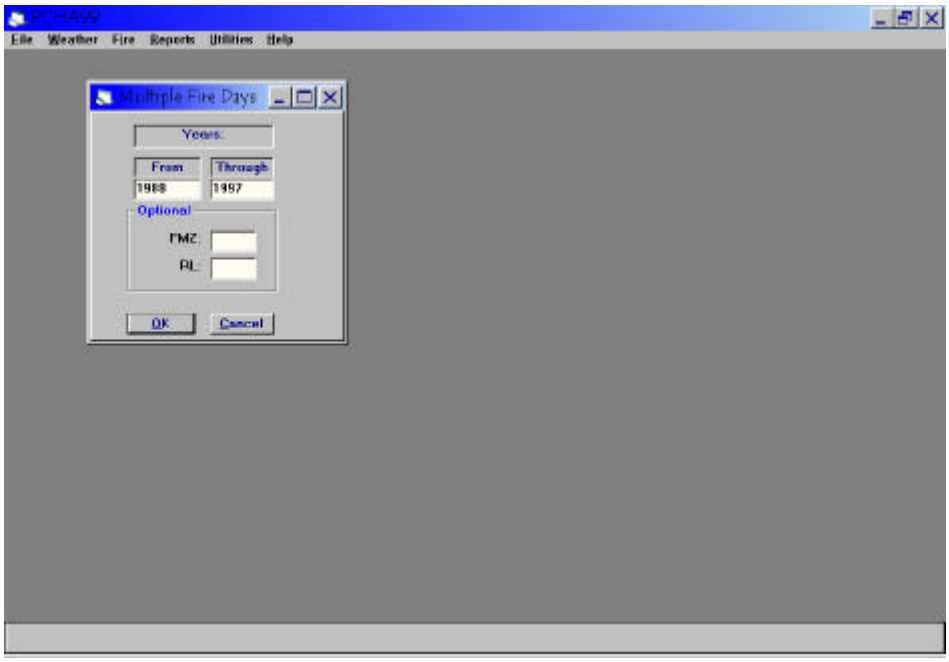


Figure 7-5 Multiple Fire Days

Graphs

The graphs implemented to date let you see your data graphically which sometimes points out hidden details in number tables.

The screens for each graph allow you to choose the range of years to include, set titles and subtitles if you choose, print the graph, and exit back to the PCHA99 main menu.

Fires and Acres by FIL

This function allows you to graph number of fires or acres burned by Fire Intensity Level. Click the option buttons on the right to select number of fires or acres for the display. After you generate the graph you can print it by pressing the *Print* button. You can also add subtitles by pressing the Titles button and entering your preferred text.

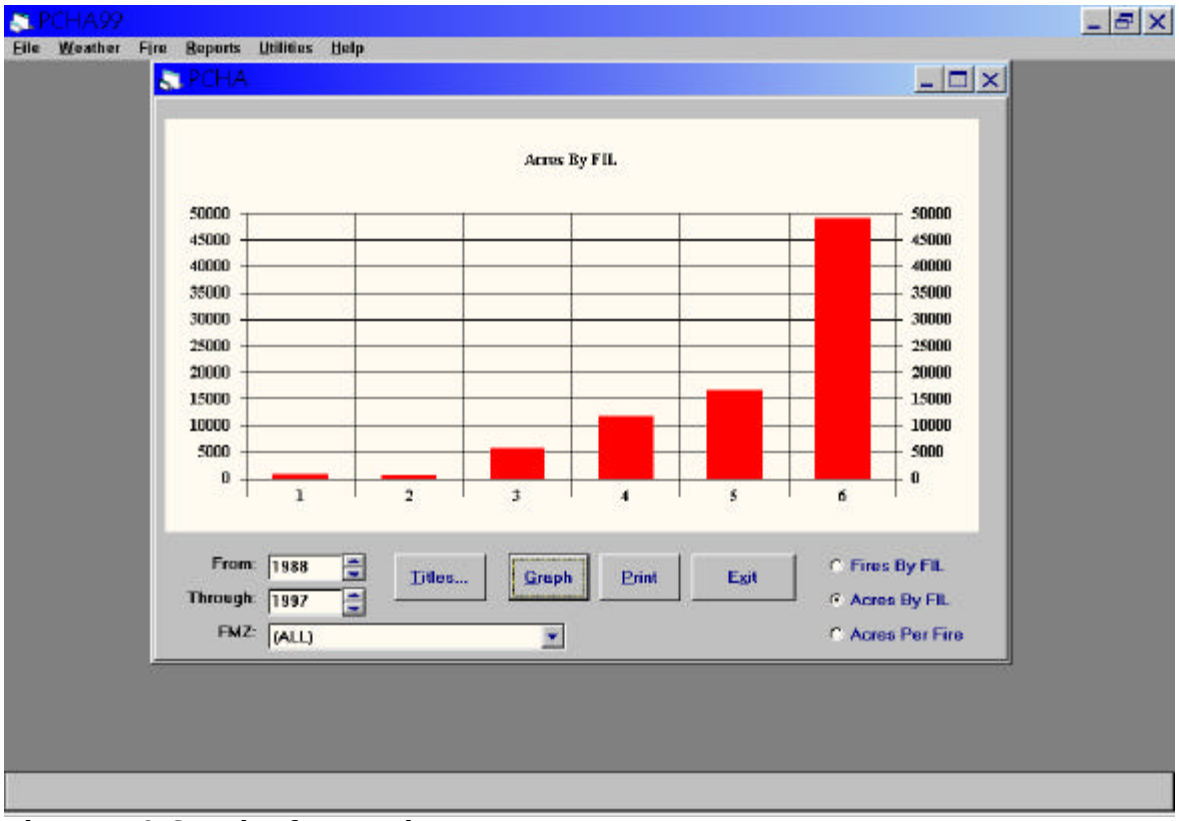


Figure 7-6 Graph of Acres by FIL

Multiple-fire Days

This function allows you to graph number of fire days by the number of fires discovered on that day. After you generate the graph you can print it by pressing the *Print* button. You can also add subtitles by pressing the *Titles* button and entering your preferred text.

