Analyst-Assisted Basic Fire Behavior (BFB)

Estimated time to complete: 30 minutes or more depending on how elaborate the user choses to make the simulation.

WFDSS Analyst-Assisted Basic Fire Behavior (BFB) is a web-based fire behavior application. It gives "snapshot in time" fire behavior outputs (flame lengths, rates of spread, fireline intensities, etc.) for an entire user-defined landscape extent using one set (per cell) of wind and fuel moisture conditions. WFDSS BFB can be thought of as a "spatial BEHAVE or BehavePlus". Using fuels, topography, and weather data, fire behavior characteristics are calculated and displayed for every cell of the landscape extent.

In this exercise Fire Behavior Specialists and Super Analysts will become familiar with how to prepare for, run and interpret a Basic Fire Behavior (BFB) model. This exercise is not intended to be a comprehensive guide to BFB, but teaches the user basic skills to run the model. This includes:

- Creating an incident on their home unit, an area of equal familiarity, or recreate a past fire.
- Preparing to run the model by setting parameters for conditioning fuels and setting landscape parameters.
- Running the model and interpreting the results.

Before you begin:

- Ensure you have a WFDSS User Name and Password. For information on requesting an account see http://wfdss.usgs.gov/wfdss_help/WFDSSHelp_request_acct.html
- Have access to WFDSS Training site
- Have either a Fire Behavior Specialist or Super Analyst role. You will also need the Author user role to create an incident.
- This document contains electronic hyperlinks to WFDSS Help and related documents. The hyperlinks are underlined; clicking on this text takes you to the help content or the related document. **Bold** text refers to specific text, buttons, tabs, pages, etc. in the WFDSS program.
- The **WFDSS 101** series found on the **Training** page of WFDSS is an excellent source for gaining basic skills in using WFDSS.

Creating a New Incident

You need to create an incident on the Training site of WFDSS for this exercise. This may be a fictitious fire or you may choose to recreate a past fire. See **WFDSS 101** Lesson 2 Creating an Incident or see Creating an Incident WFDSS Help.

1. Create your incident.

Running Analyst–Assisted Basic Fire Behavior (BFB)

Now that you have an incident created see Running an Analyst –Assisted Basic Fire Behavior. You are ready to begin entering information for Basic Fire Behavior.

To run an Analyst-Assisted BFB

1. From the **Incident Analyses** tab for your incident select **Basic** radio button under the **New Analysis** and click on **Create Analysis for Incident.**
2. Follow the Help instructions. To enter General Parameters and click **Create.**

    Note: If you are running this simulation in the winter or other off fire season times, use an *****Analysis Date** from a past fire season so the weather data the model selects is conducive to fire growth. Basic fire behavior uses historical weather data if a past date is used.

3. After creating your analyses, your wind and weather information appears below your General Information. Verify that your wind, weather, and initial fuel moisture information is what you want to use for the fuel conditioning by using the ▼ down arrow to expand each section. You can modify the data if needed, and click **Save**. See Modifying Fuel Moisture for Fire Behavior Analysts, Modifying Weather Stream Data (Analyst-Assisted BFB & STFB, NTFB), Modifying Wind Stream Data (Analyst-Assisted BFB & STFB, NTFB)
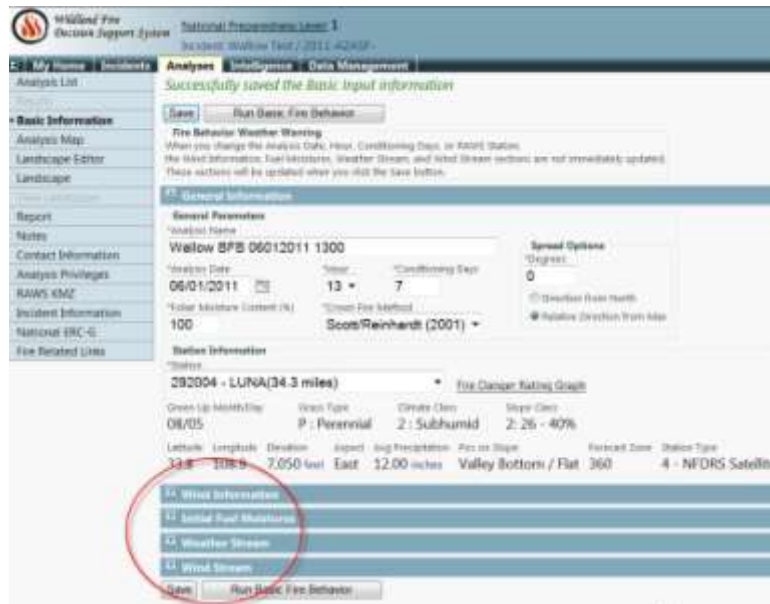
4. Use the menu options at the left to navigate to the **Analysis Map.** This is where you define the landscape extent, and landscape masks if used. The ▣ Extent tool is used to draw the extent of the analyses area or area on the map for which you will generate model outputs. Or you can use the default landscape extent (green box). See Drawing Landscape Extent.

