# Consume Command Line Instructions

The Consume calculator module is contained in the Fuel and Fire Tools application and can be used to calculate results for lists of FCCS fuelbeds.

1. Open a command prompt. In Windows, you can type "**cmd**" in the search box of the Start menu, and a command prompt will open.

2. Change directories to the Consume calculator folder:
   - `cd c:\FuelFireTools\Consume_4`

3. Launch the calculator to get basic usage instructions.
   - `python consume_batch.py`

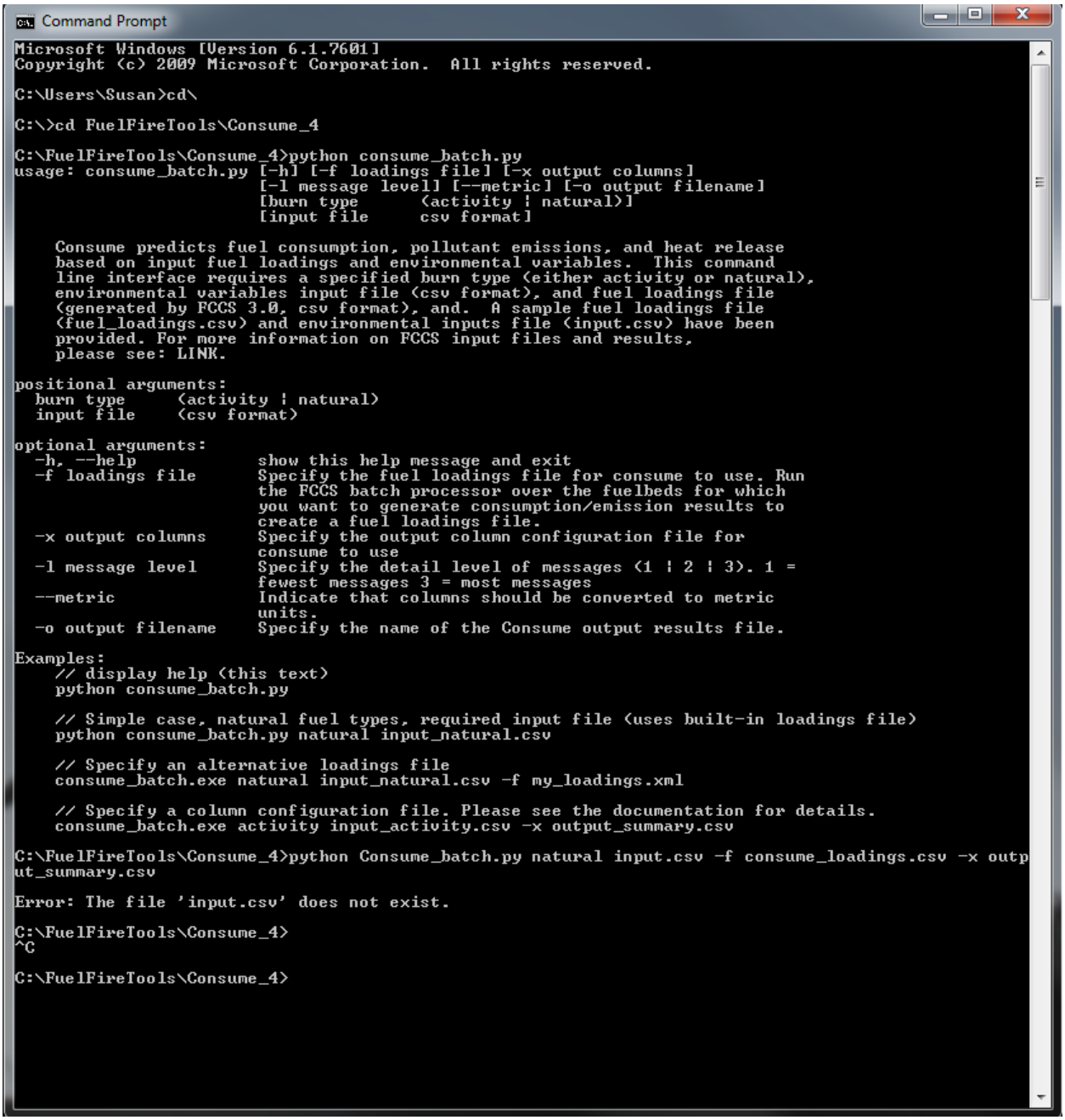
   *Note – FFT comes with the required version of python. You can specify it directly by typing in the path "c:\FuelFireTools\bin\python.exe" in place of "python" above.*

4. To run the Consume python calculator, you must already have a loadings file (consume_loadings.csv). This is an FCCS output file that is generated whenever the FCCS calculator is run and is written to FuelFireTools\FCCS_3 if you use the command line version of FCCS. It would probably be easiest to copy the consume_loadings.csv file to FuelFireTools\Consume_4.

