PHOENIX RapidFire

OPERATIONAL TECHNICAL NOTE 4

Relates to PHOENIX RapidFire Version: 4.3
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RELEASE OF VERSION 4.3 WITH ASSOCIATED FIXES AND ENHANCEMENTS

Fire Prediction Services

PHOENIX RapidFire

Introduction

Version 4.3 of PHOENIX is available with the following fixes and enhancements:

- **Linux support:** A Command Line distribution which can run on Linux and Mac as well as Windows.
- **Fix for Issue 59:** where the 'Y' coordinate in the exported shape file for the ignition grid was wrongly set to be a copy of the 'X' coordinate.
- **Fix for Issue 58:** that sometimes caused the simulator to crash when calculating solar radiation.
- **Fix for Issue 55:** that sometimes resulted in the incorrect determination of which weather stream to use for convection column calculations when using non-gridded weather.
- **JSON Output:** Contains support for a new JSON output when embedding the PHOENIX DLL directly.

Background

Version 4.3 of PHOENIX has been developed progressively through 2020 in response to requests and issues identified by the PHOENIX user base. This technical note summarises the recent changes that are now part of release 4.3.

The Photon testing of version 4.3 – comparing the Desktop and CLI versions of 4.3 with version 4.2 – is available **here**. It demonstrates that there has been no change in the simulator between version 4.3 and 4.2.

Technical Notes

Linux support

Version 4.3 includes a Command Line distribution that is Mono compatible, meaning it can be run on any Linux or Mac environment in which Mono has been installed.

To utilise the command line distribution: download it, unpack it, and execute 'PhoenixCLI.exe' with the name of the PHOENIX project file.

Version 4.3 has been tested on both Mac and Linux using Mono version 6.12.0.107. It contains no changes to the simulator logic when compared to version 4.2.

Fix for Issue 59

When using the 'Export Ignition Point Shapefile' feature, PHOENIX 4.2 would produce an invalid shape file in which each ignition point had the X and Y values both set to the same number, being the X value from PHOENIX. Version 4.3 correctly sets the Y value for each ignition point.

Fix for Issue 58

This issue sometimes caused the simulator to crash when calculating solar radiation. When this occurred, no result or output was produced by PHOENIX. The error was very infrequent and produced the following error message:

> Error occurred stepping fire : <number> - Error calculating Solar radiation :
> Index was out of range. Must be non-negative and less than the size of the collection.
> Parameter name: index

The fix for this bug has not resulting in changes to the output of any simulations and has no effect on the Photon outputs.

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Fix for Issue 55

Issue 55 sometimes caused the incorrect determination of which weather stream to use for convection column calculations when using non-gridded weather.

The error only manifested when the simulation contained multiple initial fires and the initial fires had different weather streams. The error could cause the convection column calculations to select a weather stream from a fire that was not the necessarily the closest to the convection column.

The fixing of this bug has no effect on Photon outputs, as these cases were run with gridded weather. However, users that use non-gridded weather are encouraged to test this change.

JSON Output

Support for a new 'JSON' output format has been added. This is currently only available when embedding PHOENIX as a headless processing pipeline. It is not accessible from the user interface.

Further Information

For further information please contact Fire Prediction Services on firepredictions@afac.com.au. PHOENIX versions are available through your PHOENIX licensee.