


S491 Refresher Job Aid: Interpreting Stats Graphs

Introduction

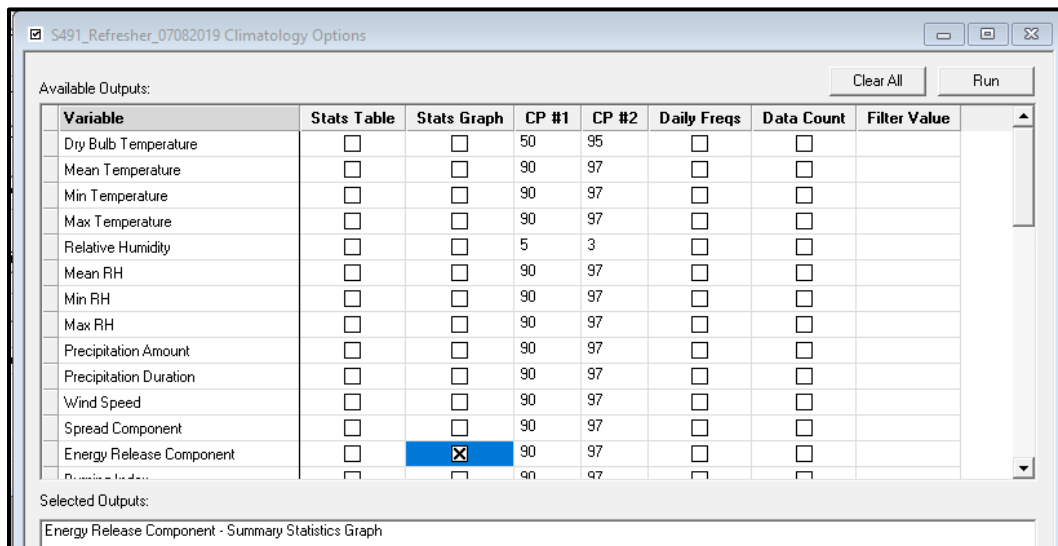
FireFamilyPlus graphs allow you to view both fire and weather data. Stats Graphs are used to evaluate weather data, fuel moisture values, and fire danger outputs. Overlays can be added to Stats Graphs to highlight up to three years of interest. You can compare current values to historical ones or examine conditions during years of special significance. FireFamilyPlus provides the ability to overlay fires on Stats Graphs to see the seasonal relationship between fire activity and fire danger outputs. Percentile Graphs put these values in perspective, telling you, for example, the value of the output at the 90th percentile or the percentile value when the ERC-Y is 37. This Job Aid introduces the different graphs and their interpretation.

Statistical Graphs

- Statistical Graphs, or Stats Graphs, are generated by selecting **Weather > Climatology** or  from the main menu.

Selecting Variables

Select variables in the **Climatology Options** screen by checking boxes to create a Stats Table, Stats Graph, Daily Freqs, or Data Count (Figure 1). In this example, the Stats Graph for Energy Release Component (ERC) has been selected.



Variable	Stats Table	Stats Graph	CP #1	CP #2	Daily Freqs	Data Count	Filter Value
Dry Bulb Temperature	<input type="checkbox"/>	<input type="checkbox"/>	50	95	<input type="checkbox"/>	<input type="checkbox"/>	
Mean Temperature	<input type="checkbox"/>	<input type="checkbox"/>	90	97	<input type="checkbox"/>	<input type="checkbox"/>	
Min Temperature	<input type="checkbox"/>	<input type="checkbox"/>	90	97	<input type="checkbox"/>	<input type="checkbox"/>	
Max Temperature	<input type="checkbox"/>	<input type="checkbox"/>	90	97	<input type="checkbox"/>	<input type="checkbox"/>	
Relative Humidity	<input type="checkbox"/>	<input type="checkbox"/>	5	3	<input type="checkbox"/>	<input type="checkbox"/>	
Mean RH	<input type="checkbox"/>	<input type="checkbox"/>	90	97	<input type="checkbox"/>	<input type="checkbox"/>	
Min RH	<input type="checkbox"/>	<input type="checkbox"/>	90	97	<input type="checkbox"/>	<input type="checkbox"/>	
Max RH	<input type="checkbox"/>	<input type="checkbox"/>	90	97	<input type="checkbox"/>	<input type="checkbox"/>	
Precipitation Amount	<input type="checkbox"/>	<input type="checkbox"/>	90	97	<input type="checkbox"/>	<input type="checkbox"/>	
Precipitation Duration	<input type="checkbox"/>	<input type="checkbox"/>	90	97	<input type="checkbox"/>	<input type="checkbox"/>	
Wind Speed	<input type="checkbox"/>	<input type="checkbox"/>	90	97	<input type="checkbox"/>	<input type="checkbox"/>	
Spread Component	<input type="checkbox"/>	<input type="checkbox"/>	90	97	<input type="checkbox"/>	<input type="checkbox"/>	
Energy Release Component	<input type="checkbox"/>	<input checked="" type="checkbox"/>	90	97	<input type="checkbox"/>	<input type="checkbox"/>	
...	<input type="checkbox"/>	<input type="checkbox"/>	90	97	<input type="checkbox"/>	<input type="checkbox"/>	

