

THERMOCOUPLE PROBES IN SURFACE FIRES

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The maximum temperatures of thermocouple probes (TCPs) exposed to wildland flames often are called “fire temperatures” in forest fire literature, but such temperatures depend on TCP diameter, configuration, and physical properties, as well as flame temperature, dimensions, and velocity over the TCP surface. Thus, *TCP temperatures alone give no useful information about a surface fire*. However, in small experiments, TCP response was calibrated to provide general fire characteristics. For instance, we found that the maximum time-rate of change of TCP temperature and the area under the temperature-time curve correspond to the fireline intensity and fuel consumption, respectively. Calibration equations derived from these data can be used to estimate fireline intensity and fuel consumption from multiple TCPs installed at remote locations in prescribed burns.

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