

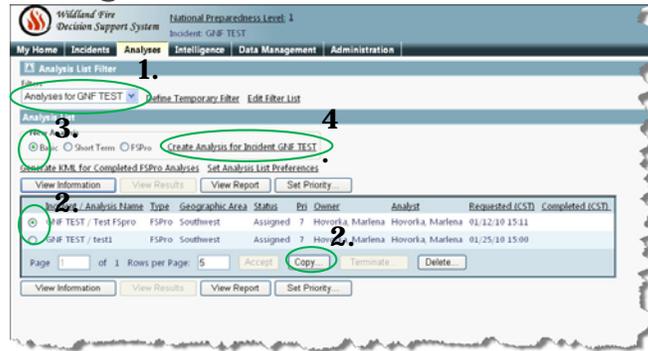
# Wildland Fire Decision Support System

## Analyst Assisted Basic and Short Term Fire Behavior

Wildland Fire Management R&D&A  
National Interagency Fire Center  
Boise, Idaho  
April 2010



# Creating an Incident



1. Use filters to find your incident.
2. Select the incident/analysis you want to view. If it is a good place to start, you can copy it.  
You no longer need to request a fire behavior run prior to running analyses.
3. To start a new analysis, select the type of analysis you would like to run.
4. Click 'Create Analysis for Incident'.

# Basic Fire Behavior

The screenshot displays the Wildland Fire Decision Support System (WFDSS) interface. The main window is titled "New Basic Analysis for Incident GNF TEST". It features several input fields and options for configuring the analysis.

**General Parameters:**

- Analysis Name: [Empty field]
- Analysis Date: 01/27/2010 (Month: 01, Day: 27, Year: 2010)
- Hour: 13
- Conditioning Days: 7
- Foliar Moisture Content (%): 100
- Green Fire Method: Finney (1998)
- Spread Options: Degrees: 0, Direction from North (selected), Relative Direction from Max

**Station Information:**

- Station: 292009 - PELONA (24.0 miles)
- Green Up Month Day: 04/12
- Grass Type: P: Perennial
- Climate Class: 2: Subhumid
- Latitude: 33.6925
- Longitude: 108.06306
- Elevation: 8,080 feet
- Aspect: East
- Avg Precip: 10.00 in

**Flame Length Legend:**

Value	Feet
No Fire	75
0.00 - 0.09	857
1.00 - 2.49	205
2.50 - 3.29	3,066
3.30 - 4.37	4,076
4.37 - 5.47	4,796
5.47 - 6.50	286
6.50 - 7.66	143
7.66 - 8.70	65
8.70 - 9.84	11
9.84 - 11.40	4
11.40 - 13.37	4
13.37 - 16.40	1

The interface also shows a map of the analysis area with a color-coded flame length overlay. The map includes a scale bar and coordinates (Latitude: 34.72281, Longitude: -112.72288). A "Flame Length Legend" window is open, displaying the color scale and corresponding flame length values in feet. The legend values range from 75 feet (No Fire) to 16.40 feet (1 foot flame length).

# General Information

**Name your analysis** - Keep a set naming protocol so you can find runs easily.

## **Conditioning Days-**

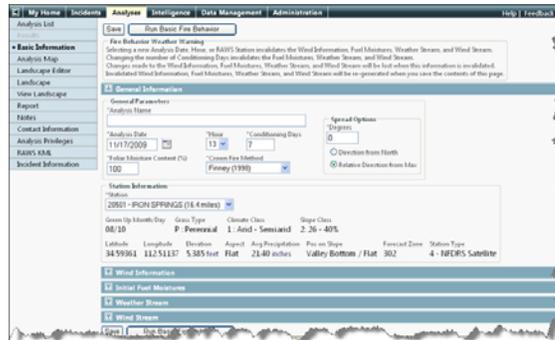
This input adjusts the fuel moisture over X days. 7 days is the default, but adjust as necessary to include/exclude precipitation and anomalous events.

## **Weather Station** -

Select a station that represents the fire area or the particular area you are concerned about or are modeling.

## **Crown Fire Method** -

Make sure you select the appropriate Crown Fire Method for the data layer you selected.



# Wind Information



**Wind speed & Direction**- Set the wind speed and direction you would like to model.

## **Wind Type** -

Choose the way in which you would like your winds modeled. In most cases, it will be most appropriate to use gridded winds.

# Initial Fuel Moistures

Fire Behavior Weather Warning  
Selecting a new Analysis Date, Hour, or RAW'S Station invalidates the Wind Information, Fuel Moistures, Weather Stream, and Wind Stream.  
Changing the number of Conditioning Days invalidates the Fuel Moistures, Weather Stream, and Wind Stream.  
Changes made to the Wind Information, Fuel Moistures, Weather Stream, and Wind Stream will be lost when the information is invalidated.  
Invalidated Wind Information, Fuel Moistures, Weather Stream, and Wind Stream will be re-generated when you save the contents of this page.

