Figure 1 shows the graph of temperature against time. Some of the various calculated [1] and recorded values are listed in table 1.

Using the additive model in the graph, I calculated c as $0.45\,\mathrm{J\,g^{-1}\,{}^\circ C^{-1}}$.

This value of c agrees with various other values I've found:

- $c = 0.460\,548\,\mathrm{J\,g^{-1}\,{}^\circ C^{-1}}$ [1]

- $c = 0.450\,\mathrm{J\,g^{-1}\,{}^\circ C^{-1}}$ [2]
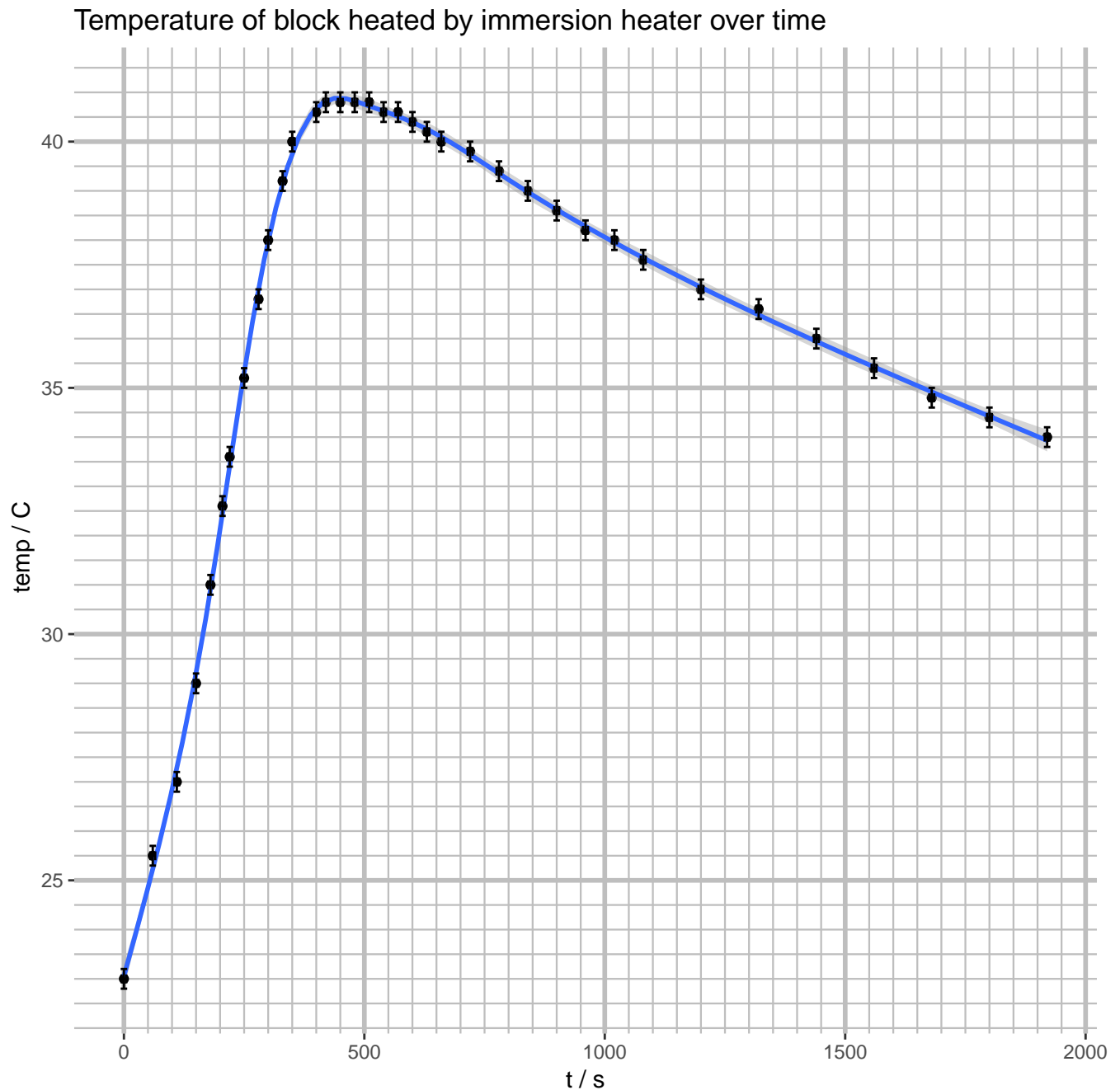
- $c = 0.444\,\mathrm{J\,g^{-1}\,{}^\circ C^{-1}}$ [3]

Figure 1: Graph of temperature against time

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[1]https://github.com/elterminad0r/physics/tree/master/thermal_cap/analyse.r

t_1	$446.8\,\mathrm{s}$
t_2	$1473.2\,\mathrm{s}$
A_1	$4537.0\,\mathrm{s\,°C}$
A_2	$21\,070.4\,\mathrm{s\,°C}$
$\theta_{\text{corrected max}}$	$42.3\,\mathrm{°C}$
θ_{start}	$23.0\,\mathrm{°C}$
t_{heat}	$210.0\,\mathrm{s}$
c	$0.45\,\mathrm{J\,g^{-1}\,°C^{-1}}$

Table 1: Intermediate values in the calculation of c

References

[1] Engineers Edge [2015], 'Specific heat capacity of metals table'. Retrieved 12/7/18.
URL: *https://www.engineersedge.com/materials/specific_heat_capacity_of_metals_13259.htm*

[2] Leon, N. D. [2015], 'Indiana university northwest lecture notes'. Retrieved 12/7/18.
URL: *http://www.iun.edu/ cpanhd/C101webnotes/matter-and-energy/specificheat.html*

[3] Stretton, T. [2014], 'Chemistry pages databook'. Retrieved 12/7/18.
URL: *http://www2.ucdsb.on.ca/tiss/stretton/database/specific_heat_capacity_table.html*