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Plume-exit modeling to determine cloud condensation nuclei activity of aerosols from residential biofuel combustion

Francisco Mena et al.

Correspondence to: Tami Bond (yark@illinois.edu)

An experiment with a wood burning heat stove was conducted to obtain the temperature and velocity profile of a biofuel burning plume. The area around the stove was protected from crosswind interaction. Plume temperature and velocity were measured with a thermocouple and a hot-wire anemometer in vertical intervals above the stove stack exit in 6 different points, each 1 ft. apart. From the plume temperature, velocity, and position of the instruments, the plume temperature profile was calculated and shown in Fig. S1.

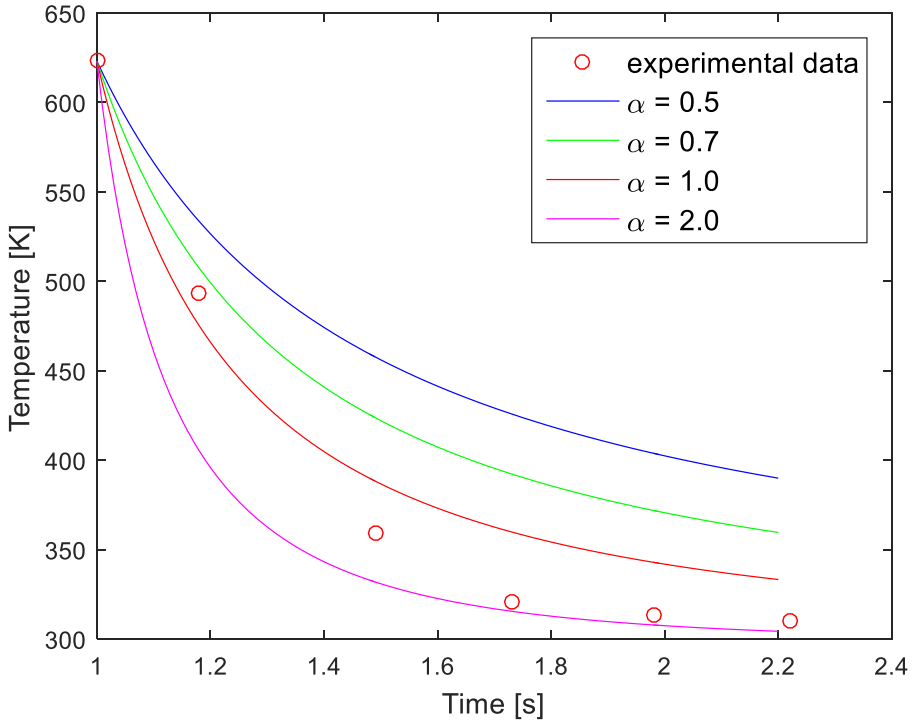

Figure S1. Measured and modeled plume temperature vs. time, for different values of α. In the plot t = 1 s is a reference time for the first measurement taken.