Selected Outputs:

Energy Release Component - Summary Statistics Graph

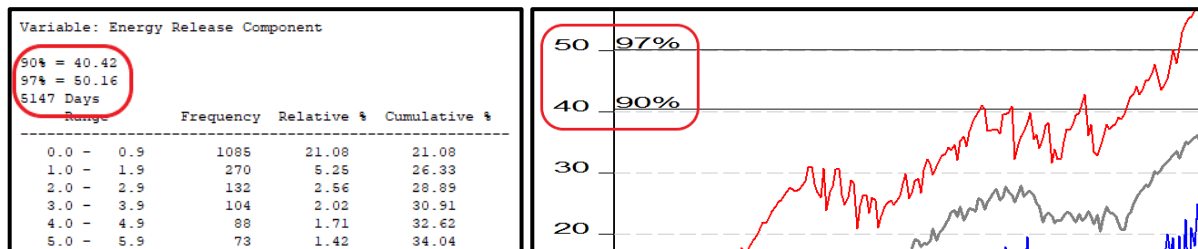
Figure 1. The Climatology Options window allows you to select reports and graphs for variables in FireFamilyPlus.

Critical Percentiles

Critical percentiles (**CP #1** and **CP #2** columns in the **Climatology Options** dialog box in Figure 1) are cumulative frequency values that identify climatological breakpoints of interest. Percentiles can differ for every variable. For example, you may choose the 90th and 97th percentile values for ERC or the 80th and 95th percentile values for BI. Values associated with these percentiles are produced at the top of the **Daily Frequency** table and appear as lines on **Stats Graphs** (Figure 2).

- CP #1** is the first critical percentile for the variable. This percentile is displayed on Stats Tables, Stats Graphs, Percentile Graphs, and optionally, on Statistical Bar graphs.

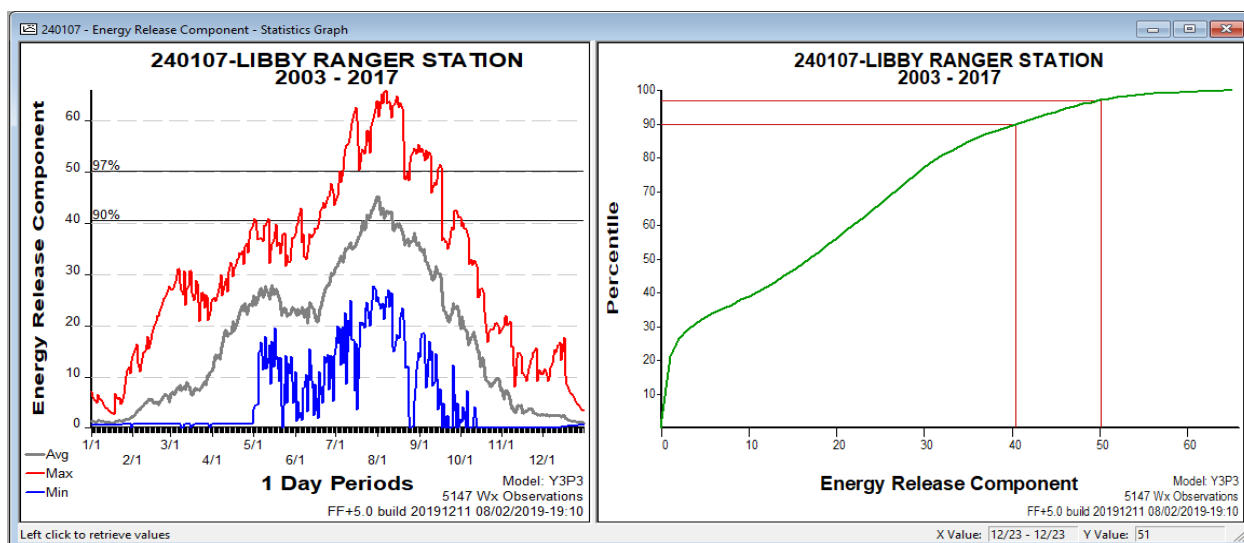
- **CP #2** is the second critical percentile for the variable. It is shown in the same reports and graphs as CP #1, and it is always visible on Percentile Graphs.



