



BehavePlus fire modeling system Frequently Asked Questions (FAQs)

This compilation of frequently asked questions (FAQs) provides answers to common questions about the BehavePlus fire modeling system. Please check these FAQs and the Known Bugs document for answers to your questions before contacting the Fire Applications Help Desk (see FAQ [1.6](#)).

Contents

- BehavePlus fire modeling system Frequently Asked Questions (FAQs) 1
- 1. BehavePlus Status 2
 - 1.1 What is the latest version of BehavePlus? 2
 - 1.2 What are the BehavePlus system requirements?..... 2
 - 1.3 How do I make sure I have the most recent version of BehavePlus? 2
 - 1.4 Who developed and maintains BehavePlus?..... 2
 - 1.5 Are there any supporting documents?..... 3
 - 1.6 Who do I contact for help?..... 4
 - 1.7 Are there any training materials available?..... 4
 - 1.8 What are the BehavePlus license requirements?..... 4
 - 1.9 How does the current version of BehavePlus differ from previous versions? 4
 - 1.10 What is the relationship between BehavePlus and the Fire Characteristics Chart program?..... 4
 - 1.11 How can I learn more about the Fire Characteristic Chart program? 5
 - 1.12 How do I get values calculated in BehavePlus into the Fire Characteristics Chart program? 5
- 2. Getting and Installing BehavePlus 5
 - 2.1 Where can I get BehavePlus?..... 5
 - 2.2 How do I install BehavePlus for the first time? 5
 - 2.3 How do I re-install or upgrade BehavePlus?..... 6
 - 2.4. How do I use Runs, Worksheets, Fuel Models, Moisture Scenarios, and Units Sets developed in version 5 with version 6? 6
 - 2.5 How do I know when there is an update? 6
 - 2.6 How do I subscribe to the News?..... 6
 - 2.7 Why did the installation program fail/stop/hang before it finished?..... 6
- 3. How do I ...?..... 6
 - 3.1 How do I print the contents of a help window or any dialog box? 6

3.2 How can I capture images to use in documentation?	6
3.3 How do I add a geographic place name for use in the Calendar Tool?.....	7
4. Why doesn't something work?	7
4.1 Why can I enter values into the shaded (gray or blue) input fields?.....	7
4.2 Why can't I print or save the outputs of the Units Converter tool?	7
4.3 I created and saved a custom fuel model (or moisture scenario) and used it in a Run that I also saved. But, when I reopen the Run file, I get an Invalid Input error message saying the custom fuel model is an unknown choice.....	7
4.4 Why do the results of my Run disappear after I save and then later reopen it?.....	8

Note: The use of trade or firm names in this publication is for reader information and does not imply endorsement by the U.S. Department of Agriculture of any product or service.

1. BehavePlus Status

1.1 What is the latest version of BehavePlus?

The most recent version of BehavePlus is version 6.0.0 Beta 2, released on 20 January 2018. The most recent official version is version 5.0.5, released on 08 August 2001. The supplemental Fire Characteristics Chart program is version 2.0, released on 12 June 2013. See FAQ [1.9](#))

1.2 What are the BehavePlus system requirements?

- Windows® 10 or earlier.
 - The program works in desktop mode in Windows 8.
 - BehavePlus will run on 64-bit computers if it is not installed in the **Program Files** folders.
- Designed for 1024x768 monitors with 16-bit (64K) colors, but 800x600 with 8-bit (256) colors is adequate.
- 32 Mb memory (8 Mb of available memory).
- 50 Mb of hard drive storage space.
- A PDF file viewer, such as [Adobe Reader](#), for browsing help files.

1.3 How do I make sure I have the most recent version of BehavePlus?

To ensure you have the latest version of BehavePlus, compare the build version of your installation with the build number on the BehavePlus [Software / Manuals](#) page. The build number for BehavePlus is located in the program under **Help > Installation Info** in the section entitled **Program Information**. The build number for the program is part of the file name.

- The installation file for BehavePlus version 6.0.0 Beta2 is **bp6_625.msi** with build number **625**.
- The installation file for BehavePlus version 5.0.5 is **bp_307.exe** with build number **307**.

1.4 Who developed and maintains BehavePlus?

Development of the BehavePlus fire modeling system and supporting material is possible due to the support of:

- U.S. Forest Service, Rocky Mountain Research Station, Fire, Fuel, and Smoke Science Program,
- U.S. Forest Service, Fire and Aviation Management, and
- Joint Fire Science Program (JFSP).

The BehavePlus program, the Fire Characteristics Chart program, and supporting materials were developed through contracts with Systems for Environmental Management (SEM), S&K Global Solutions, and RTL Networks.