5. **Landscape Masks** are used to change landscape characteristics within a specific area such as fuel models within a burn area. Landscape Masks can be created using the ◪ Draw a polygon tool. See Creating a Landscape Mask. The **Historical Fires** layer can be used to create landscape masks, see Copying Feature Information. GIS shape files can also be uploaded and used as landscape masks, see Uploading Shapes.

6. Use the **Menu** tab to navigate to the **Landscape Editor** if you want to make changes to the landscape. See Creating a Landscape Editor Rule.

7. Use the **Menu** tab to navigate to **Landscape** to create your landscape file from the extent you defined in Step 4. See Creating the Landscape File.
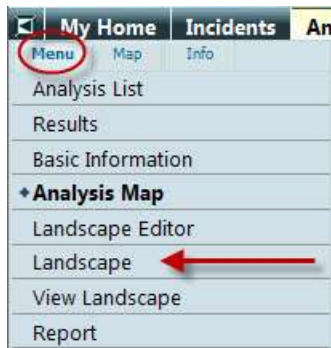
8. Generating the landscape takes a little while. You can refresh the window by clicking on **Landscape** in the menu options*.* Once the landscape has been generated WFDSS gives you a message at the top of the page indicating the landscape has successfully generated and the **Generate LCP Critique** button and **View Landscape** becomes available. These are good tools for assessing your landscape and any changes you may have made in Step 6. See Viewing the Landscape for Analysis, Generating a Landscape Critique.

> **Note:** You need to refresh the **Landscape** page after generating a Landscape Critique for the **Download LCP Critique** button to appear.

9. Once all the necessary inputs to the model have been added navigate back to **Basic Information.** Click the **Run Basic Fire Behavior** button at the top or the bottom of the page. A **Warning** message displays if you are missing inputs. You must complete the missing information before you can run the analysis.

10. Once you click the **Run Basic Fire Behavior** button, you are returned to the **Analyses** page and can see your run with a status of **queued** or **in process**. Processing may take several minutes. You need to refresh the **Analyses** page by clicking on the **Analyses** tab. Once your run status changes to **Review,** you may view the results by clicking the **View Results** button.

11. By clicking one of the radio buttons you can view each of output options on the map. Clicking on the ▦ Legend icon to the right of each output brings up a Legend window for that output option.

12. To help interpret analysis results see Analyst - Assisted BFB – What it means (interpretation).

13. You decide when the run is valid and want to make it available to the decision, or the run is not valid and want reject it. From the **Results** tab you can **Accept** or **Reject** your simulation. Remember to add notes to the dialog box. This is your opportunity to explain to viewers:

   - Why the model run was made.
   - How it should be interpreted.
   - Assumptions and limitations of the run.
   - Potential shelf life of the run
   - Triggers for a new analysis

   By selecting **Analysis Privileges** from the menu options you can grant specific people viewer privileges to view your analysis without having to accept the run at this point. Your BFB analysis is not available to anyone else except Super Analysts to view until you either grant them viewer or editor privileges or accept the analysis. See Granting Analysis Privileges.

14. If you want to make modifications to your analysis, you may use the **Copy** feature on the **Analyses** page to create a new FSPro analysis with all the same parameters used in the copied run. This feature allows you to make any changes you wish to the parameters of the copy run. See Copying an existing BFB Analysis.

Notes

A good Analyst keeps good notes. These notes help you as well as those who follow you to understand what you did and why. Each page in BFB has **Notes** in the left-hand menu options. You may add Notes to each page to help remind you and to tell others that follow you, what you changed and why, on that page. These Notes appear at the top of each page and can be edited at any time.
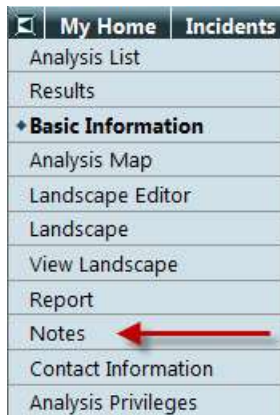
Reports & Downloads

- Viewing the Analysis Report

- Downloading an Analysis KMZ File

- Downloading a LCP File

- Uploading an LCP File

- Downloading a Landscape Critique

Further information on Analyst-Assisted Basic Fire Behavior

- Analyst - Assisted BFB – What it is

- Analyst – Assisted BFB – What it needs (inputs)

- Analyst - Assisted BFB - What it does (outputs)

- Analyst – Assisted BFB – Why use it – (potential uses)

- Analyst – Assisted BFB – Assumptions and Limitations