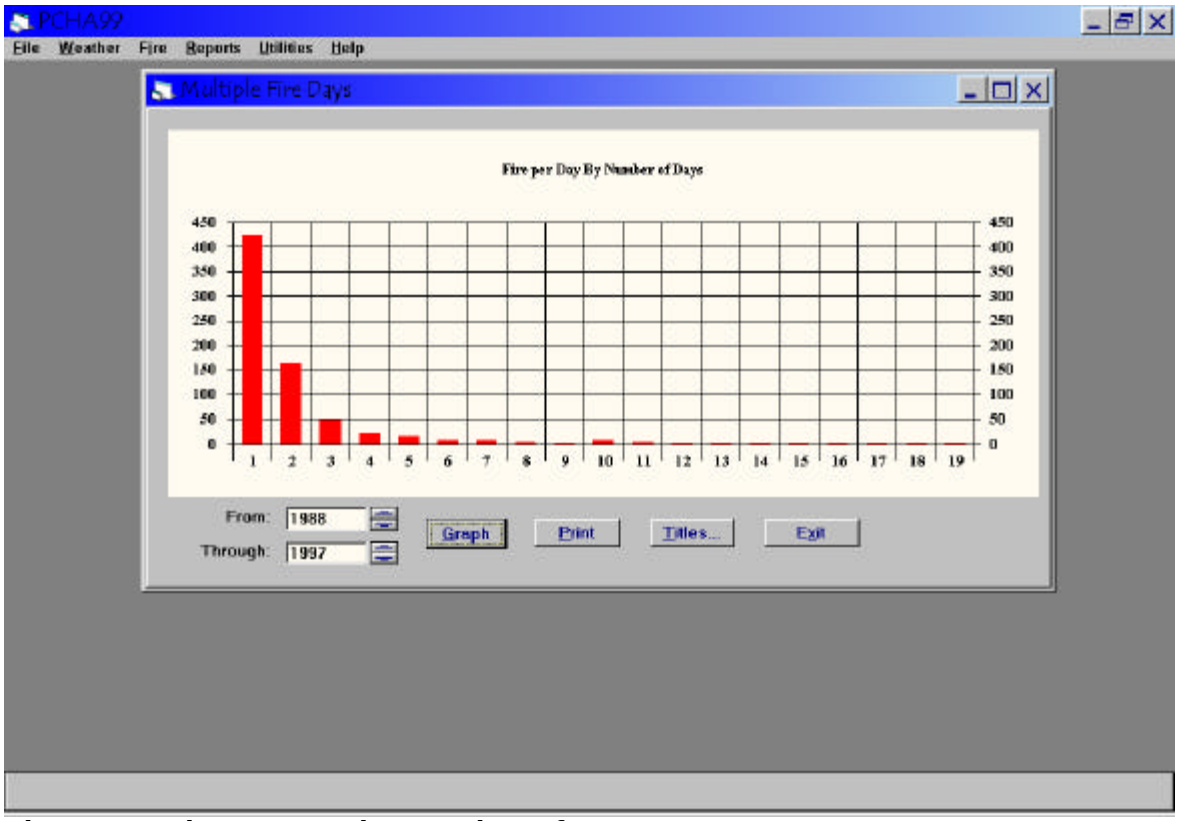
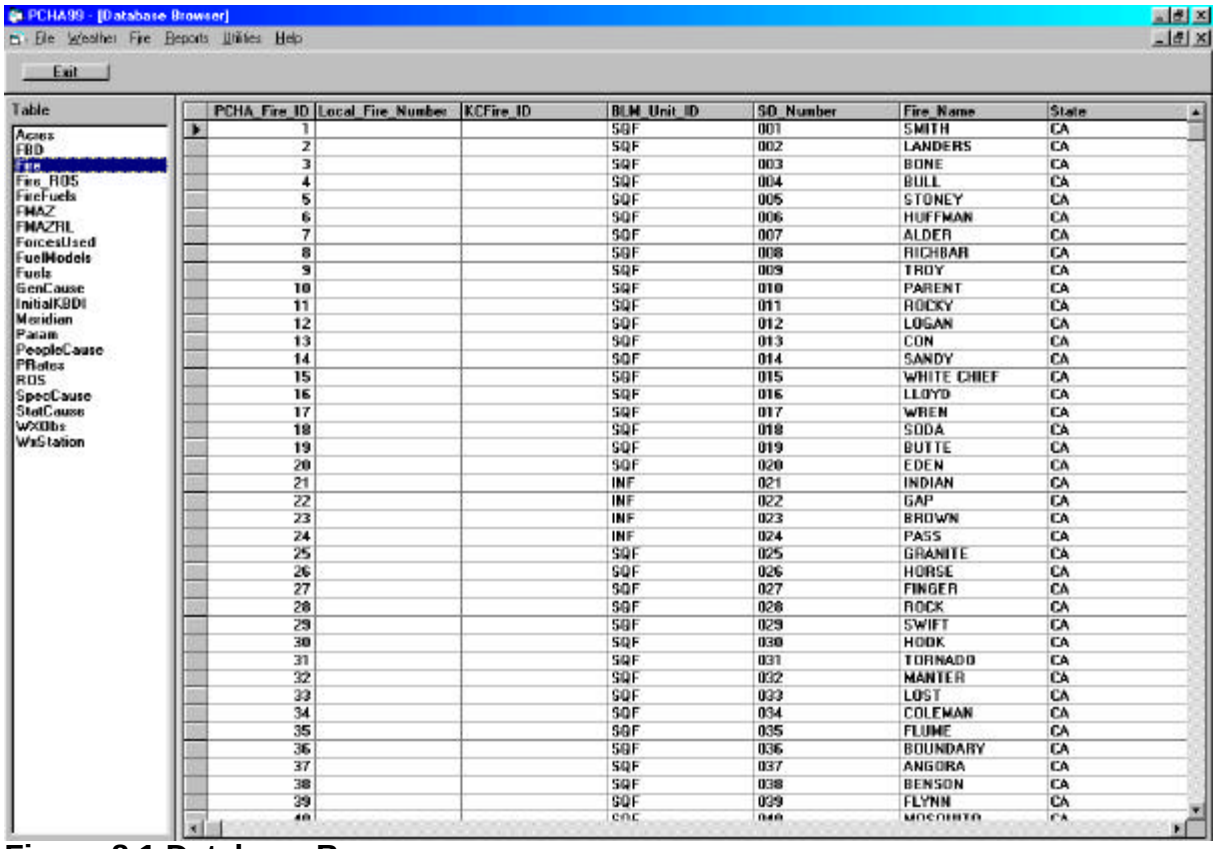


Figure 7-7 Fire per Day by Number of Days

UTILITIES

Database Browser



PCHA_Fire_ID	Local_Fire_Number	KCFire_ID	BLM_Unit_ID	SD_Number	Fire_Name	State
1			SQF	001	SMITH	CA
2			SQF	002	LANDERS	CA
3			SQF	003	BONE	CA
4			SQF	004	BULL	CA
5			SQF	005	STONEY	CA
6			SQF	006	HUFFMAN	CA
7			SQF	007	ALDER	CA
8			SQF	008	RICHBAR	CA
9			SQF	009	TROY	CA
10			SQF	010	PARENT	CA
11			SQF	011	ROCKY	CA
12			SQF	012	LOGAN	CA
13			SQF	013	CON	CA
14			SQF	014	SANDY	CA
15			SQF	015	WHITE CHIEF	CA
16			SQF	016	LLOYD	CA
17			SQF	017	WREN	CA
18			SQF	018	SODA	CA
19			SQF	019	BUTTE	CA
20			SQF	020	EDEN	CA
21			INF	021	INDIAN	CA
22			INF	022	GAP	CA
23			INF	023	BROWN	CA
24			INF	024	PASS	CA
25			SQF	025	GRANITE	CA
26			SQF	026	HORSE	CA
27			SQF	027	FINGER	CA
28			SQF	028	ROCK	CA
29			SQF	029	SWIFT	CA
30			SQF	030	HOOK	CA
31			SQF	031	TORNADO	CA
32			SQF	032	MANTER	CA
33			SQF	033	LOST	CA
34			SQF	034	COLEMAN	CA
35			SQF	035	FLUME	CA
36			SQF	036	BOUNDARY	CA
37			SQF	037	ANGORA	CA
38			SQF	038	BENSON	CA
39			SQF	039	FLYNN	CA

Figure 8-1 Database Browser

This routine lets you view the database information that PCHA99 uses. Some of the entries may be confusing. Just remember that you're looking at the working files. PCHA99 converts some data, such as township, into more recognizable values for display on the edit screens.

To view a database table, click on the table you want to view. Click on the scroll bar along the bottom to move your viewing window right or left. To move up or down, use the scroll bar on the right. Click another table if you want to look at another table, and click Exit when you're done. Exit will return you to the main PCHA99 menu.

This window gives you the chance to browse through the tables of the PCHA99 database. Just select a table name from the list box on the left, and watch the data appear in the grid. Along the top of the grid, you will see the column names used to reference individual pieces of data. If you are using your own report writer

to prepare custom reports for PCHA99, you will use these column names. If a scroll bar appears at the bottom of the grid, use it to see additional columns.

Use the scroll bar on the right to view additional data records. Remember that PCHA99 displays the internal representation, not translated values. For example, township of -3 means 3S. Do not imply results from these values. The meaning of some values are not obvious.

