

Change Log

FlamMap 6.2, Build Date November 14, 2023

Improvements

1. New Contouring Routine

- Contouring Algorithm has been modified to use GDAL.
 - Uses GDAL Contour and Contour Polygon routines.
 - Contours of MTT Arrival Times when selected as run output uses GDAL Contour Polygon function for contouring.
 - User can produce contours as lines or polygons.
- Updated contouring dialog window

2. Fuel Moisture

- Fuel Moisture files now have data ranges checked when saving and inspecting in the FMS file editor.
- Set Ranges in FMS files and bounds/data range checks when checking file.
 - 1-hr, 10-hr, 100-hr fuel moistures (2- 30%), 1000-hr fuel moisture (2-40%)
 - Live Herbaceous (30% - 250%)
 - Live Woody (60% - 200%)

3. Weather Stream files

- Weather Stream files (.WXS) fields are range checked when user saves the file. Ranges are same as current FW21 valid ranges, and if data is metric appropriate conversions are made for range checks.
- Current FW21 bounds (bounds are inclusive of listed values):
 - Temperature -76, 140 (-60C, 60C)
 - RH 1, 100
 - Hourly Precipitation 0.000, 20.000 (0.000, 508.000 mm)
 - Wind Speed 0, 99 (0, 159 kph)
 - Wind Direction 0, 360
 - Cloud Cover 0, 100
 - For Time, it checks for non-sequential records, then spans greater than 3 hours.

4. Get Landscape Changes:

- After entering final landscape extent coordinates in the Get Landscape Dialog map is fit so the new rectangle is centered and zoomed to on the map.
- Added JavaScript that, upon hitting "Load History" in History dialog, any rectangles are cleared and a new one is created at the bounds for the selected area and map is fit so the new rectangle is centered and zoomed to on the map.
- Updated available LANDIFRE Data sources to include LF 2022, version 2.3.0 for CONUS and Alaska

5. Spatial FOFEM

- Updated Spatial FOFEM FCCS Fuel bed information.

6. Help System

- Updated Help File Development to Robo Help Version 22.3.93
- Updated online Help File System to Version #214
- Added Tutorials for using Spatial FOFEM

FlamMap 6.2, Build Date June 12, 2023

Improvements

1. Modifications to FlamMap Help System.

- Created two new Spatial FOFEM tutorials and integrated into the Help system. Revised Help for updated WindNinja code and new 1000-hour moisture initialization

2. Landscape Critique

- Add Projection Information section.
- Added north alignment convergence angle information.

3. Fuel Moisture (FMS) Files

- Allow for inclusion of 1000 hour moistures to FMS file for initialization.
- Maintain backward compatibility with FMS files lacking 1000-hour moistures.
- Modification into FlamMap6, FlamMap DLL, and *FARSITE* DLL.
- Improve error checking for out-of-range values of FMS files.

4. GDAL

- Updated Wind Ninja to use GDAL 3.6.3
- Update all fire behavior and Spatial FOFEM libraries to use GDAL 3.6.3
- Update FlamMap6 to use GDAL 3.6.3 for GIS support.

5. Wind Ninja

- Remove outdated WindNinja2 code and updated Wind Ninja Code compatible with Wind Ninja ver 3.9
- Develop new FlamMap library code to run Wind Ninja (single instance).
- Develop new *FARSITE* library code to run Wind Ninja (multiple instances).
- Modify FlamMap Run inputs to fit new Wind Ninja parameters.
- Modify FlamMap Run Wind Ninja inputs screen to fit new Wind Ninja parameters.
- Added Wind Ninja for using Diurnal settings for all runs.
 - Updated XML output metadata when using diurnal settings.
 - Temperature and Cloud Cover for each hour
 - Ensure propagated to .aux.xml files
- Modify *FARSITE* Progress to return text of run state.

Bugs Repaired

- Repair *FARSITE* Spread Vectors and *FARSITE* Wind Vectors. Not stored correctly in FlamMap project files.
- Repair GeoTIFF landscape longitude calculation due to GDAL 3.x coordinate order switch.
- Repair PAM (.xml) data for Generated *FARSITE* Wind Grids: Missing ">" caused invalid display in browsers. Internal Repair of resource file locations in source code tree.
- Add FillFrequencies() function to LegendCreatorDialog() when applying a predefined legend or adding or deleting rows.
- Repair Defaults.cfg that had extra thick, black lines for temperature on WXS graph, and black for "unused" data records color. Update Tutorial data for install.
- Update GetLandscape.xml.
- Repair memory leak with fire behavior library use of WindNinja

- Repair WindNinja not selecting time zone when it should.