- **Faith Ann Heinsch**, physical scientist / systems manager, S&K Global Solutions is a contractor with the USDA Forest Service, Fire Sciences Lab, Missoula, MT, She currently manages BehavePlus, designs and determines updates to its feature set, performs alpha testing, and creates documentation, including the Help system, features, training, and system use. Faith Ann is also responsible for Fire Characteristics Chart system design and maintenance, as well as maintaining the web presence for the BehavePlus fire modeling system.
- **Pat Andrews**, research scientist (retired), USDA Forest Service, Fire Sciences Lab, Missoula, MT, was the principal investigator and managed the development of BehavePlus, designed and determined its feature set, performed alpha testing, and assisted with the documentation (publications and training) from its inception until her retirement. She continues to assist in development and provides advice when needed.
- **Collin Bevins**, research forester and president, System for Environmental Management (SEM), Missoula, MT, designs, develops, and tests all the BehavePlus computer code and helps determine its feature set and behavior.
- **Deb Tirmenstein**, RTL Networks, conducts program testing as well as reviews and edits supporting documents for both BehavePlus and the Fire Characteristics Chart.

The following individuals have worked on components of the BehavePlus project in the past:

- Luke Schelvan, SEM, was the Fire Characteristics Chart program developer.
- Erin Noonan-Wright, USDA Forest Service, developed training material as an SEM contractor.
- Matt Jolly, USDA Forest Service, developed training material.
- Bobbie Bartlett, USDA Forest Service (retired), developed training material as an SEM contractor.
- Joe Scott, Pyrologix and SEM, developed online help and training material.
- Rick Stratton, USDA Forest Service, developed training material as an SEM contractor.
- Rob Seli, U.S. Forest Service, developed supporting material including the User's Guide and training material.
- Tobin Kelley, USDA Forest Service, developed supporting material with focus on use of BehavePlus for prescribed fire planning.
- Don Carlton, Fire Program Solutions and SEM, wrote the version 1 User's Guide and online help system.
- Dave Custer, USDA Forest Service (retired), edited tutorials for version 1.

1.5 Are there any supporting documents?

The BehavePlus Features Paper and Variables Paper are part of the Help system and are available for download in Portable Document Format (PDF). They are also available on the [Publications](#) page.

The version 4.0 User's Guide is available and is still applicable to version 5. It can be found in the **INSTALLDIR/DocFolder/en_US/Html/UsersGuide.pdf**. **INSTALLDIR** is the BehavePlus installation directory where you installed the file. The default installation directory is **C:/Behave/BehavePlus5**. The User's Guide is *not* applicable to version 6; it will be replaced by an updated, more comprehensive Features Paper.

The Fire Characteristics Chart program contains help documents for both fire behavior and fire danger rating. The report for the fire behavior tabs is available on the [Publications](#) page.

See the [Publications](#) page for additional documentation.

1.6 Who do I contact for help?

The first level of technical support is provided through your local support channels.

As long as version 6.0 is in Beta status, user support for **BehavePlus version 6.0.0** installation and use is provided by staff and contractors of the Fire Modeling Institute, part of the Fire, Fuel, and Smoke Science Program.

Faith Ann Heinsch, Development Lead

E-mail: faheinsch@fs.fed.us (preferred contact)

Phone: 406-829-7342

Primary user support for **BehavePlus version 5.0.5** installation and use is provided by the U.S. Forest Service Fire and Aviation Management Fire Applications Help Desk.

Fire Applications Help Desk

Phone: 866-224-7677 or 616-323-1667,

E-mail: IIA-Helpdesk@fs.fed.us, or

Website: <https://iia-hd.peckham-enclave.us/>

The Fire Applications Help Desk is available for help with software issues only and cannot answer fire behavior questions.

1.7 Are there any training materials available?

See the [Tips and Training](#) page for lessons covering various aspects of BehavePlus. There may also be workshop materials available related to S-490, prescribed fire, and other applications. See the [Tips and Training](#) page for details.

1.8 What are the BehavePlus license requirements?

BehavePlus is freely available, without any warranty expressed or implied, to anyone who wants to use it. The License Agreement only requests that you send a postcard depicting your local area to:

USFS, RMRS, Fire Sciences Laboratory

BehavePlus fire modeling system

5775 US Highway 10 W

Missoula, MT 59808

1.9 How does the current version of BehavePlus differ from previous versions?

Each version of BehavePlus includes numerous updates, changes, and modifications. A comparison of the old BEHAVE program and BehavePlus Versions 1, 2, 3, 4, 5, and 6 is available for download on the BehavePlus [Software / Manuals](#) page.