Creating Stats Graphs

- Once you have finished making your selections, click **Run** to generate a Statistics Graph window.

The Statistics Graph window (Figure 3) is composed of two panes containing separate graphs (**Graph View** on the left and **Percentile View** on the right). The **Graph View** can be displayed as a **Line at Average** graph (default selection) or a **Statistical Bars** graph. A splitter bar in the middle of the screen allows you to resize the graphs. Double-click on either graph to enlarge it to full screen, or drag the bar across the screen to resize both graphs. When you click on a graph, the X and Y values will appear in the lower right-hand corner.



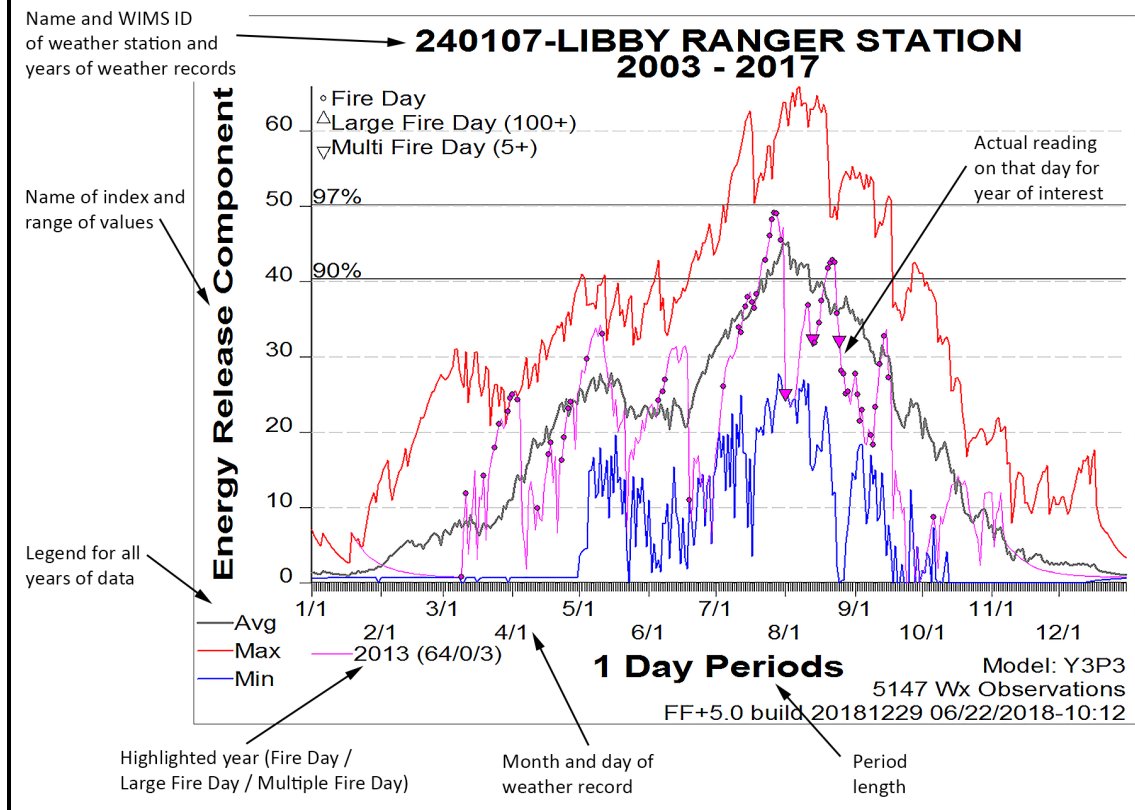
Graph View

Line At Average

The **Graph View** (Figure 4) displays lines for minimum, mean, and maximum values for each Period (e.g., 1 day) calculated for all years in the Working Set. Horizontal lines show the two **Critical Percentiles** defined in the **Climatology Options** window (**CP #1** and **CP #2**). The model used to calculate the variable (if applicable) is shown in the bottom right-hand corner (e.g., Y3P3). This area also contains the number of weather observations (e.g., 5147), the FireFamilyPlus build, and the date/time of the run.

Components of the **Line At Average** graph are shown in the two diagrams for ERC in Figure 4. We added an overlay for the year 2013. Up to three overlays can be added to any Stats Graph.

How to Read a FireFamilyPlus Stats Graph, Part 1



How to Read a FireFamilyPlus Stats Graph, Part 2

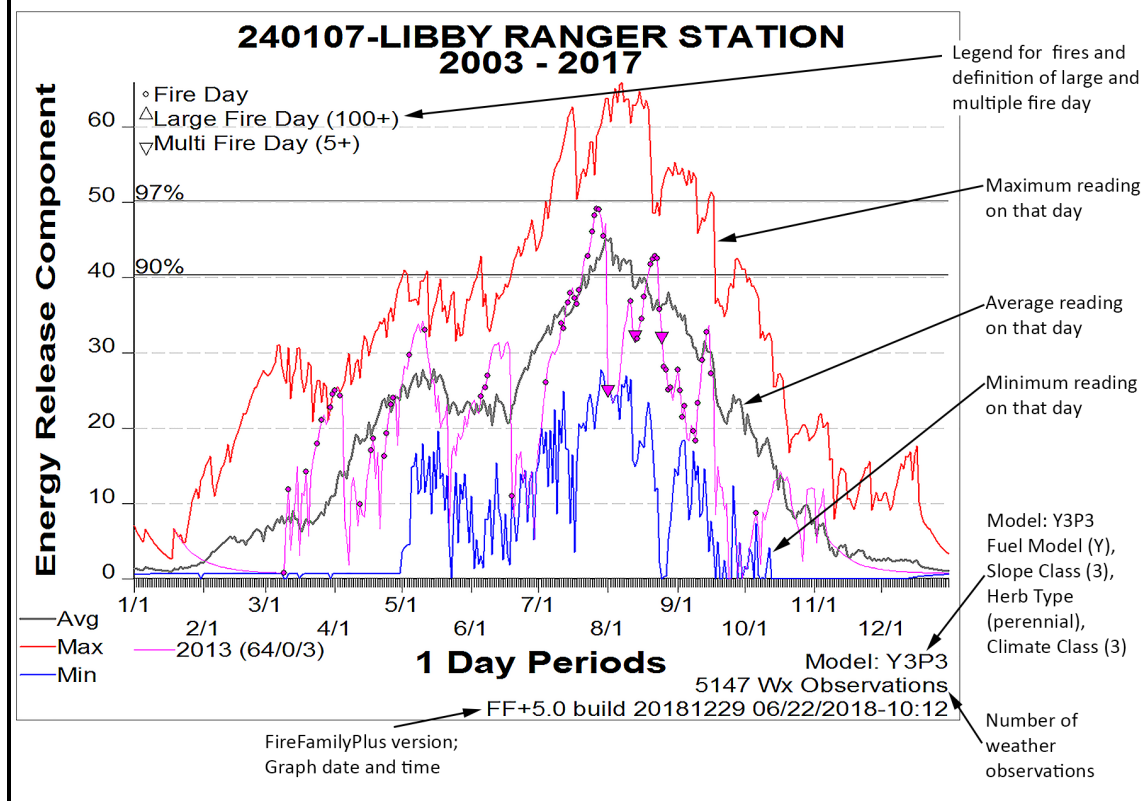


Figure 4. These two images describe the components of Stats Graphs displayed as Line-At-Average. Note the overlay for 2013.

Statistical Bars

The previous example depicted the **Line At Average** graph, but you may prefer a Statistical Bars graph.

- From the Working Set, select **Options > Graph Options > General** and select **Statistical Bars**.
- When the Stats Graph is open, click on **Options > Graph Type > Statistical Bars** (Figure 5).