You can rearrange columns in this display if you choose. Select the column you want to move by clicking the mouse over the column you want to move, hold the left mouse button while you drag the column where you want it, and then release the button.

Record Counts

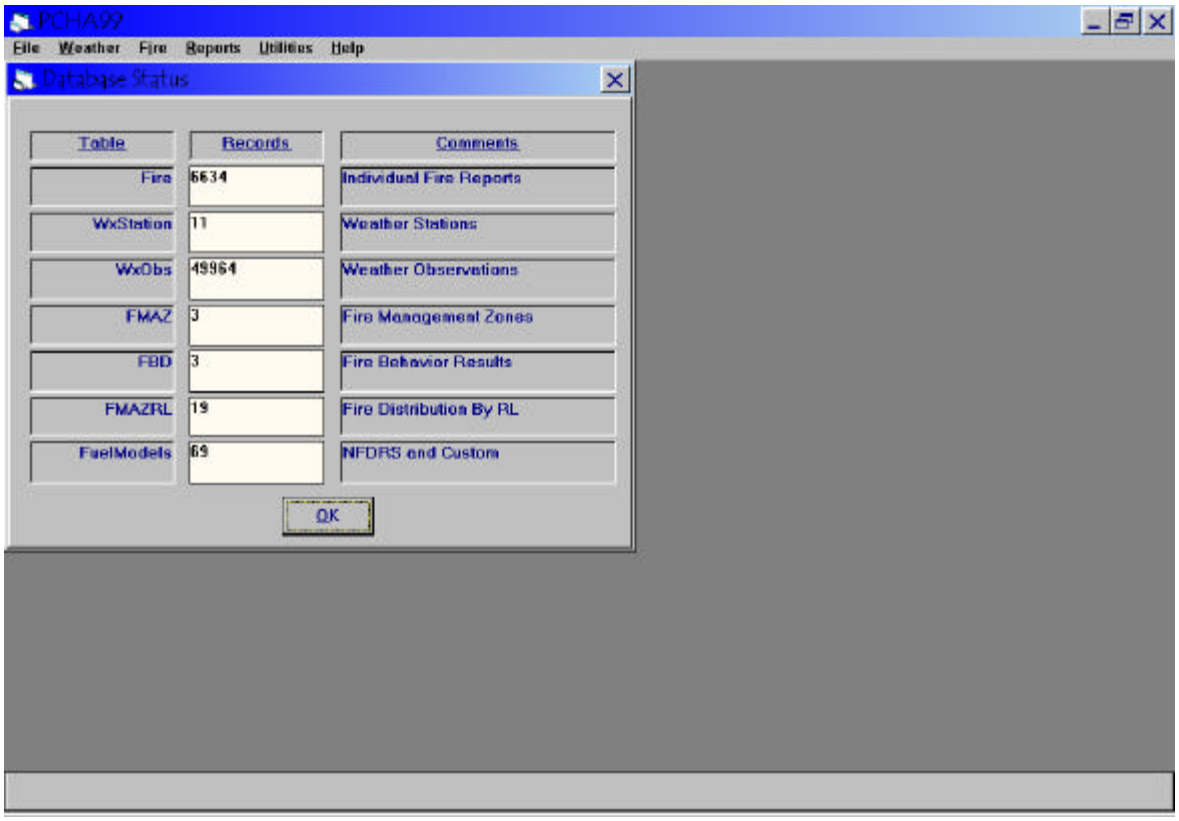


Figure 8-2 Database Status

This screen shows the number of records in the database for seven record types: Fires, Weather Stations, Weather Observations, Fire Management Zones, Fire Behavior Data files, Fire Distribution by Representative Locations, and Fuel Models (includes standard NFDRS and custom models).

Process Status

This utility displays a list of processes that you have completed. Check this table now and then to get a good reminder of any tasks that you still must do.

In PCHA99, it is important that certain steps be completed prior to attempting other steps. For example, you must calculate Dead Fuel Moistures for your weather data prior to calculating NFDRS indices for your fires. This window shows the processes you still must do.

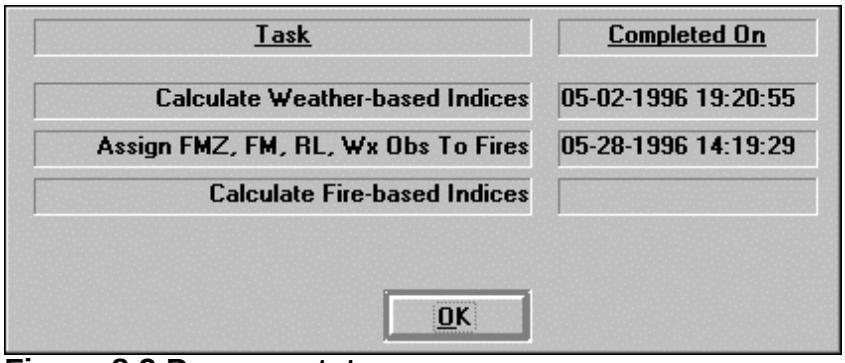


Figure 8-3 Process status screen

Edit Fuel Models

This screen allows you to look closely at the key parameters that together determine how a specific fuel model behaves. You can also create custom fuel models to describe unique fuel conditions not covered in the standard 20 models and the included custom slash models. Custom models must use the base NFDRS model as the starting point. The parameters for 1988 NFDRS are only used when you check the Use 88 NFDRS box on the Weather Station screen.

Note: You cannot change the values in the standard single letter fuel models.