1.10 What is the relationship between BehavePlus and the Fire Characteristics Chart program?

The Fire Characteristics Chart program supplements BehavePlus and can be used for plotting calculated or observed surface or crown fire. It offers many options for designing a chart suitable for presentations and reports. While there is a fire characteristics chart output option in the SURFACE module of BehavePlus version 5, it is limited and can be used only for calculated surface fire behavior.

This option has been removed from version 6 because a stand-alone program is now available (Andrews et al. 2011; Heinsch et al. 2017). You can export values from BehavePlus to plot in the chart program. Only the following values can be exported.

- **HEADING only:** All values
- **BACKING only:** All values
- **Directions from FIRE PERIMETER:** Only values in direction of maximum spread or values in the direction 180° from direction of maximum spread.
- **Directions from IGNITION POINT:** Only values in direction of maximum spread or values in the direction 180° from direction of maximum spread.

The simple relationships among rate of spread, heat per unit area, and flame length described by Andrews and Rothermel (1982) are *not valid* for any other outputs. It is your responsibility to ensure assumptions of the fire characteristics chart are considered when creating BehavePlus exports.

1.11 How can I learn more about the Fire Characteristic Chart program?

The program Help system includes information on using the program. A publication that describes application, operation, and the mathematics of the fire behavior fire characteristics chart is available on our [Publications](#) page. A publication that describes similar topics for fire danger rating is available from [TreeSearch](#), an online system for sharing free, full text publications by [Research and Development](#) scientists in the US Forest Service.

1.12 How do I get values calculated in BehavePlus into the Fire Characteristics Chart program?

Values calculated in BehavePlus are entered manually into the Fire Characteristics Chart program. Users can also enter observed fire behavior values or values from other fire behavior software. If there are a large number of values, the Fire Characteristics Chart help documentation provides information on exporting values from BehavePlus version 5 and importing them into the program. We intend to update the program to enable importing values from BehavePlus version 6.

2. Getting and Installing BehavePlus

2.1 Where can I get BehavePlus?

The BehavePlus fire modeling system is available for download on the BehavePlus [Software / Manuals](#) page.

2.2 How do I install BehavePlus for the first time?

The BehavePlus file that you download is a self-installing executable file for all Windows ® operating systems. It has a name like bp6_625.msi or bp_307.exe. While BehavePlus is approved for U.S. Forest Service use, employees need to *right-click* on the file and select *Install elevated* to install this program. Others simply *double-click* to execute this file and install BehavePlus.

Some users in the Department of Interior have notices issues saving Worksheets and Runs to the folder containing BehavePlus. By default, BehavePlus installs directly on the C drive under C:/Behave. Moving the installation to an area in which you have write access, such as a workspace, should resolve the issue.

Complete instructions for installing the most recent release of BehavePlus are detailed in the Release Notice installation instructions located on the [Software / Manuals](#) page. These instructions may vary between releases, so it is important that you follow the appropriate Release Notice.

2.3 How do I re-install or upgrade BehavePlus?

The complete instructions for upgrading or re-installing BehavePlus are detailed in the Release Notice upgrade instructions located on the [Software / Manuals](#) page. These instructions may vary between releases, so it is important to follow the appropriate Release Notice.

Important Note: *Do not* remove or update BehavePlus using any method other than that described by the Release Notice. In other words, don't delete BehavePlus files or directories via Windows Explorer® or via a command prompt. These methods do not remove the old BehavePlus Windows Registry® entries, and can cause subsequent installation problems.

2.4. How do I use Runs, Worksheets, Fuel Models, Moisture Scenarios, and Units Sets developed in version 5 with version 6?

Version 5 data files, including Run, Worksheet, Fuel Model, Moisture Scenario, and Units Set files, can be read by Version 6. BehavePlus only looks in the directory in which it was installed (e.g., Version 6 will only look in the folders in the BehavePlus6 directory structure). To use previously developed worksheets, you need to copy the file or the entire folder containing relevant files from the Version 5 directory to the Version 6 directory using Windows® Explorer. You can also create a Workspace containing the old files and set that as the current Workspace by going to **Workspaces > Open Workspace**. For more information, please read the section Accessing BehavePlus Version 4 Files from Version 5 in the [Tips and Tricks](#) document.

2.5 How do I know when there is an update?

You can check the BehavePlus [Software / Manuals](#) page or subscribe to receive news items (see FAQ [2.6](#)).

2.6 How do I subscribe to the News?

On the menu at the top of www.firelab.org, navigate to **APPS & PRODUCTS > FIRE BEHAVIOR**. On the right-hand side of the page, there is a subscription box to receive email about various products developed at the RMRS, Fire, Fuel, and Smoke Sciences Program. Emails are sent regarding program releases, training updates, and other information, but generally no more than one / month.

