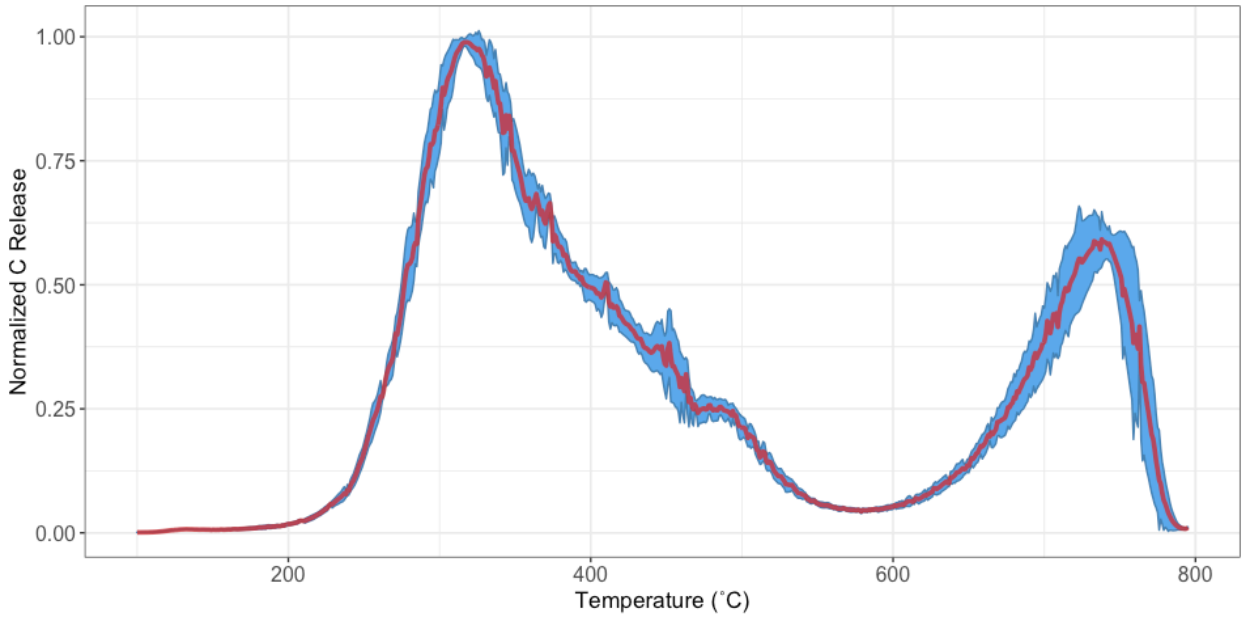
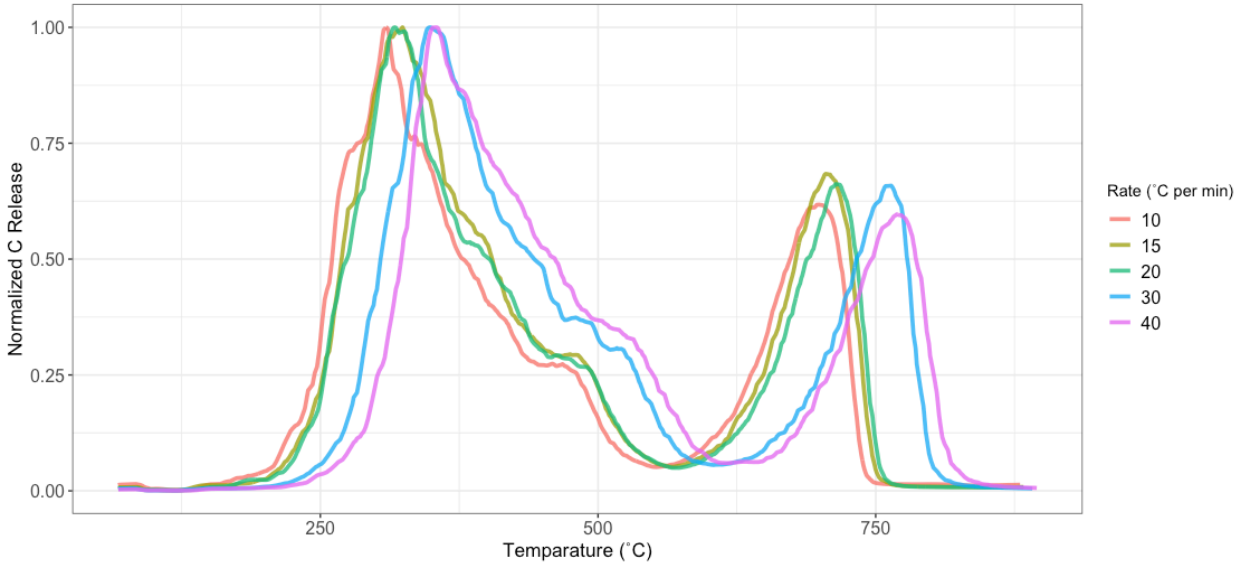
Figure S1