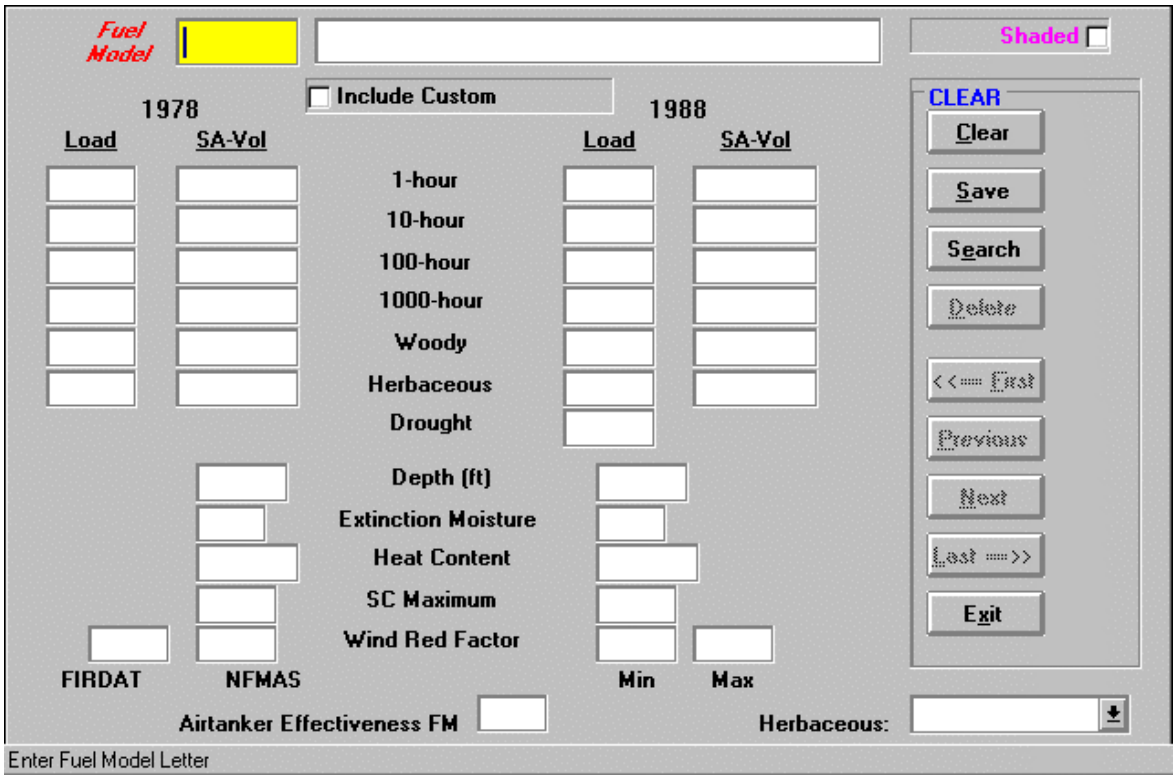


Figure 8-4 Fuel Model Edit Screen

Data fields and Buttons

Fuel Model

This code identifies the standard NFDRS or custom fuel model. Standard models are single letters A-L, and N-U. Custom models are two or three characters. The first letter is the base NFDRS fuel model and the next 1-2 characters uniquely identify the model. The included custom slash models use the second character to identity below (3, 4) or above (6, 7) standard fuel bed depth, and the third character to identify lighter (3, 4) to heavier (6-8) than standard fuel loading. For example I37 has less fuel depth than the standard model and higher loading.

Model name

This field shows the model name for the standard NFDRS models and the included custom models. You may not edit the standard NFDRS model names. If you create new custom models, be sure to enter a descriptive name so you can remember what it means later.

Shaded

Check this box if shade keeps direct sunlight from the fuels in the model. Shaded fuels dry slower than fuels exposed to direct sunlight.

Load and Surface Area/Volume

Each fuel model has fuel loading in tons per acre and surface area to volume ratios for each of the fuel components (1-hour, 10-hour, 100-hour, 1000-hour, woody, and herbaceous fuels). A zero in the loading column indicates that the particular fuel model does not have any of that component. For example, slash models (I, J, and K) do not include any live fuels. Fuel model A (grass) only includes 1-hour and herbaceous components.

Drought

This data is only used in the 1988 NFDRS model.

Depth

This field is the depth in feet of the fuel bed. Depth affects the rate of burning. For constant fuel loading, a compact fuel bed will generally burn slower than a “fluffy” fuelbed. This factor becomes important in dealing with custom fuel models to compare the difference between a crushed compacted fuelbed versus a loosely piled fuelbed.

Extinction Moisture

This is the fuel moisture percentage at which fire will not spread. This value was weighted over all fuel classes.

Heat Content

This value is usually 8000 and represents the heat output constant in British Thermal Units (BTU).

Spread Component Maximum

This data item defines the maximum spread component value for the model. This value was based on observations and field measurements during development of NFDRS.

Wind Reduction Factor

Note that the wind reduction factor is sometimes different for FIREDAT and NFMAS. This difference is caused by different modeling assumptions and the different purposes to which each apply the models.

Airtanker Effectiveness Fuel Model

Used only for custom fuel models, this item tells IIAA which NFDRS fuel model to apply for the custom model. Generally, the model should be the same as the first letter of the custom model, although there sometimes are reasons to choose a different model.

Herbaceous

This box indicates whether the model applies to annual, perennial, or both types (indicated by either) of herbaceous vegetation.

Clear Button

The *Clear* button flushes the screen boxes so you can enter a new search.

Save Button

The *Save* button records the information for the fuel model. If you don't want to save the information, press the *Clear* or the *Exit* buttons.

Search Button

Press *Search* to find the first fuel model record in the database. Once a record is displayed, you can use the *First*, *Previous*, *Next*, and *Last* buttons to move through the fuel models.

Delete Button

This button deletes the current record from the database. If there are no fuel model records in the database, this button will be light gray and inoperative.

First, Previous, Next, and Last Buttons

The *First* button displays the first fuel model record in the database. The *Previous* and *Next* buttons display the fuel model record before or after the current fuel model. The *Last* button displays the last fuel model in the database. These buttons show light gray if there are no fuel model records in the database.

Print Button

The *Print* button tells your computer to generate a page that looks like the fuel model screen.

Exit Button

The *Exit* button closes the fuel model entry screen and returns you to the main PCHA99 screen.

Custom Fuel Models

The custom slash models included in PCHA99 allow analysis of conditions across the range of the standard slash models. The general construction rules are outlined below to help you understand how they were built, and also to facilitate development of other models that cover NFDRS model groups. The example uses the I model (heavy slash); the same methods were used for J and K.

1. Start with the standard I model (heavy slash) that has a fuel depth of 2.0 ft and fuel loading of 12 tons per acre. Designate the standard model as group 55 (middle loading, middle depth) for identification purposes.

2. Calculate the fuel loading of two groups below and 3 groups above the standard model by applying the percentages below. Hold fuel loading for

each group identified by the first two characters constant for that group. Note that the last digit is a 5 that denotes the center fuel depth.

Model	Loading %	Tons/Acre
I35	86% of 12 tons/acre	10.3
I45	94% of 12 tons/acre	11.3
I55	100% of 12 tons/acre	12.0 (standard model)
I65	109% of 12 tons/acre	13.1
I75	118% of 12 tons/acre	14.2
I85	133% of 12 tons/acre	15.9

3. Next, calculate the fuel depths for the center of each group by applying the percentages below. The center of each loading group has a 5 as the last character.

Model	Depth %	Depth ft
I35	90% of 2 feet	1.8
I45	95% of 2 feet	1.9
I55	100% of 2 feet	2.0 (standard model)
I65	105% of 2 feet	2.1
I75	110% of 2 feet	2.2
I85	115% of 2 feet	2.3

4. Calculate the fuel depth for the models above and below the group center depth by applying the following factors that show the relationship of depth for the custom models.

Depth	Depth %
3	70% of center depth
5	100% of center depth
7	130% of center depth

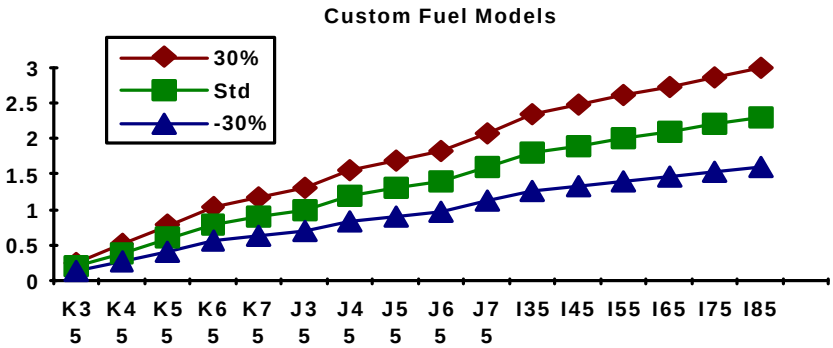


Figure 8-5 Graph of Fuel Depth for Custom Models

View Base Meridians

This option allows you to view the codes for principal meridian.