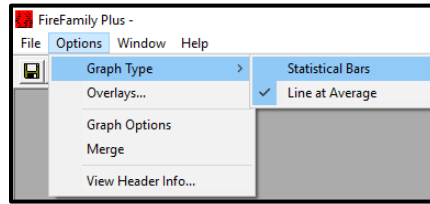


Figure 5. In **Graph Type**, you can select between **Statistical Bars** and **Line At Average**.

In the **Statistical Bars** graph, the gray bar indicates the range ± 1 standard deviation from the mean, which is shown as a black line across the center of each bar. In Figure 6, components of the **Statistical Bars** graph are shown for ERC. Each bar in this example represents a 7-day period. The statistical values are calculated using data for all 7 days for 15 years (2003-2017). As with **Line at Average** graphs, horizontal lines on **Statistical Bars** graphs show two **Critical Percentiles** as defined in the **Climatology Options** window. This graph also contains an overlay for 2013.

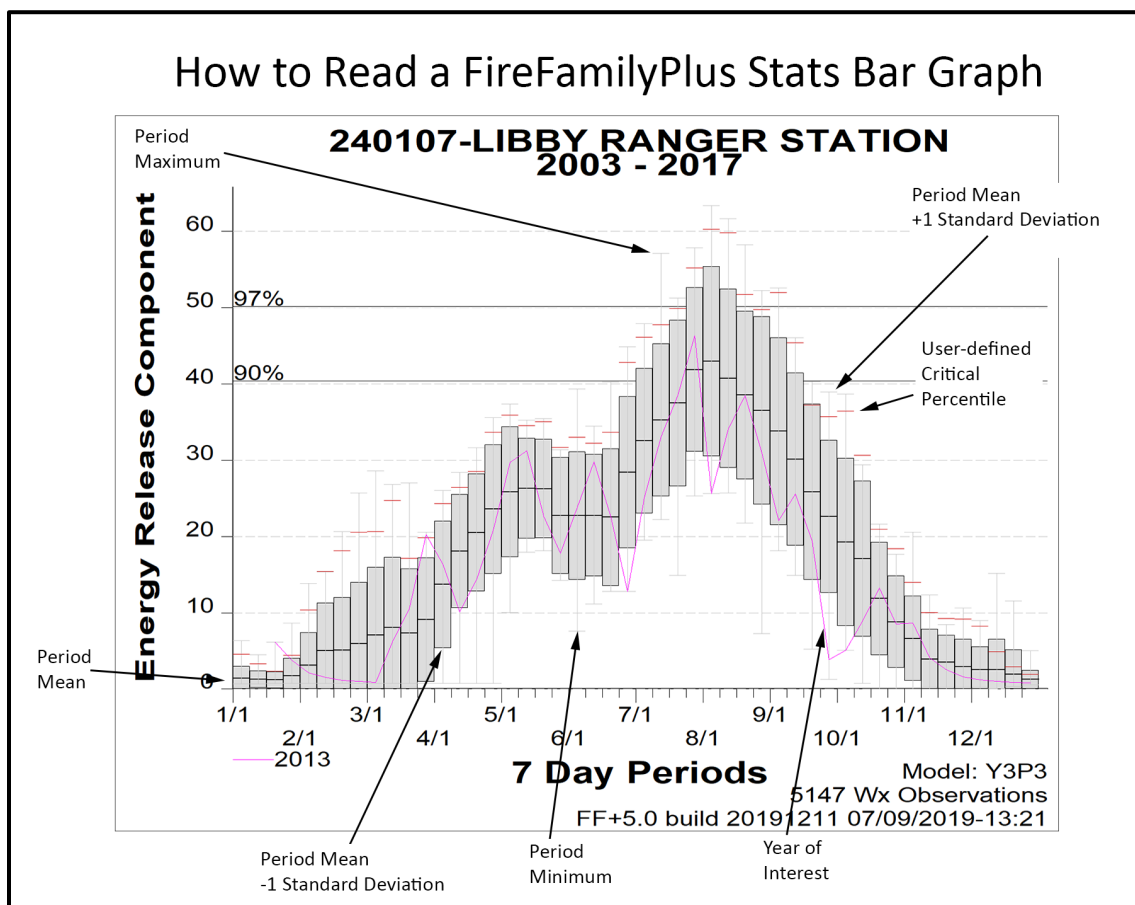


Figure 6. This image describes the components of a Stats Graph displayed as Statistical Bars. Note the overlay for 2013.