FlamMap 6.2, Build date of November 7, 2022

Improvements added

1. Removed LANDFIRE Data Version 2.1.0 from the available data list within the GetLandscape Utility. LANDFIRE has removed this version of the data for download.
2. Landscape critiques (pdf and html versions) now include projection information for the landscape when available. Also added a calculated Convergence Angle for the landscape so the user knows how rotated from a top north alignment the landscape is.
3. Updated the included Tutorial Data. All landscape files are now in GeoTiff file formats.

Bugs Repaired

1. Repaired issue with Fuel Model legend properties. Deleting ranges of fuel models was not functioning properly and frequency counts of remaining fuel model numbers were not properly updating.
2. Repaired landscape critique output summaries as it was reporting summaries for fuel model 0 and summaries for fuel models of -9999.

FlamMap 6.2, Build date of August 2, 2022

Bugs Repaired

1. Repaired additional overlap issues when using gridded winds developed using WindNinja desktop.
2. WindVector shapefile themes are reprojected if necessary when added as an Auxiliary data theme.

FlamMap 6.2, Build date of July 14, 2022

Improvements added

4. Updated the available LANDFIRE data sources in the Get Landscape Tool

Bugs Repaired

1. Repaired overlap issues when using gridded winds developed using WindNinja desktop.

FlamMap 6.2, Build date of June 20, 2022

Improvements added

1. Updates were made to bring the FlamMap Help system up to date.
 - Updated Tutorials to bring images and descriptions up to date with current FlamMap dialog boxes and data entry
 - Added additional topics covering
 - SpatialFOFEM
 - Get Landscape Tool
 - Updated existing topics, to bring images and descriptions up to date with current FlamMap dialog boxes and data entry

- Removed deprecated and out of date information such as use of individual wind and weather files.
2. Get Landscape Utility for the creation and extraction of LANDFIRE based landscape files,
 3. Spatial version of the First Order Fire Effects Model (FOFEM),

FlamMap 6.1.0.13, Build date of April 15, 2021

Improvements added

1. Updates were made to bring the FlamMap Help system up to date.
 - Updated Tutorials to bring images and descriptions up to date with current FlamMap dialog boxes and data entry
 - Added additional topics
 - Updated existing topics, to bring images and descriptions up to date with current FlamMap dialog boxes and data entry
 - Removed deprecated and out of date information such as use of individual wind and weather files.
2. Added auxiliary xml files for metadata capture for all saved/exported FlamMap raster output in GeoTiff or ASCII file formats.
3. Added additional color ramps for use in Legend Properties for display purposes.
4. Added additional predefined legends for use with wind vector displays, raster wind speed grids, rate of spread, and flame length output.

Bugs Repaired

1. Wind Vectors
 - Repair minor layout issues on FlamMap Run Inputs page
 - Repair layer value unit translation for KMZ files
 - Repair of use and conversion of input metric wind speeds in both FlamMap and Farsite
 - Change Farsite Wind Vector source grids output to floating point values
 - Repair processing of Wind Vector units in Wind Vector legend creation dialog
 - Repair use of predefined legends in Wind Vector legend creation dialog
 - Repair display of Wind Vector values, ensuring correct units used
 - Repair shapefile output of Wind Vectors
2. Repair Properties for Spread Vectors displaying Spot Vectors.
3. Change all metric velocity units from k to km.
4. Repair displaying of FlamMap Spread Vectors over non-burnable fuels.

FlamMap 6.1.0.9, Build date of February 2, 2021

Improvements added

1. Measure Tool added which allows for the measuring of distance and of area of polygons in commonly used units.

2. For all FlamMap model runs added and allowed for more variety of English and metric units for wind speed entries.
3. Added more options for editing of the weather stream file (.wxs)

Bugs Repaired

1. Errors in copying last day of records in WXS Editor. Append day was assuming hourly data, repaired to check record dates
2. Projections for from exported shapefiles and ascii grids not recognized in ARCMAP/ ESRI Products
 - Repair code that generates projections instead of just passing through the source projection. Added support files for projections in GDAL
3. Repaired MTT geometry which would occasionally create single point lines, causing invalid geometry errors with exported Major Pathways shapefiles.
4. Repaired Generate Landscape program crash when certain data theme layers were set to constant values.
5. Repaired positive values for Fireline Intensity inside MTT ignition.
6. Repaired Point Attributes dialog Tabs not updated after changing name of Run(s).
7. Repaired Mislabeled fuel model 93, labelled as Snow or Ice, changed to 'agriculture'