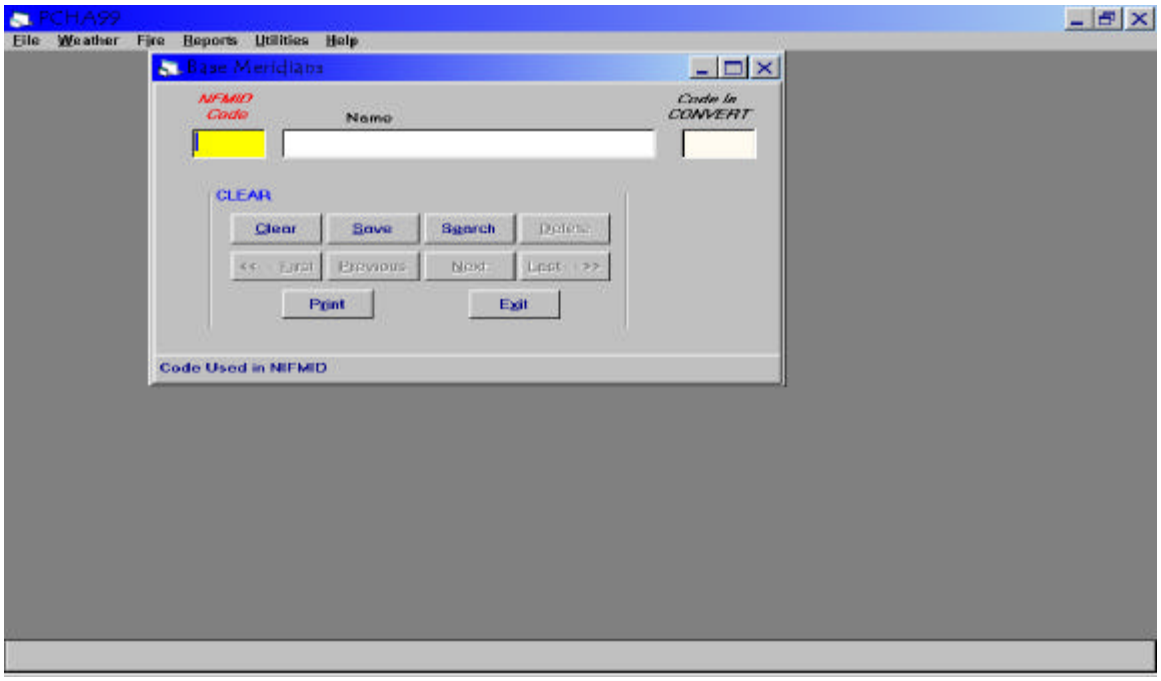


Figure 8-6 Base Meridians

NIFMID Code

This is the alpha code used in NIFMID to identify the Principal Meridian. You can search for records with this field. The principal meridian name will be displayed.

Code in CONVERT

The CONVERT program uses a different set of abbreviations to identify principal meridians. This field displays the code used in CONVERT.

Clear Button

The Clear button flushes the screen boxes so you can enter a new search.

Save Button

The *Save* button records the information for the meridian. If you don't want to save the information, press the *Clear* or the *Exit* buttons.

Search Button

Press *Search* to find the first meridian record in the database. Once a record is displayed, you can use the *First*, *Previous*, *Next*, and *Last* buttons to move through the meridians.

Delete Button

This button deletes the current record from the database. If there are no meridian records in the database, this button will be light gray and inoperative.

First, Previous, Next, and Last Buttons

The *First* button displays the first meridian record in the database. The *Previous* and *Next* buttons display the meridian record before or after the current meridian record. The *Last* button displays the last meridian record in the database. These buttons show light gray if there are no meridian records in the database.

Print Button

The *Print* button tells your computer to generate a page that looks like the meridian screen.

Exit Button

The *Exit* button closes the meridian entry screen and returns you to the main PCHA99 screen.

Site Specific Corrections

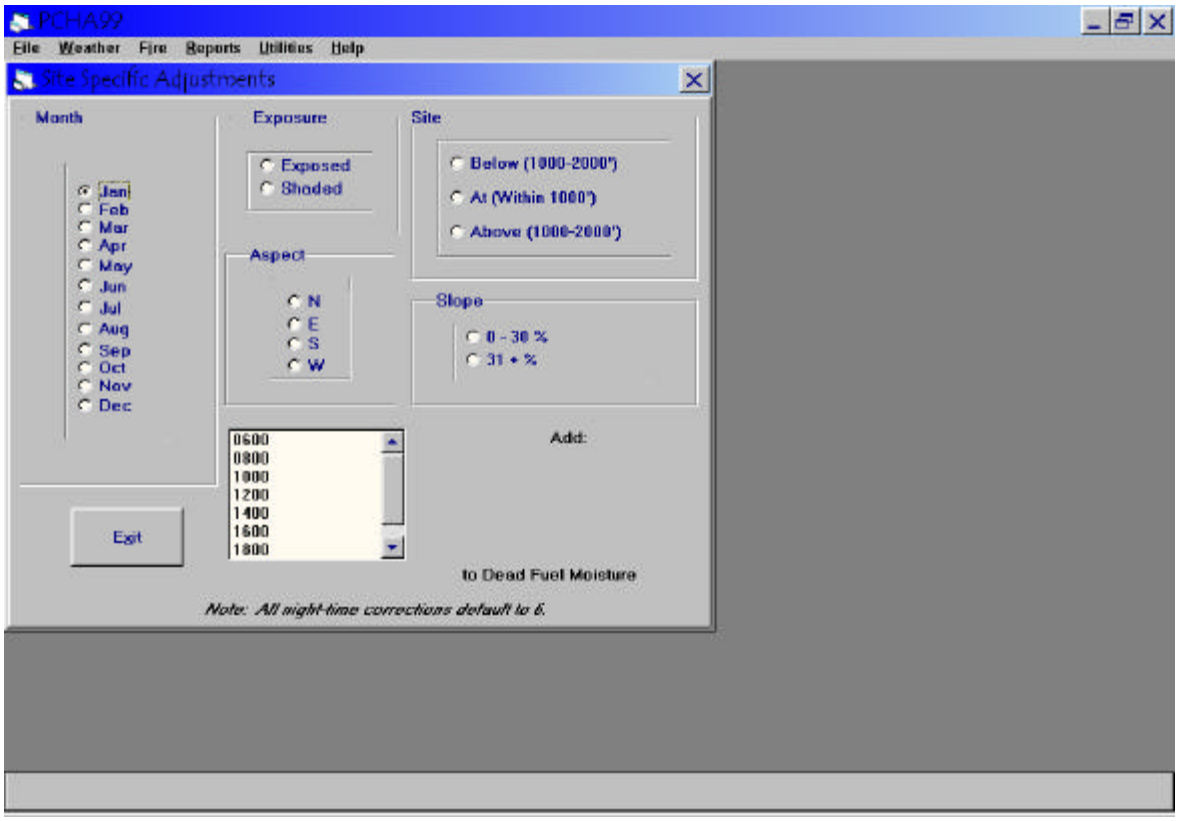


Figure 8-7 Site Specific Corrections

This function enables you to define various site-specific values that will then display additions or subtractions to fuel moisture values. The NFDRS calculations were developed for worst-case conditions (i.e., Summer, 1400 hours, SW aspect, open conditions, and steep slope). Since fires do not always fit that situation, PCHA99 adjusts the weather at the station to the fire site- away from the station. Enter various values to see the adjustments PCHA99 makes to simulate weather at the fire site.

A suggestion for use: start with a typical day during your regular fire season (July, for example). Click Exposed, South aspect, 1400 hours, site At (within 1000'), and 31+% slope. The addition to dead fuel moisture is zero. Now hold all but one factor constant as you try various options within one variable, such as time of day. Watch how the dead fuel moisture factor changes. Next test the interactions between slope and aspect while you hold other factors constant.

Month

Click on the month you want to adjust. When you first click a month, Exposure defaults to Shaded, Site defaults to Below, Aspect defaults to

North, Slope to 31% plus, and Time to 0800. You must reset those defaults if you want other values.

Exposure

Choose shaded or exposed. Fuels fully exposed to solar radiation will dry much faster than shaded fuels.

Aspect

Choose one of the four cardinal directions.

Time

Only daylight hours are included in two-hour bands since the calculations show only the effects of solar radiation on the fuels.

Site

Choose a site above the weather station, at the same elevation (roughly), or below.

Slope

Choose one of the slope factors.

Add to Dead Fuel Moisture

The red value shows the increase (or decrease) in dead fuel moisture values from the weather station to the fire. If the calculated value is negative, the fire site is drier than the weather station.

