

Computer Models For Fire and Smoke

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| <i>Model Name:</i> | Consume |
| <i>Version:</i> | 3.0 |
| <i>Date:</i> | February 13, 2014 |
| <i>Model Actively Supported?:</i> | No |
| <i>Classification:</i> | |
| <i>Very Short Description:</i> | Consume 3.0 is a decision-making tool designed to assist planning for prescribed burns and wildfires using realistic fuels data. Consume predicts fuel consumption, pollutant emissions, and heat release based on input fuel characteristics, lighting patterns, fuel moistures and other environmental variables. |
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| <i>User's Guide:</i> | www.fs.fed.us/pnw/fera/research/smoke/consume/consume30_users_guide.pdf |
| <i>Technical References:</i> | See User's Guide. |
| <i>Validation References:</i> | None. |
| <i>Availability:</i> | http://www.fs.fed.us/pnw/fera/research/smoke/consume/consume_download.shtml |
| <i>Price:</i> | Free. |
| <i>Necessary Hardware:</i> | None. |

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| <i>Computer Language:</i> | Java and C ++. Software requirements include .NET v 1.1 and Visual J# v 1.1 |
| <i>Size:</i> | 23.2 MB |
| <i>Contact Information:</i> | Ellen Eberhardt, eeberhardt@fs.fed.us |
| <i>Detailed Description:</i> | <p>Fuel consumption is an important variable in fire effects modeling. An understanding of fuel consumption is needed to assess when and how fire should be applied to meet site and landscape objectives and also reduce air quality impacts. Land managers apply prescribed fire and manage wildfires to maintain and restore ecosystems, reduce fuel loadings, expose mineral soil, improve wildlife habitat, and reduce the hazard of wildfire.</p> <p>Because Consume captures the inherent complexity of wildland fuels through a close interface with the Fuel Characteristics Classification System, specific fuel strata or categories can be targeted for prescription, or noted as a potential source of pollutant emissions, depending on the burn scenario.</p> <p>For example, a fuelbed with a developed organic soil layer (termed "duff" in Consume) may create a significant emissions source if burned under low duff moisture conditions. By evaluating a range of potential burn scenarios, resource managers can target a suitable prescription window and determine when and where to conduct a prescribed burn or plan for a wildland fire to achieve desired objectives, while reducing the effect on other resources.</p> <p>Consume is applicable to most wildland fires in forests, shrubs, woodlands, and grasslands in North America. Consume includes separate equations for calculating consumption of activity and natural fuels.</p> |