FlamMap 6.1, Build date of August 3, 2020

Improvements added with version 6.1

1. Weather (.WTR) and Wind (.WND) files no longer supported. Only hourly Weather Stream (.WXS) Files can now be used to load weather data in a FlamMap run or Farsite Simulation. When loading legacy projects or archives with Weather (.WTR) and Wind(.WND) files users are asked if they would like to have a new Weather Stream (.WXS) created based on the deprecated file types. Additionally, there is a new Utilities > WTR and WND to WXS command to convert Weather (.WTR) and Wind (.WND) files to the Weather Stream (.WXS) File format.
2. New tools to edit and graph weather and a reworked Weather Stream Editor function.
 - Displays dead fuel moisture conditioning times& Farsite burn periods,
 - Dead fuel moisture conditioning times & Farsite burn periods can be edited in the Weather Stream Editor,
 - Option to graph weather stream,
 - Rule based editor to make mass changes to selected observations or entire weather stream,

- ability to insert or append observations or entire days to the weather stream.

3. GeoTIFFs now supported when generating landscapes

- Single band GeoTIFF (.TIF) Files can now be used for generating a new landscape. Regardless of the format of the source themes (GeoTIFF or ASCII Grid) the resulting landscape can be saved in either GeoTIFF (.TIF) or Landscape (.LCP) file format.
- Class units for aspect and canopy cover themes is no longer supported when generating a landscape, only degrees and percent respectively.

FlamMap version 6.0 Version 6.0.0, Build Date of September 18, 2019.

1. Added previous view/extent buttons. These buttons allow the user to toggle back and forth from previous view extents within an active FlamMap project in the Map Display. They can be accessed from the toolbar or the Main Menu View selection.

FlamMap version 6.0 Version 6.0.0, Build Date of June 28, 2019.

1. FlamMap 6.0 is only useable in a Windows 64-bit Operating System.

2. Addresses previously identified bugs and operational issues in FlamMap 5.0.

3. FARSITE4 has been added into FlamMap6.

- Similar to NTFB in WFDSS with some added functionality
- Includes the ability to use WindNinja internally within FARSITE
- Includes the ability to import external WindNinja derived grids for use within FARSITE
- Improvements to the spotting module have been made to increase performance
- Import/Use information from NTFB WFDSS to setup FARSITE run in FlamMap

4. Redesigned Runs Options

- FlamMap/MTT/TOM Run
- FARSITE Run
- Import of FlamMap run logs or WFDSS Inputs files and data (BASIC, STFB, NTFB)

5. Addition of a Landscape File Editing Function.

- Use masks to control application of rules and can be either Raster or Vector format
- Save rules as an XML file
- Import rules XML File
- Test Rules to see the number of impacted cells on the landscape
- Apply Rules allows you to see the change on the landscape

- Reset landscape to clear out the applied rules
- For rules to take effect all rules need to be applied and a new landscape file saved
- Saved landscape needs to be loaded into a new FlamMap project to conduct analyses

6. The Creation of Shapefiles and Drawing vectors and saving as shapefiles has been improved to eliminate the confusion of creating different shapefile types.

7. All runs within FlamMap create a Run Log File specific to that run

- Can import Run Log Files from Previous FlamMap runs
- FlamMap generate Run Logs can be used to initialize new runs
- Can Import WFDSS inputs text files to initialize a FlamMap/MTT or FARSITE run

8. Updated Help File

9. Updated Tutorials

FlamMap version 5.0 – With the release of FlamMap6, FlamMap5 will no longer be supported or available for download.

The installation files are "zipped" and must be unzipped prior to installation.

FlamMap runs under Microsoft® Windows operating systems and features a graphical user interface. Users may need the support of a geographic information system (GIS) analyst to use FlamMap because it requires spatial coincident landscape raster information to run.

FlamMap version 5.0

The FlamMap fire mapping and analysis system was first available to the field with version 2.0 in 2003. Version 3.0 was released in 2006 and Version 5.0 in 2012. Version 4.0 was never released. Each version update has offered additional features and fire modeling capabilities. The current version of the program in Version 5.0.3, released on November 2, 2016. The most significant changes are provided here.