Percentile View

The **Percentile View** depicts the cumulative percentile for a variable from 0 to 100 percent. The right pane of a Statistics Graph window always displays percentiles (Figure 3). The green line is the cumulative percentile. A horizontal red line is drawn from the Y-Axis to the intersection with the percentile curves for the two critical percentiles (CP #1 and CP #2). A vertical red line is drawn from this intersection to the X-axis. The value for the percentile is indicated in the graph's status bar at the bottom right hand side of the box. Components of a percentile graph are described in Figure 7.

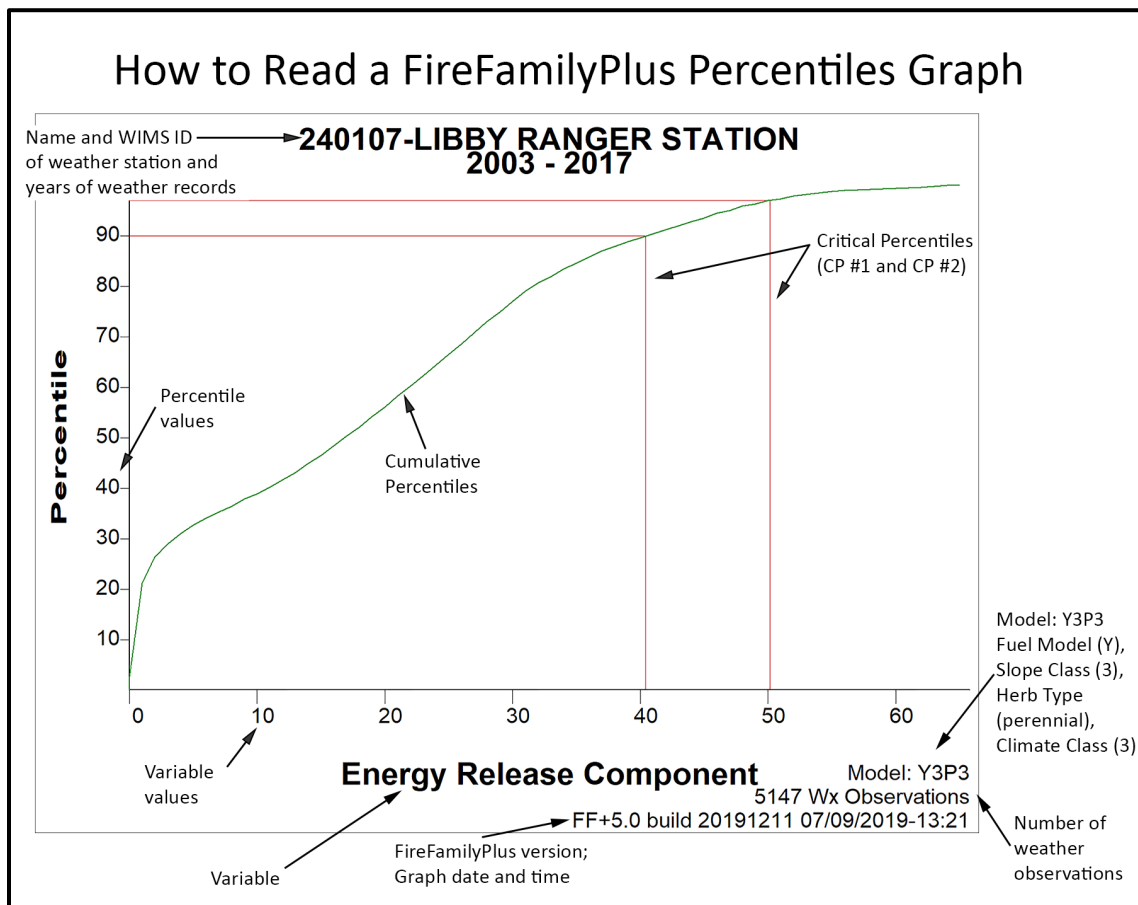


Figure 7. This image describes the components of a Percentiles Graph. Overlays are not added to Percentile Graphs.