Exit Button

The Exit button closes the site specific corrections entry screen and returns you to the main PCHA99 screen.

Calculate Daylight Hours

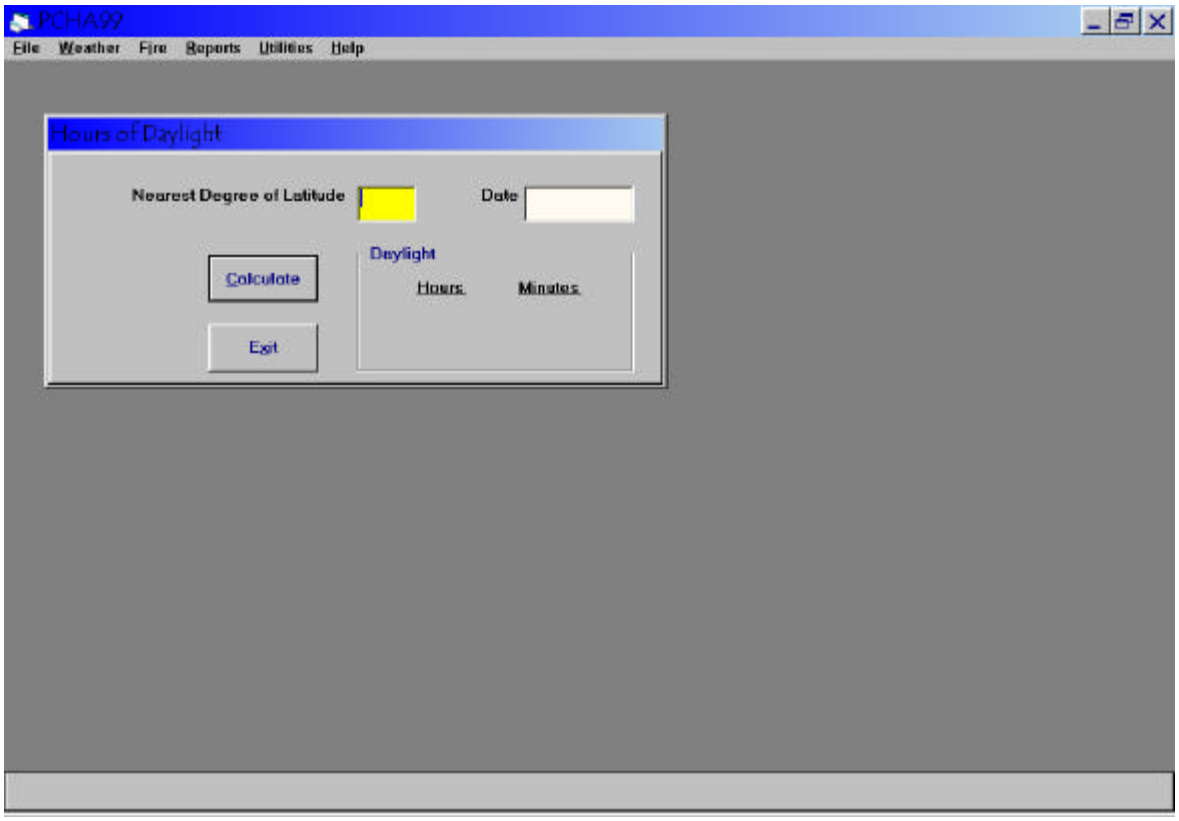


Figure 8-8 Hours of Daylight

This routine displays the number of daylight hours per day for a given latitude and date. Enter the latitude in degrees, the date (mm/dd or mm/dd/yyyy are both acceptable), and then press the *Calculate* button. The hours and minutes of daylight will then appear. When you are ready to quit all this fun, press the *Exit* button to return to the main PCHA99 menu.

Location Conversions (LL, TRS, UTM)

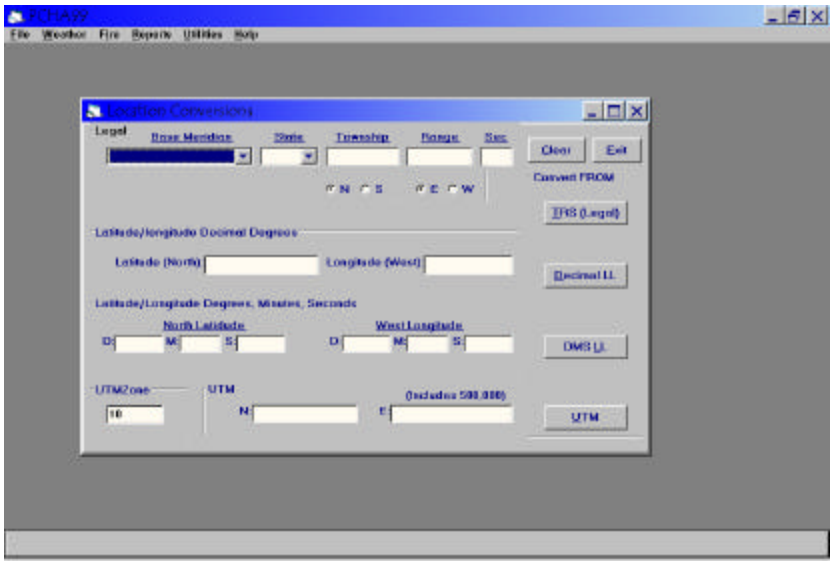


Figure 8-9 Locations Conversion

*******Need some sort of write up*******

Window

In PCHA99, you may have multiple windows open at the same time. These commands allow you to rearrange these windows. The choices include tiling or cascading the windows, and aligning the icons of minimized windows.

Cascade

This option tells PCHA99 to stack multiple windows one atop another if you choose to have more than one window open at a time.

Tile Horizontal

With the horizontal tile option, PCHA99 attempts to place windows side by side. This can be useful when you want to see information from different screens at the same time. The windows tend to be tall and skinny.

Tile Vertical.

Tile vertical puts multiple windows one above another. The windows are short and wide. This option works for some windows and is impossible to read for others.

Arrange Icons

If you have multiple windows open but minimized, the icons for each minimized window are arranged along the bottom of the screen.

ROS

The Rate of Spread calculation process allows you to generate fire behavior values for a set of user-defined fuel models and run each fuel model through IIAA with a fixed suppression organization. Standard fire planning processes allows you to run one to many organizations against a fixed fire load and fixed fuel regime. Fuel analysis allows you to see the effects of different fuel models against a fixed organization (possibly the most efficient?).

Handcrew Production Rates

This table records Handcrew production rates in chains per person per hour for each fuel model by NFMAS slope classes. The values are used to compare production rates in the IIAA model.

Calculate ROS, Prepare FBD.

This function generates three output files. If the missing weather report lists any dates, you should add weather records to appropriate weather stations to build a complete weather stream.

- Fire Behavior Data file. IIAA can read this file directly and model the results against a fixed organization. The generated file is named uuffn.FBD where *uu* is the unit number from the *Planning Unit Setup* screen, ff is the FMZ requested, and *n* is a number generated by PCHA99. The file extension is FBD.

- Missing weather report. The rate of spread calculations depend upon a continuous stream of weather with no gaps. This report identifies problem areas that you should fix using the weather edit screens. The generated file is named uuffn.MWX where *uu* is the unit number from the *Planning Unit Setup* screen, ff is the FMZ requested, and *n* is a number generated by PCHA99. The file extension is FBD.

- Fire Behavior report. This report lists the fire behavior values calculated for the FMZ and fuel model. The generated file is named uuffn.FBD where *uu* is the unit number from the *Planning Unit Setup* screen, ff is the FMZ requested, and *n* is a number generated by PCHA99. The file extension is REP.