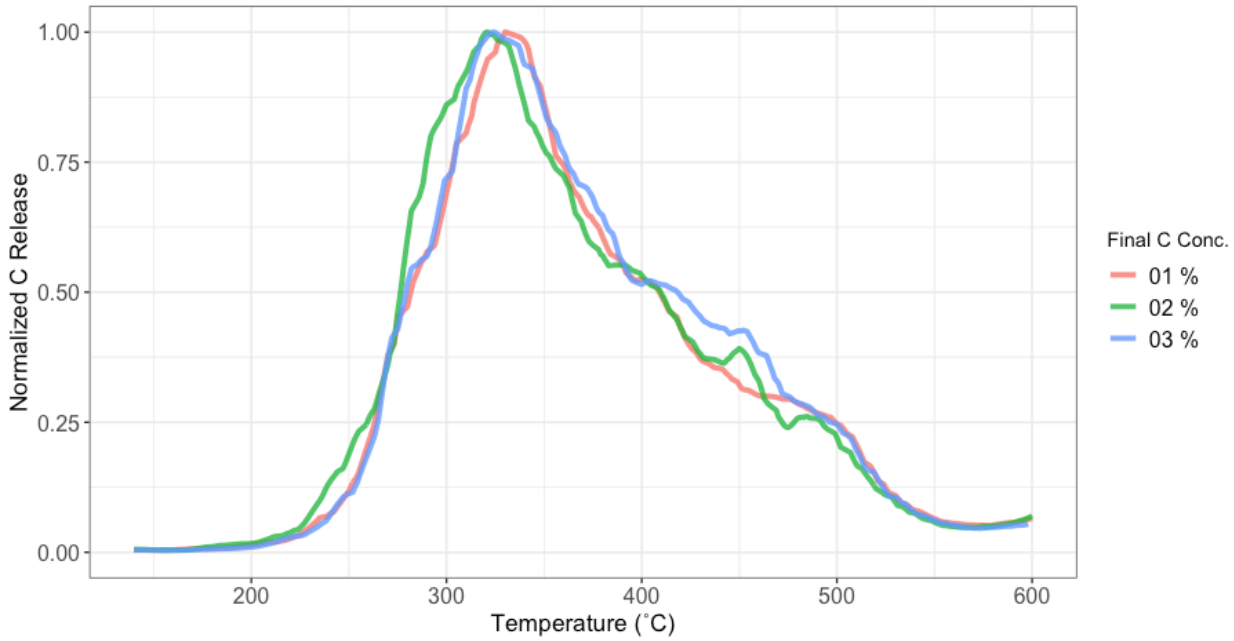
Repeatability of standard soil thermogram (n = 6). Red line represents the mean normalized C release at each temperature, and the blue area represents the mean +/- one standard deviation.

Figure S2



Effects of heating rate on thermogram shift during sample collection. A standard soil with carbonate was analyzed to determine the effects of heating rate on the reported temperature of the oven and the actual release of C. It was determined that thermograms produced with heating rates of 10, 15, and 20˚C min^{-1} did not differ significantly ($p = 0.67$). Heating rate of 15˚C was used in this analysis.

Figure S3



Effect of dilution with pre-combusted (carbon-free) sand on thermograms, heated at 15˚C min^{-1}. Standard soil analyzed here contained 3.249% C, including calcium carbonate (peak not shown). Dilution was determined to have no effect on thermogram distribution. Sand was added to dilute high-C samples in order to prevent combustion during heating. For this study, dilution to 2% C by mass was used.