   You are also required to specify the following:
   - Equation type (activity or natural)
   - Environmental inputs file (e.g., sample_consume_input.csv). *Note: each fuelbed has to have a corresponding input line.*
   - Consume loadings file (e.g., consume_loadings.csv file – an FCCS 3.0 output)
   - Optional output file format (e.g., output_summary.csv, output_stratum.csv, or output_stratum_combustionphase.csv)

   Examples:
   - `C:\FuelFireTools\bin\python.exe Consume_batch.py natural sample_natural_input.csv –f consume_loadings.csv –x output_summary.csv`

   - `C:\FuelFireTools\bin\python.exe Consume_batch.py activity sample_activity_input.csv –f consume_loadings.csv –x output_summary.csv`


Command Prompt
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation.  All rights reserved.
C:\Users\Susan>cd\
C:\>cd FuelFireTools\Consume_4
C:\FuelFireTools\Consume_4>python consume_batch.py
usage: consume_batch.py [-h] [-f loadings file] [-x output columns]
[-l message level] [--metric] [-o output filename]
[burn type (activity | natural)]
[input file csv format]
Consume predicts fuel consumption, pollutant emissions, and heat release
based on input fuel loadings and environmental variables. This command
line interface requires a specified burn type (either activity or natural),
environmental variables input file (csv format), and fuel loadings file
(generated by FCCS 3.0, csv format), and. A sample fuel loadings file
(fuel_loadings.csv) and environmental inputs file (input.csv) have been
provided. For more information on FCCS input files and results,
please see: LINK.
positional arguments:
burn type (activity | natural)
input file (csv format)
optional arguments:
-h, --help show this help message and exit
-f loadings file Specify the fuel loadings file for consume to use. Run
the FCCS batch processor over the fuelbeds for which
you want to generate consumption/emission results to
create a fuel loadings file.
-x output columns Specify the output column configuration file for
consume to use
-l message level Specify the detail level of messages (1 | 2 | 3). 1 =
fewest messages 3 = most messages
--metric Indicate that columns should be converted to metric
units.
-o output filename Specify the name of the Consume output results file.
Examples:
// display help (this text)
python consume_batch.py
// Simple case, natural fuel types, required input file (uses built-in loadings file)
python consume_batch.py natural input_natural.csv
// Specify an alternative loadings file
consume_batch.exe natural input_natural.csv -f my_loadings.xml
// Specify a column configuration file. Please see the documentation for details.
consume_batch.exe activity input_activity.csv -x output_summary.csv
C:\FuelFireTools\Consume_4>python Consume_batch.py natural input.csv -f consume_loadings.csv -x outp
ut_summary.csv
Error: The file 'input.csv' does not exist.
C:\FuelFireTools\Consume_4>
^C
C:\FuelFireTools\Consume_4>

| Variable | | Definitions |
|---|---|---|
| Burn type | Activity or natural | Activity refers to a burn in recent logging slash and Natural refers to a burn in natural fuels that have not been influenced by recent logging or other disturbances (e.g., wind throw) |
| Environmental input file | Input.csv | The environmental input file specifies environmental varialbles listed in the table below for each fuelbed listed in the consume_loadings.csv file. |
| Consume loadings file | Consume_loadings.csv | Consume loadings by fuelbed stratum. This file is a standard output of FCCS 3.0 calculations (either batch or within the FFT). |

**Environmental input file (sample natural inputs)**

| Variable | |
|---|---|
| Fuelbeds | Fuelbed ID (one per row) |
| Shrub_black_pct | Percent of shrub stratum blackened by fire |
| Pile_black_pct | Percent consumption of piles |
| Can_con_pct | Percent of canopy stratum blackened by fire |
| FM_1000hr | Fuel moisture of 1000-hr fuels (e.g., 3-9 inch and greater in diameter) |
| Fm_duff | Fuel moisture of duff layers |
| Area | Unit size (acres) |
| Units | Specified output units (e.g., tons or tons per acre) |
| Equation type | Region applicable to natural burn types including boreal, southern, or western |
| Units | Tons or Mg/ha |

In this example, the first 10 reference fuelbeds are used:

| area | fm_duff | fm_1000hr | can_con_pct | shrub_black_pct | pile_black_pct | fuelbeds | units | ecoregion |
|---|---|---|---|---|---|---|---|---|
| 100 | 80 | 50 | 90 | 80 | 90 | 0 | tons | western |
| 100 | 80 | 50 | 90 | 80 | 90 | 1 | tons | western |
| 100 | 80 | 50 | 90 | 80 | 90 | 2 | tons | western |
| 100 | 80 | 50 | 90 | 80 | 90 | 3 | tons | western |
| 100 | 80 | 50 | 90 | 80 | 90 | 4 | tons | western |
| 100 | 80 | 50 | 90 | 80 | 90 | 5 | tons | western |
| 100 | 80 | 50 | 90 | 80 | 90 | 6 | tons | western |
| 100 | 80 | 50 | 90 | 80 | 0 | 7 | tons | western |
| 100 | 80 | 50 | 90 | 80 | 90 | 8 | tons | western |
| 100 | 80 | 50 | 90 | 80 | 90 | 9 | tons | western |
| 100 | 80 | 50 | 90 | 80 | 90 | 10 | tons | western |

**Environmental input file (sample activity inputs)**

| Variable | Definition |
|---|---|
| Area | Area in acres |
| fm_duff | Fuel moisture of duff layers |
| fm_1000hr | Fuel moisture of 1000-hr downed wood |
| Can_con_pct | Percent of canopy stratum blackened by fire |
| Shrub_black_pct | Percent of shrub stratum blackened by fire |
| Pile_black_pct | Percent consumption of piles |
| Fuelbeds | Fuelbed ID |
| Units | Tons |
| Ecoregion | Boreal, Southern, Western |
| Slope | Slope gradient (%) |
| Windspeed | Windspeed (mph) |
| Days_since_rain | Number of days since significant rainfall (> ¼ inch) |
| Length_of_ignition | Minutes to ignite burn unit. |
| Fm_type | Type of fuel moisture (MEAS_Th or NFDRS) |