Assign FMZ/RL by District

*****Need info******

HELP

The PCHA99 program has a built-in help function that gives detailed information about the various menus, options, check boxes, and specific data field records. To activate the Help Function, click on the Help menu. You will be presented a table of contents. Highlight the topic that you want information on and click the left mouse button. Underlined words or phrases have additional information and you can view it by clicking the left mouse button on them.

Another alternative method is to select the menu and option that you want and press the F1 key. This will activate the Help Function on the subject on which you are currently working. This is the quickest way to find information on the current topic.

Contents

The Help Table of Contents will appear on your screen with a brief description of how to use the help screens and the major topic in the help system.

User's Guide

A User's Guide for PCHA99 is available from the web. This is a `living document' and will be updated from time to time.

> Program Location: Forest Service Fire Application Support Home Page
>
> Point your browser to www.fs.fed.us/fire/planning/nist/distribu.htm
> Scroll down to `Users Guide' until you find PCHA99, Draft (August1999).
>
> Download file, **pcha99_users_guide.pdf** , via FTP or Web Browser to your home computer. The users guide requires Acrobat Reader (3.0) to Display & Print. The .pdf file is ??? MB in size (Word doc is 11.6MB).

About

This screen displays the version and release date of your software.

APPENDIX A: INPUT AND OUTPUT FORMATS

Forest Service PCHA99 Report format

File names look like (PCHA99rrff.RAW) where rrff are the FS region and forest identified on the *Planning Unit Setup* screen. The file extension must be RAW.

1	Reporting FS Region	1-2	05
2	Reporting FS Unit	3-4	16
3	Fire Number	5-7	23
4	District	8-9	52
5	Statistical Cause	10	1
6	General Cause	11	0
7	Specific Cause	12-13	01
8	Class of People	14	0
9	Fire Size Class	15	B
10	Total Acres Burned	16-24	0.3
11	FS Area Burned	25-33	0.2
12	Non-FS, FS Prot Acres Burned	34-42	0.1
13	Non-FS Acres Burned	43-51	0.0
14	Vegetation Cover Type	52-53	
15	NFMAS Aspect	54	
16	Topography Code	55	
17	Fire Management Zone (60 usually blank)	56-60	
18	Weather Station	61-66	041523
19	NFDRS Fuel Model	67	G
20	Fire Intensity Level (FIL)	68	2
21	Fire Intensity Source	69-70	FR
22	Latitude (DDMMSS)	71-76	360200
23	Longitude (DDMMSS)	77-83	1190612
24	Township	84-88	
25	Range	89-93	
26	Section	94-95	
27	Subsection	96-99	
28	Principal Meridian	100-101	
29	Slope Percent	102-104	
30	Aspect Code	105	
31	Elevation	106-110	
32	State	111-112	CA
33	County	113-115	
34	Protection Agency	116-118	
35	Ownership at Origin	119	
36	Prescribed Fire	120	Y/N
37	Escaped Fire	121	Y/N
38	Initial Suppression Strategy	122	

39	Fire Cost in Dollars	123-131	
40	Ignition Date	132-139	
41	Ignition Time	140-143	
42	Discovery Date	144-151	19900714
43	Discovery Time	152-155	
44	First Action Date	156-163	
45	First Action Time	164-167	
46	Second Action Date	168-175	
47	Second Action Time	176-179	
48	Declared Wildfire Date	180-187	
49	Declared Wildfire Time	188-191	
50	Fire Contained Date	192-199	
51	Fire Contained Time	200-203	
52	Fire Controlled Date	204-211	
53	Fire Controlled Time	212-215	
54	Fire Out Date	216-223	
55	Fire Out Time	224-227	
56	Fire Name	228-247	Lost Loop
57	Fire ID	248-254	
58	Fire Account (PCode)	255-259	
59	Wilderness	260-262	

BLM Fire Report format

File names must follow the naming convention of (BLMssuuu.RAW) where ss is the state and uuu is the three-letter unit identifier entered on the *Planning Unit Setup* screen. The file extension must be RAW.

1	State	1-2	CA
2	District	3-5	CDD
3	Discovery Year	6-9	1990
4	Fire Number	10-13	J133
5	Fire Cause Code	14	
6	Fire Name	15-24	Lost Loop
7	Latitude	25-30	450200
8	Longitude	31-37	
9	Discovery Date	38-43	900714
10	Acres at Control	44-56	
11	Slope Code	57	
12	Aspect Code	58	
13	Elevation Code	59	
14	Weather Station	60-65	351227
15	NFDRS Fuel Model	66	T
16	NFDRS Slope Class	67	
17	Grass Type	68	
18	Climate Class	69	
19	Fire Management Zone	70-71	
20	Fire Cost in Dollars	72-83	218.35

Weather Observations

This file is also known as a “short obs” file. Weather observations must use the naming convention (WXnnnnnn.FWX) where nnnnnn is the weather station number. The prefix letters WX are optional. The file extension must be FWX.

1	Weather Station Number	1-6
2	Observation Date (YYMMDD)	7-12
3	State of Weather Code	13
4	Dry Bulb Temperature	14-16
5	Relative Humidity (Percent)	17-19
6	blank	20-22
7	Herbaceous Vegetation Condition	23-24
8	Human-caused Risk	25-27
9	Wind Direction	28
10	Wind speed (mph)	29-31
11	blank	32
12	10-Hour timelag fuel moisture	33-35
13	blank	36-38
14	Maximum temperature (ºF)	39-41
15	Minimum temperature (ºF)	42-44
16	Maximum relative humidity (percent)	45-47
17	Minimum relative humidity (percent)	48-50
18	blank	51
19	Precipitation duration (hours)	52-53
20	Precipitation amount (inches nn.nn)	54-57
21	Lightning Activity Level	58-60
22	RH indicator (2)	61
23	blank	62-80

Weather Observation data Transfer Format 1998 (WxObs98)

New data format adopted in May of 1998 intended to replace the Short weather observation file format.(.FWX). This format attempts to meet current and future needs and to remedy the shortcomings of the 1972 format.

1	Record type (W98). All records begin with this record type identifier code	01-03
2	Station Number	04-09
3	Observation date (YYYYMMDD)	10-17
4	Observation time (0000-2359)	18-21
5	Observation type (O=NFDRS, R=Raws other than at the standard NFDRS observation time, F=Forecast, X=Other)	22
6	State of weather code	23
7	Dry bulb temperature (degrees Fahrenheit or degrees Celsius based on Measurement Type code	24-26
8	Atmospheric moisture (wet bulb temperature, relative humidity (percent), or dewpoint temperature based on Moisture Type code	27-29
9	Wind direction azimuth measured from true north; 0 (zero) means no wind direction, 360 is north	30-32
10	Average wind speed over a ten-minute period (miles or kilometers per hour based on Measurement Type code	33-35
11	Measured 10-hour time lag fuel moisture	36-37
12	Maximum Temperature (degrees Fahrenheit or degrees Celsius base on Measurement Type code	38-40
13	Minimum Temperature (degrees Fahrenheit or degrees Celsius base on Measurement Type code	41-43
14	Maximum relative humidity (percent)	44-46
15	Minimum relative humidity (percent)	47-49
16	Precipitation duration (hours)	50-51
17	Precipitation amount based on Measurement Type code [col. 63]. Blanks=no precipitation. *US measurement*: inches with implied decimal nn.nnn format; trace shown as 00005. *Metric measurement*: in millimeters, no implies decimal; trace shown as 00001	52-56
18	Wet flag (Y/N)	57
19	Herbaceous greenness factor (0-20)	58-59
20	Shrub greenness factor (0-20)	60-61
21	Moisture Type code (1=Wet Bulb, 2=Relative humidity, 3=Dewpoint)	62

22	Measurement Type code (1=U.S., 2=Metric, Affects temperature (Fahrenheit or Celsius), wind (miles or kilometers per hour), and precipitation (decimal inches or millimeters))		63
23	2	Season code (1=Winter, 2=Spring, 3=Summer, 4=Fall)	64
24	Solar radiation (watts per square meter)		65-68

Weather Passing File

Weather observation passing files include three record types. Passing files must use the naming convention (nnnnnn.PSF or WXnnnnnn.PSF) where *nnnnnn* is the weather station number. The prefix letters WX are optional. The file extension must be PSF.