Save Run Basic Fire Behavior

General Information

Wind Information

Initial Fuel Moistures

Model	1 Hour FM	10 Hour FM	100 Hour FM	Herb FM	Woody FM
default	4	5	10	40	75
<input type="radio"/> 99	4	5	10	40	75
<input type="radio"/> 101	4	5	10	40	75
<input type="radio"/> 102	4	5	10	40	75
<input type="radio"/> 122	4	5	10	40	75
<input type="radio"/> 142	4	5	10	40	75
<input type="radio"/> 147	4	5	10	40	75
<input type="radio"/> 188	4	5	10	40	75
<input type="radio"/> 188	4	5	10	40	75

Create Fuel Model Add Add Fuel Models from Landscape File

Weather Stream

Wind Stream

By adding fuel models, you can vary your dead and live fuel moistures by fuel model. If you make changes, make sure that you state why changes were made in notes.

Always check and adjust your live fuel moistures as appropriate.

Always save after you make changes.

# Weather Stream

**Fire Behavior Weather Warning**  
Selecting a new Analysis Date, Hour, or RAWFS Station invalidates the Wind Information, Fuel Moistures, Weather Stream, and Wind Stream.  
Changing the number of Conditioning Days invalidates the Fuel Moistures, Weather Stream, and Wind Stream.  
Changes made to the Wind Information, Fuel Moistures, Weather Stream, and Wind Stream will be lost when this information is invalidated.  
Invalidated Wind Information, Fuel Moistures, Weather Stream, and Wind Stream will be re-generated when you save the contents of this page.

Save Run Basic Fire Behavior

**Weather Stream**

Date	Precip Amt	Start Hr	End Hr	Min Temp (°F)	Max Temp (°F)	Min RH	Max RH		
11-9	0.00	000	000	35	500	67	1300	27	87
11-10	0.00	000	000	36	100	73	1300	17	71
11-11	0.00	000	000	42	100	71	1400	23	53
11-12	0.00	000	000	51	600	60	1200	39	57
11-13	0.04	900	1100	40	2300	52	900	53	82
11-14	0.00	000	000	32	700	52	1300	34	94
11-15	0.00	000	000	26	2100	60	1500	16	79
11-16	0.00	000	000	20	300	60	1600	8	47
11-17	0.00	000	000	23	700	61	1300	13	45
11-18	0.00	000	000	29	500	66	1500	9	34

The weather stream is derived from the weather station that you chose.

The weather stream can be adjusted to reflect actual observations. In the notes, be sure to indicate why you made changes.

Always save after you make changes.

# Wind Stream

The screenshot shows a web application interface for 'Wind Stream' analysis. The top navigation bar includes 'My Home', 'Incidents', 'Analysis', 'Intelligence', 'Data Management', and 'Administration'. The left sidebar contains 'Analysis List', 'Basic Information', 'Analysis Map', 'Landscape Editor', 'View Landscape', 'Report', 'Notes', 'Contact Information', 'Analysis Privileges', 'RAWS KML', and 'Incident Information'. The main content area features a 'Fire Behavior Weather Warning' message, a 'Run Basic Fire Behavior' button, and a 'Wind Stream' table.

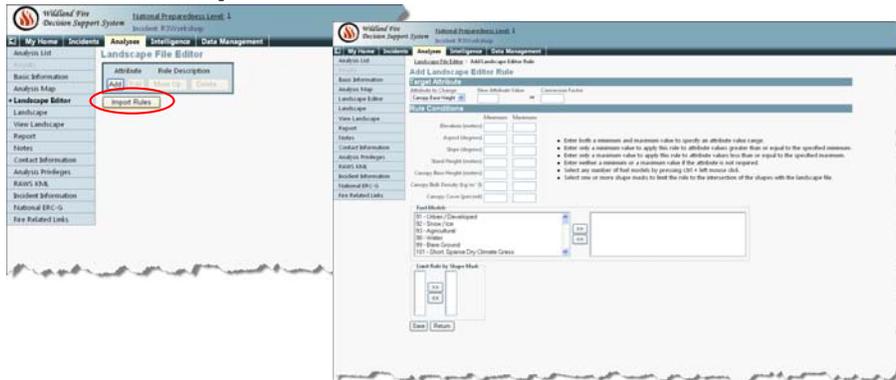
Date	Hour	Speed (MPH)	Direction	Cloud Cover (%)
11/9	0	2	274	30
11/9	1	3	295	30
11/9	2	2	287	30
11/9	3	3	200	30
11/9	4	3	300	30
11/9	5	3	279	30
11/9	6	2	300	30
11/9	7	3	210	30
11/9	8	1	151	30
11/9	9	3	149	30
11/9	10	4	129	30
11/9	11	2	100	30

Winds are derived from the weather station that you choose.

You can modify your wind inputs as appropriate. In the notes, be sure to indicate why you made changes.



# Landscape - Editor



If you have already created a rule set, you can import it and, if necessary, add more rules to it. In the notes, be sure to indicate why you made changes.

Save before executing or adding another rule.

When done, click Return.

