

Energy Release Component (ERC) Fact Sheet

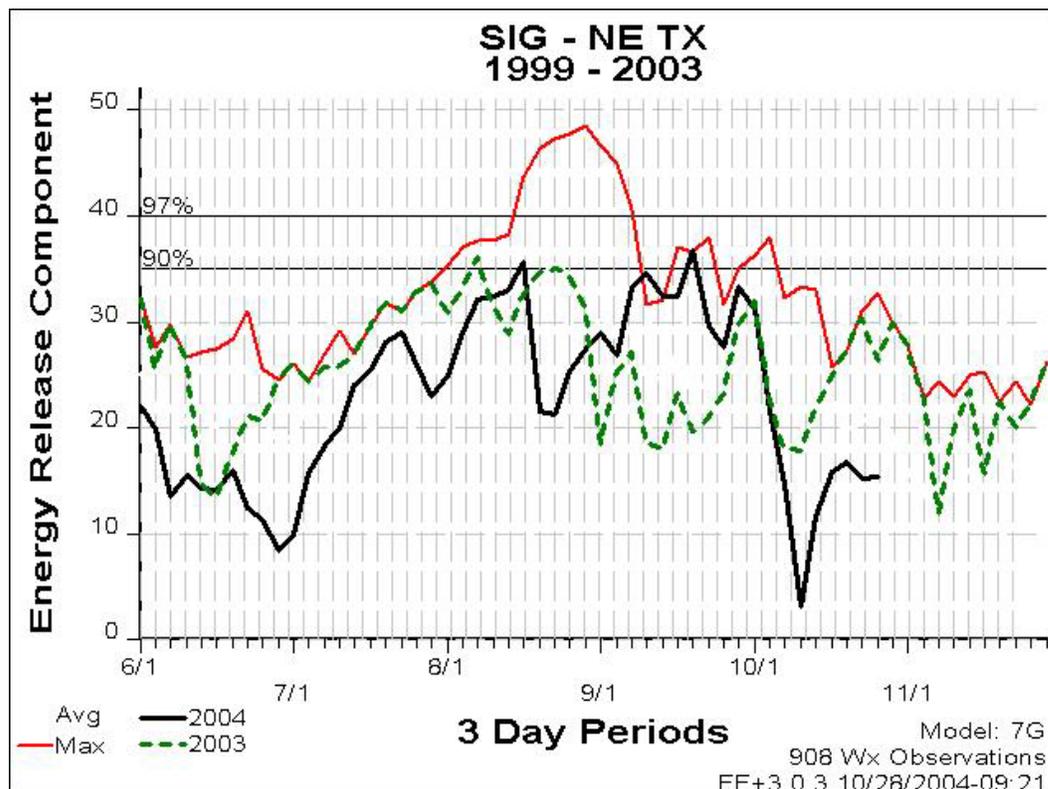
The Energy Release Component (ERC) is a calculated output of the National Fire Danger Rating System (NFDRS). The ERC is a number related to the available energy (BTU) per unit area (square foot) within the flaming front at the head of a fire. The ERC is considered a composite fuel moisture index as it reflects the contribution of all live and dead fuels to potential fire intensity. As live fuels cure and dead fuels dry, the ERC will increase and can be described as a build-up index. The ERC has memory. Each daily calculation considers the past 7 days in calculating the new number. Daily variations of the ERC are relatively small as wind is not part of the calculation.

Applications

The ERC relates well to the condition of the fuels. Fire managers and planners have found that the ERC can be used as a decision tool to prepare for an approaching fire season or it can be used as a tool for daily staffing when used in combination with other NFDRS components such as 100-hr fuel moisture or the Burning Index (BI). Tracking the ERC and other NFDRS components through the season and on a daily basis will increase the situational awareness of wildland firefighters.

ERC Seasonal Graphs

Seasonal graphs provide a good view of the current ERC trend and also allow us to compare recent years or significant fire years to the current year.



At the top of the graph is the name of the RAWS or as in this example the Special Interest Group (SIG). A SIG includes a number of RAWS and the ERC is an average of all the RAWS. In this example, the SIG represents the northeast Texas predictive service area. Under the name are the years of data. Caution should be used when interpreting percentiles and maximums when there are less than ten years of data. The left margin names the component or index that is displayed. The bottom right margin contains the fuel model (78 G), number of observations (days), and the date the graph was created. NFDRS fuel model G is widely used to display ERC as it contains all of the dead size class fuels and both the herbaceous and woody live fuels. The vertical axis displays the ERC values. The horizontal axis displays portion of the year by month. In this example the plot starts on June 1st and ends on November 30th. Each tic mark represents 3 days. In this example, years 2004 (solid black) and 2003 (dashed green) are displayed. The average is not displayed. The red line represents the maximum value recorded on each date over the data record. For this example, on September 1st the highest ERC value from 1999 to present was 48. In 2004, the historical maximum ERC was exceeded around September 9th.

Another way we display ERC is on a daily map. The ERC is calculated at each RAWS using the 1978 fuel model G. The map interpolates the ERC between stations to give a blended look. It is important to remember that ERC values between RAWS are estimated. In this example, the 1300-hour observations taken from the RAWS on May 22nd were used to build the map.