2.7 Why did the installation program fail/stop/hang before it finished?

On the occasions that this has been reported, it has been due to an incomplete or corrupted installation program file. Check the downloaded file size against that published in the Release Notice or download the file again. If this problem continues, please contact the U.S. Forest Service Fire and Aviation Management Fire Applications Help Desk (see FAQ [1.6](#))

3. How do I ...?

3.1 How do I print the contents of a help window or any dialog box?

Right-click *just inside* the outer border of the dialog box; this brings up a menu that includes a **Print** option.

3.2 How can I capture images to use in documentation?

The most efficient way to capture images is to use the **Snipping Tool** that comes with Microsoft Windows 7 and later. Information on [using the snipping tool](#) can be found on their website. Selecting **Rectangular snip**, you can capture only the information you want.

Pages can also be captured from BehavePlus using the internal **File > Save as an image** command and then inserted into any document. In Microsoft Word, excess blank space can be trimmed by clicking on the image and using the **Crop** function from the **PICTURE TOOLS** toolbar.

3.3 How do I add a geographic place name for use in the Calendar Tool?

This requires some hands-on editing. First locate and read **INSTALLDIR/DocFolder/GeoFolder/GeoPlaceNames-FAQ**, where **INSTALLDIR** is the BehavePlus installation directory. This file, which can be opened with any text editor such as Notepad or WordPad, tells you how to add a new place name. The default installation directory is **C:/Behave/BehavePlus6**. The **GeoPlaceNames-FAQ** text file tells you how to add a new place name.

We recommend you create a copy of the **Special.geo** file and name it something such as **MyPlaces.geo**. It must have a **.geo** extension. Then edit **MyPlaces.geo** using a text editor (e.g., Notepad or Wordpad) to add your new locations. Since **MyPlaces.geo** is not part of the BehavePlus installation, it will not be removed or overwritten by new installations, so any new place names you add will not disappear with new BehavePlus updates.

4. Why doesn't something work?

4.1 Why can I enter values into the shaded (gray or blue) input fields?

The shading on input fields is merely a visual advisory that the field is not currently required given the other input values. If a fuel model with no live fuel load is selected (such as Fuel Model 1 or TL3), for example, it is not necessary to enter live fuel moisture. But the moment you select a fuel model with live fuel load (such as Fuel Model 7 or GS2), the live fuel moisture is required and its shading is removed.

When developing custom fuel models, it should not be necessary to enter live fuel heat content if there is no live fuel load. But the moment you enter a non-zero live fuel load, live fuel heat content is required and its shading is removed. However, the program requires all fields in a fuel model to be completed, whether or not they are shaded. Therefore, simply enter a typical live heat content value (such as 8000 Btu/lb) when the box is shaded. If the box is shaded, this information will not be used in the surface fire spread model. The same concept applies to the live fuel surface area-to-volume ratios.

You may enter values into input fields while they are shaded. If you do, they are tested for validity just like the values in any other input field.

4.2 Why can't I print or save the outputs of the Units Converter tool?

The hidden trick here is to right-click *just inside the outer border* of the dialog box; this brings up a menu that includes a **Print** option (see also FAQ [3.1](#)).

4.3 I created and saved a custom fuel model (or moisture scenario) and used it in a Run that I also saved. But, when I reopen the Run file, I get an Invalid Input error message saying the custom fuel model is an unknown choice.

Custom fuel models and moisture scenarios must be attached to the BehavePlus session before they can be used in calculations. That is, you must tell BehavePlus where to find it since:

- you could have saved it any of the fuel model subdirectories, and
- there could be several custom fuel models with the same name stored in different directories (e.g., there are probably hundreds of versions of fuel model *14* floating around out there).

BehavePlus has no way of knowing which one to use until you *attach the folder* where you saved it. To attach the fuel model (or moisture scenario), select **Configure > Fuel model set selection** (or **Configure > Moisture scenario set selection**) from the main menu. Highlight the **FOLDER** in which the custom models reside and press **Ok**. This attaches all the custom models in that folder to the BehavePlus run.

Note: Any folders that are *not* highlighted will not have their fuel models attached!

4.4 Why do the results of my Run disappear after I save and then later reopen it?

BehavePlus does not save Run results. It does save Run inputs and Worksheet configuration (such as module selection, input options, output variables, units of measure). Saving results would significantly increase the size and complexity of saved run files, which was an important consideration when BehavePlus was first created. Results are always easily recreated by pressing the **Calculate** button after opening the run.