Figure S4

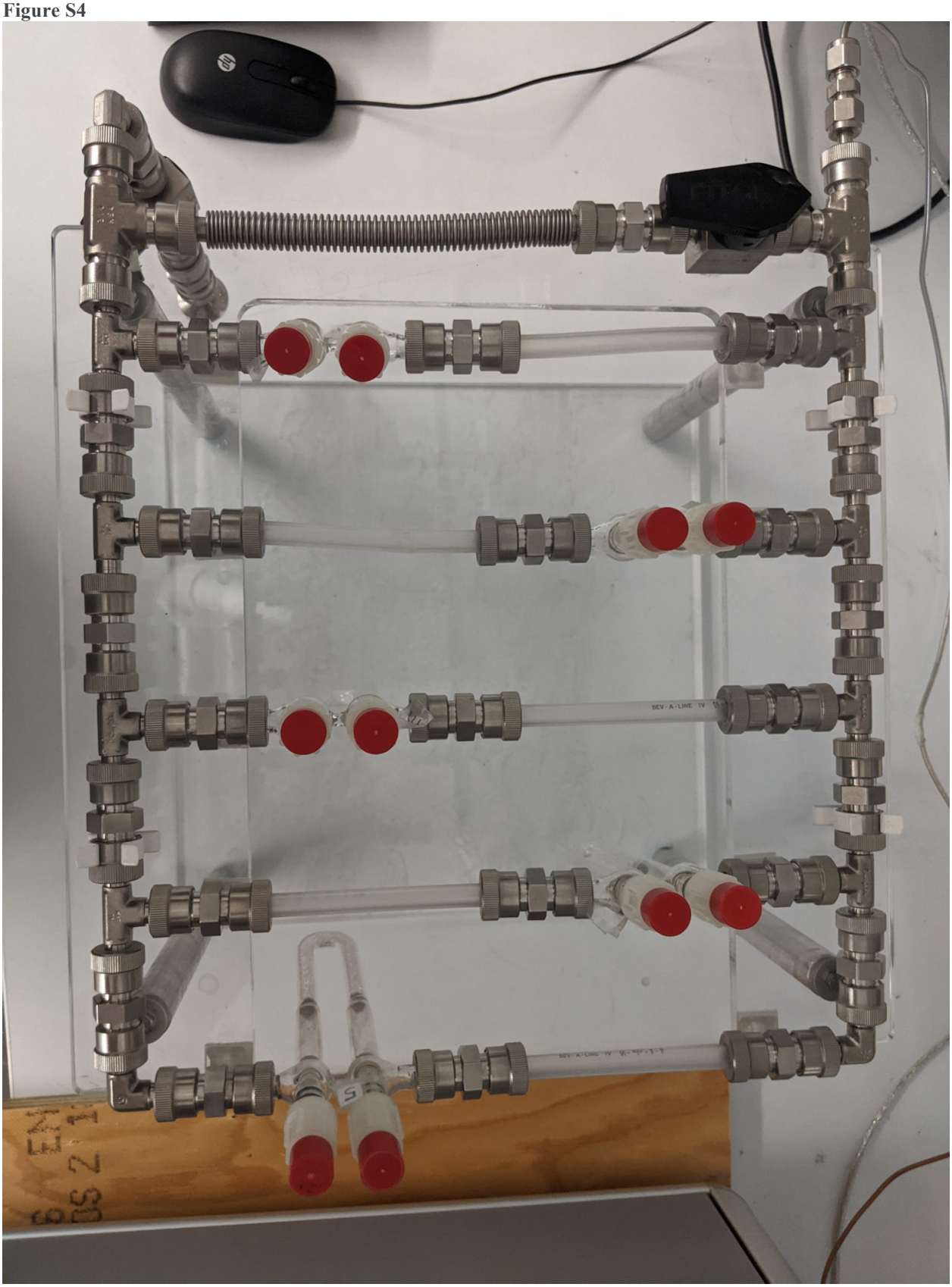


Figure S5

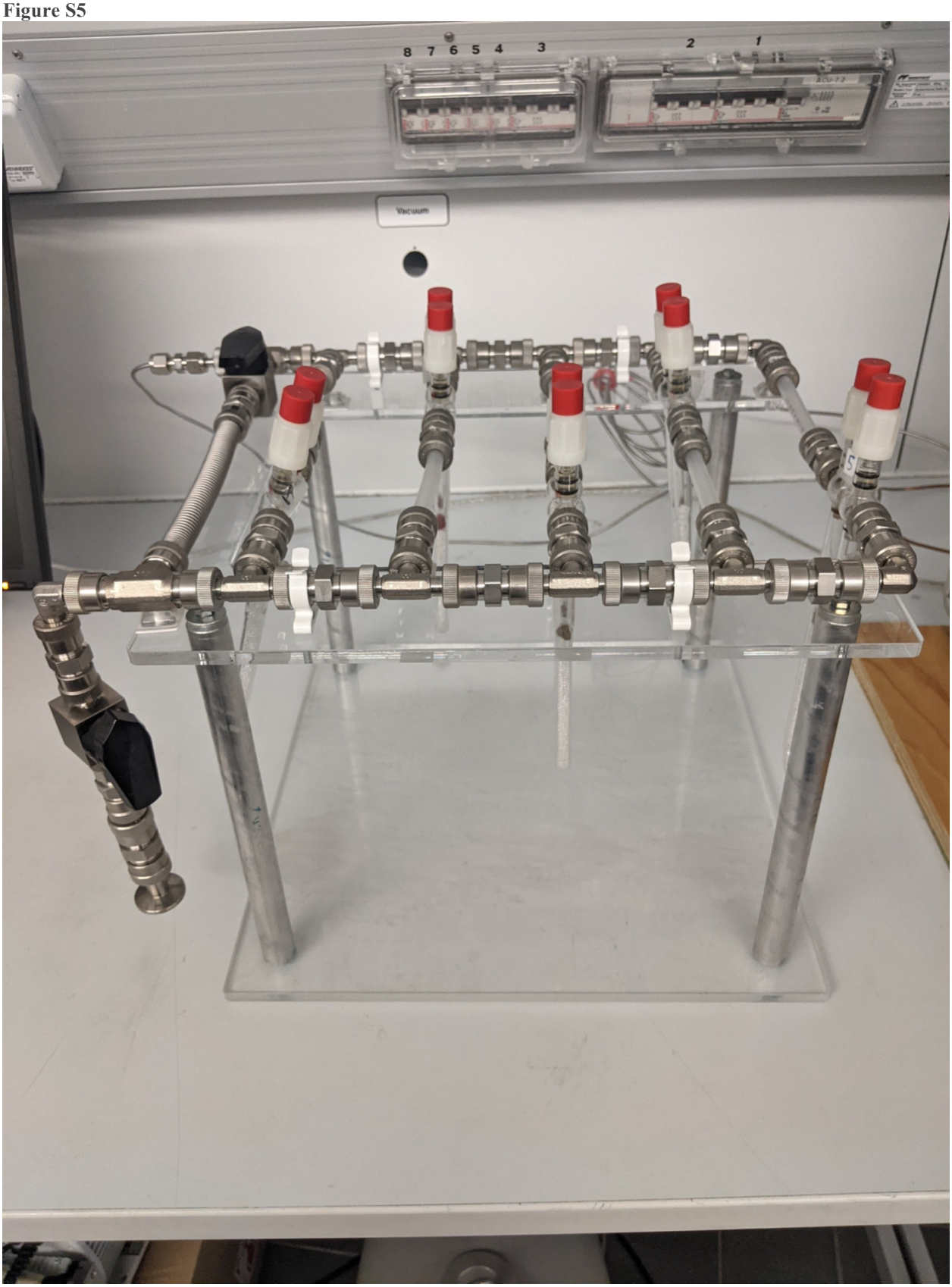


Figure S6

Photos of CO_2 collection manifold. Five glass traps filled with glass beads are attached in parallel. Manifold is constructed from Swagelok fittings and tubing. A vacuum pump is attached to the valve pictured in the lower left corner of the center and bottom photos. A bypass valve is included before the traps to evacuate manifold and to avoid pressure buildup in instrument when sample gas is not being collected.