MATLAB vs. WFA

By: Jeremy Benik

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This document will cover the underlying equation in both the matlab code (fire _ros.m and the WFA c++ code. To create a baseline test, I will be using the same example throughout the codes. Using the Albini codes, I will use fuel category 1 (short grass) with a dead fuel moisture of 3%, and no wind and no slope for simplification. Then after this test I will include slope and wind conditions to further analyze the models to check for any differences. Please note, my knowledge of c++ is very limited so going through some of these calculations may seem unnecessary at first but they are necessary for me to understand the code.

1 MATLAB

The code I'm going to use is fire_ros.m from WRF-SFIRE. I will be going through each calculation, explaining each calculation, and seeing what the value is.

1.0.1 Starting the analysis

$$y = mx + b \tag{1}$$