Record One (flag)

1	Flag	1-12	999999999999

Record Two (station header)

1	Administrative Owner	1-12
2	Station Name	13-32
3	Station number	33-38
4	Elevation	39-43
5	Latitude (degrees)	44-45
6	Fuel model	46
7	Slope class	47
8	Herbaceous type	48
9	Climate class	49
10	Julian green-up date	50-52
11	Run date	53-64
12	Julian first freeze date	65-67
13	Beginning year	68-69
14	Ending year	70-71

Record Three (daily data)

1	Weather Station Number	1-6
2	Observation Date (YYMMDD)	7-12
3	Julian observation date	13-15
4	Processing option	16
5	State of Weather Code	17
6	Dry Bulb Temperature	18-20
7	Relative Humidity (Percent)	21-23
8	Wind Direction	24
9	Wind speed (mph)	25-27
10	Maximum temperature (ºF)	28-30
11	Minimum temperature (ºF)	31-33
12	Maximum relative humidity (percent)	34-36
13	Minimum relative humidity (percent)	37-39
14	Precipitation duration (hours)	40-41
15	Precipitation amount (inches nn.nn)	42-45
16	Lightning Activity Level	46
17	Human-caused Risk	47-49
18	1-hour fuel moisture	50-52
19	10-hour fuel moisture	53-55

20	100-hour fuel moisture	56-58
21	1000-hour fuel moisture	59-61
22	Woody moisture	62-64
23	Herbaceous moisture	65-67
24	blank	68-69
25	Ignition component	70-72
26	Spread component	73-75
27	Energy release component	76-78
28	Human-caused fire occurrence index	79-81
29	Lightning-caused fire occurrence index	82-84
30	Burning index	85-87
31	Fire load index	88-90
32	Keetch-Byram drought index	91-93
33	Herb greenness factor	94-96
34	Woody greenness factor	97-99

Fire Behavior Datafile (FBD)

The Fire Behavior Datafile passes spread rate data to IIAA for future analysis. The generated file uses the naming convention (uuffn.FBD) where *uu* is the unit number from the *Planning Unit Setup* screen, *ff* is the FMZ number, and *n* is a number generated by PCHA99. The file extension must be FBD. PCHA99 generates eleven data lines for each fuel model. Commas separate fields on each data line.

Record One (FBD)

1	FBD	1-3	FBD

Record Two (IIAA)

1	IIAA Planning option	011
2	Fuel profile identifier	00G
3	Adjustment factor (percent). 100 means no change	-30

Record Three (Air Tanker Production)

1	Air tanker production rate fuel model	G

Record Four (ROS cards)

1	Number of ROS cards following	6

Record Five (ROS 1 frequencies)

1	FIL 1 fire frequency/year	14.3
2	FIL 2 fire frequency/year	4.7
3	FIL 3 fire frequency/year	.3
4	FIL 4 fire frequency/year	.02
5	FIL 5 fire frequency/year	.03
6	FIL 6 fire frequency/year	. 1

Record Six (FIL 1 ROS)

1	ROS 50th percentile	1.97
2	ROS 90th percentile	.92

Record Seven (FIL 2 ROS)

1	ROS 50th percentile	3.2
2	ROS 90th percentile	3.93

Record Eight (FIL 3 ROS)

1	ROS 50th percentile	0
2	ROS 90th percentile	0

Record Nine (FIL 4 ROS)

1	ROS 50th percentile	0
2	ROS 90th percentile	0

Record Ten (FIL 5 ROS)

1	ROS 50th percentile	0
2	ROS 90th percentile	0

Record Eleven (FIL 6 ROS)

1	ROS 50th percentile	0
2	ROS 90th percentile	0

GIS 1

1	PCHA99 ID	N	23
2	PCHA99 latitude	N	35.12246
3	PCHA99 longitude	N	118.3341

GIS 2

GIS type 2 output uses the naming convention (GISxxxxx.xxx) where xxxxx is .... Fields are comma delimited (separated by a comma) in the order listed below. Alpha fields (A) are enclosed within quotes (“").

1	PCHA99 ID	N	23
2	Fire number	A	49
3	Fire name	A	Lost Loop
4	Discovery date	D	7/4/85
5	Discovery year	N	1985
6	Discovery month	N	7
7	Discovery day in month	N	4
8	Julian day number	N	185
9	Weekday	N	3
10	PCHA99 latitude	N	35.12246
11	PCHA99 longitude	N	118.3341
12	Statistical cause	N	1
13	Total acres burned	N	0.3
14	FMZ	A	0A
15	Representative location	N	1
16	NFDRS fuel model	A	G

APPENDIX B: HOW TO USE KCFAST TO OBTAIN FIRE AND WEATHER RECORDS

The steps outlined in this section will help you request fire and weather data from KC using KCFAST. The steps assume that you have a working copy of KCFAST that is correctly configured on your system. If you experience difficulties, follow the troubleshooting steps in the KCFAST documentation.

Request fire data

1. From the main KCFAST menu, choose 1 (Data Extracts), then 3 (Queries), and then 5 (Custom Queries).
2. Enter the FS Region you want, the beginning and ending years, and the unit (Forest) number. Press F1 to start the process, followed by F11.
3. Submit the job to KC by pressing F1 if the job submission parameters are correct, or change the parameters and then press F1.
4. Await arrival of a message from KC that states your job was returned by KC. Note that the first message confirms submission from your system, and the second message confirms retrieval of the job. Jot down the returned job number. It will look like FSxxxxx_JOBnnnnn.

Prepare fire data for use

1. From the main KCFAST menu, choose 4 (Utility), and then 2 (Returned print files).
2. Enter the job number from the second message, or search for the returned file.
3. Choose the CLEAN option.
4. Enter the new filename as PCHA99rrff.RAW where rrff is the FS region and forest that administers the land for the fires.
5. Note the number of records kept. PCHA99 files should be a multiple of 4 since each fire has 4 data lines. Pre-release versions of PCHA99 used a 3 line record.

Move data to your microcomputer

Use whatever method works best at your site to transfer the file from the Data General to a microcomputer if you requested using KCFAST-DG.

Request weather data

1. From the main KCFAST menu, choose 1 (Data Extracts), then 3 (Queries), and then 5 (Custom Queries).
2. Enter the weather station you want, and the beginning and ending years. You must request each station as a separate request since PCHA99 expects the data on a station by station basis. Press F1 to start the process, followed by F11.
3. Submit the job to KC by pressing F1 if the job submission parameters are correct, or change the parameters and then press F1.

4. Await arrival of a message from KC that states your job was returned by KC. Note that the first message confirms submission from your system, and the second message confirms retrieval of the job. Jot down the returned job number. It will look like FSxxxxx_JOBnnnnn.

Prepare fire data for use

1. From the main KCFAST menu, choose 4 (Utility), and then 2 (Returned print files).
2. Enter the job number from the second message, or search for the returned file.
3. Choose the CLEAN option.
4. Enter the new filename as WXnnnnnn.FWX where nnnnnn is the station number.
5. Note the number of records kept equals the number of weather observation for the station.

Move data to your microcomputer

Use whatever method works best at your site to transfer the file from the Data General to a microcomputer if you requested using KCFAST-DG.

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