Demonstration of fire behavior modeling for Activity H10.
Pick a day that you’re going to analyze. This example uses August 26. We marked Aug. 26 with a vertical line on each graph.

The Incident Command Team’s narrative says that, on that day, “Fire activity has moderated today. However, the potential remains for spotting and significant runs.” Although the Team’s report sounds optimistic, the lower right graph shows a nearly 5000 acre increase in area that day. Some of that area may be from backfiring or burning out. So... how might fire spread have been different with greater wind speeds?
Vertical lines mark the weather reported from Carpenter Ridge on Aug. 26.
Write down the maximum temperature (~85 deg F) and minimum relative humidity (~8%) on Aug. 26. You will need them to calculate fire spread and flame length.
Look at the graph of average wind speed (lower left). While the average wind speed (average of the 10 minutes before reporting time, which was probably around 1 pm) was 4 mph, we’re going to use 5 mph because that will make the subsequent graphs easier to interpret – and surely there were sustained periods during that day when the wind was a little stronger than 4 mph. Write down “5 mph” to calculate fire spread.
Vertical lines mark the fuel moistures reported from Carpenter Ridge on Aug. 26.  
1-hour fuels were recorded as having 2.5% moisture content, 1000-hour fuels were recorded as having 5.5% moisture content.
We can calculate the fine dead fuel moisture for Aug 26 weather by using the temperature (85 deg F) and relative humidity (8%). It comes out to 2% (Carpenter Ridge reported about 2.5% - you can use either for the model). Vertical lines on the 2 graphs show the 2% dead fuel moisture line. Horizontal lines mark the predicted rate of spread (left) and flame length (right) for 5 mph winds and 10 mph winds.... For areas dominated by grassy fuels.
The fine dead fuel moisture for Aug 26 based on temperature and relative humidity in heavy timber comes out to 5% (again, 85 deg F and 8% relative humidity). Vertical lines on the 2 graphs show the 5% dead fuel moisture line. Horizontal lines mark the predicted rate of spread (left) and flame length (right) for 4 mph winds and 8 mph winds.... for surface fire in areas dominated by timber.
Here are results. BIG difference between the 2 fuel models! This will help answer the question, “What might the fire have done if weather had been different?”