

## NEXUS News

Last Updated Saturday, 01 October 2005

### New for NEXUS 2.0

The most obvious and important change is the switch to a stand-alone program from the original spreadsheet. The spreadsheet had a few advantages for advanced users, such as the ability for end-users to modify the program for custom analyses. Of course, that can also be a significant disadvantage.

Here are some of the changes we made to NEXUS:

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Fuel models -- NEXUS 2.0 uses both the original set of 13 standard fire behavior fuel models as well as a comprehensive new set of standard fuel models recently developed by Scott and Burgan (in press). In addition to the printed fuel model documentation, Scott and Burgan have developed a "help file" to facilitate transition to the new fuel model set. The editorial draft GTR is available from the download page.

We also support user-defined custom fuel models. Fuel model selection is now done with a custom dialog box that displays a representative photo of each fuel model, including custom fuel models if the user supplies a digital image.

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Simulation types -- NEXUS now supports shrub-canopy fire simulations in addition to simple surface fire and conifer crown fire simulations.

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Dead fuel moisture -- The FBA tables for estimating fine dead fuel moisture for fire behavior prediction are now included in NEXUS as an optional "wizard".

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Output Table and Chart -- The former output table and chart always displayed the chosen output over a range of open wind speed. The new table can show the output over a wide range of input variables. Also, a second input variable, called a "page variable" can be specified -- the different values of the page variable update the whole table or chart.

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Crown Fire Hazard Chart -- The "page input" variable is used here; you can judge the effect of changes in an input variable by viewing the instantly updated changes on the chart. Toggle switches allow the plotting of the Torching and Crowning Indices and Final Spread Rate on the chart.

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Fire Characteristics Chart -- We present a fire characteristics chart with user-selectable reference lines (flame length or fireline intensity). Threshold values for crown fire initiation and sustained crown fire spread are plotted; these lines divide the chart into regions of surface, passive, active and conditional crown fire types. Fire characteristics are plotted over a range of 20-ft windspeeds.

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Screen Capture -- All charts can be captured in .jpg or .png (portable network graphics) format for pasting into other documents.

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Save Table Data -- Data in the Table can be saved to a text file for importing to another program for graphing or analysis.

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Dynamic fuel models -- NEXUS 2.0 supports the new dynamic fuel model format for transferring live herbaceous load to dead as a function of live herbaceous moisture content.

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Batch mode -- NEXUS 2.0 can be used in batch mode to generate tens of thousands of runs in seconds.