- Version 5.0.3, Build Date of November 2, 2016.
 - Repaired bug in burn probabilities calculations.
 - Addressed an error in how spatial files containing map projection information were handled.
 - Repair error in LCP generation and reading that could lead to grid offsets in MTT outputs.
 - Repair FlamMap archive (fza) versioning bug that could cause failures on opening archives with Wind Ninja output grids and WXS files.
 - Repair error in reading custom fuels file (.FMD) if no newline and end of last record.

- Apply similar repair regarding no newline and end of last record fix to all text files read by FlamMap.
- Repair MTT outputs offset issue when using an Analysis Area that is a subset of entire landscape.
- Repair fuel moisture conditioning bug when Canopy Cover is NODATA but Elevation, Slope, Aspect, and Fuel model exist for a given cell.
- Investigate potential of code signing FlamMap5 to avoid MS Windows warning messages.
- Modify installation package so that it no longer requires the user to uninstall previously installed FlamMap5 software. New MSI file will overwrite existing FlamMap program files but will not remove data or projects.
- Updated Flame Length Probability (FLP) output files with standardized bins to match similar output from other modeling systems for English FLP files. Repair crashing bug with new FLP classes.
- Repair offset caused by decimal places on Landscape boundaries, both in LCP creation and reading existing LCP files.
- Added Crown Fraction Burned as a raster output.
- Updated Help File is installed with this version of FlamMap. Help file is now Version 39 October, 24, 2016.
- Version 5.0.1.10 has addressed the following issue (March 25, 2015).
 - File saving and archiving which caused the program to crash when extracting and saving a FlamMap archive file built with version 5.0.1.9.
- Version 5.0.1.9 has added the following functionality (March 2, 2015).
 - An updated content sensitive Help File.
 - Incorporates spotting from torching trees.
 - Incorporates gridded wind information from the WindNinja program.
 - All outputs and landscapes can be exported as bundled KMZ files for use in GoogleEarth.
 - Ability to clip larger landscape files and save them in the standard LCP or GeoTIFF formats.
 - FlamMap now supports the Weather Stream (.WXS) File format.
 - Landscape Critique has been included allowing the user to generate a report summarizing landscape characteristics in either a text format (without graphics) or in an Adobe PDF format (with graphics).

- Barriers can now be incorporated into MTT analysis. Barriers can be added from existing shapefiles or created interactively in FlamMap and saved as a shapefile. Barriers can be either filled or unfilled.
- Version 5.0.1.3, several issues were addressed, December 19, 2012.
 - Changes were made in how MTT Major Paths are calculated.
 - Addressed issues with how custom fuel models used fuel moisture files.
 - Addressed an issue with line ignitions.
- Version 5.0.1.2, a fix for fuel moisture conditioning period and landscape files containing custom fuel models, October 26, 2012.
- Version 5.0.1.1, a fix for gridded winds used in calculating burn probabilities, August 9, 2012.
- Version 5.0.1, a fix for gridded winds generated by WindWizard, July 24, 2012.
- Version 5.0.0, formal release, July 18, 2012.
 - Addresses known bugs in FlamMap3.
 - Available in both 32-bit and 64-bit operating system types.
 - WindNinja is embedded in the program, allowing for the inclusion of gridded wind fields in all analyses.
 - Spotting is included and accounted for in the Minimum Travel Time (MTT) calculations.
 - Barrier files can be incorporated into MTT analyses.
 - Burn probability analysis now includes outputs of individual fire perimeters, text files with information on individual fire size and locations, and flame length probabilities in a variety of categories. Additionally, ignitions can either be random or provided by the user.

FlamMap version 3.0

- Version 3.0.0, formal release, March 20, 2006.
 - Minimum Travel Time fire growth and Treatment Optimization methods added.
 - Supports the Scott & Burgan fuel models.

FlamMap version 2.0

- Version 2.0.0, formal release, May 19, 2004.
 - Three-D view, predefined legends, and color ramps added.
 - All unit conversion bugs and legend issues have been resolved.
- Version 2 Beta 3.0.1, August 13, 2003

- Landscape (.LCP) File generation utility incorporated into FlamMap.
 - Released as Beta 3 to solicit user feedback, check computational integrity, and test for bugs.
- Version 2 Beta 1.0.0, February 21, 2003
 - All main features for display and analysis incorporated into FlamMap.
 - FlamMap released as Beta 1 to solicit user feedback, check computational integrity, and test for bugs.