# Landscape - Creation

Wildland Fire Decision Support System National Preparedness Level 1  
Incident: P23Workshop

Analysis Intelligence Data Management

Landscape File (The LCP File Exists)

Incident Latitude: 33.70246 Incident Longitude: 108.5592

Landscape Extent

Top Latitude	Degrees	Min	Sec	Bottom Latitude	Degrees	Min	Sec
33.7525	33	45	0.0	33.6525	33	39	0.0

Left Longitude	Degrees	Min	Sec	Right Longitude	Degrees	Min	Sec
108.618	108	37	6.4	108.4994	108	29	57.8

Resolution: 90.0

Landscape Data Source:

- AK: Tanana Zone
- AK: Yukon-Charley
- Alaska - 2009
- CA Landscape 091409
- LANDFIRE National 092909
- LANDFIRE Rapid Refresh
- Western Northern Rockies

Fuel Model: 40 13

Save Create LCP File Upload LCP File Download LCP File Generate LCP Critique

After choosing the appropriate base layer and set of fuel models, make sure to save.

Use a larger resolution for calibration runs, larger landscapes, and landscapes with a large amounts of fuel models that require intense calculations like grass models.

Click "Create LCP File"

# Notes

The screenshot shows the Wildland Fire Decision Support System (WFSS) interface. The header includes the system logo, 'National Preparedness Level 1', and user information: 'Sam Amato on Training | Sign out' and 'Analysis: Basic Copyfile'. The navigation menu on the left lists various options, with 'Notes' expanded. The main content area is titled 'Edit BFB Input Notes' and contains a table with the following data:

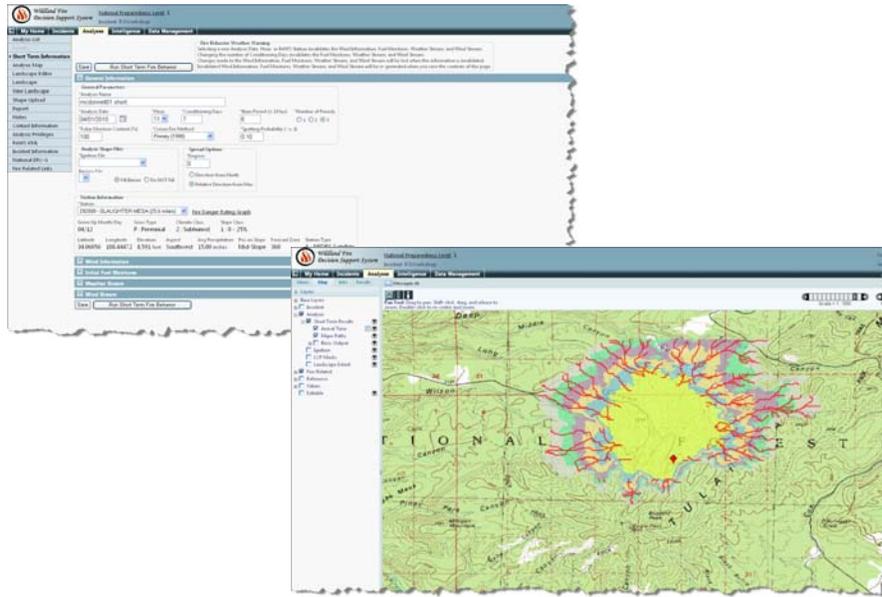
Time (CDT)	User	Note
04/01/2010 15:59	Amato, Sam	dflhsdflhsdflhsdflhs

Below the table, there is a 'New Note' form with a text input field and a 'Save Note' button. A 'Return' button is also visible at the bottom of the form area.

Make sure you take in depth notes through out your analysis.

It is also a good idea to keep copies of your notes for yourself outside of WFSS. In addition, you may want to keep correspondence records in and out of WFSS.

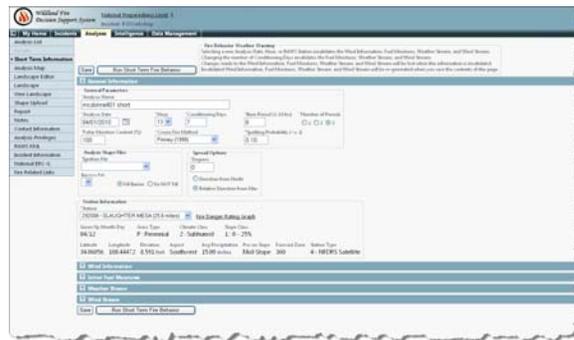
# Short-Term Fire



# STFB - Settings

In addition to the settings in common with Basic FB, you might need to adjust a few settings.

**Number of Periods** - The number of periods that included in the arrival time output.



**Burn Period** - When setting your burn period (BP), consider that the same Wx and Wind settings will be used for the entire period, so the BP used in the model may not be the same as your actual BP.

**Spotting Probability** - If you are experiencing prolific spotting, this number may need some adjustment

**Ignition & Barrier Files** - Make sure you choose the appropriate ignition file in conjunction with the appropriate barrier file.

More information on interpreting the inputs and outputs can be found in the Fire Behavior section at [http://wfdss.usgs.gov/wfdss/WFDSS\\_Resources.shtml](http://wfdss.usgs.gov/wfdss/WFDSS_Resources.shtml)