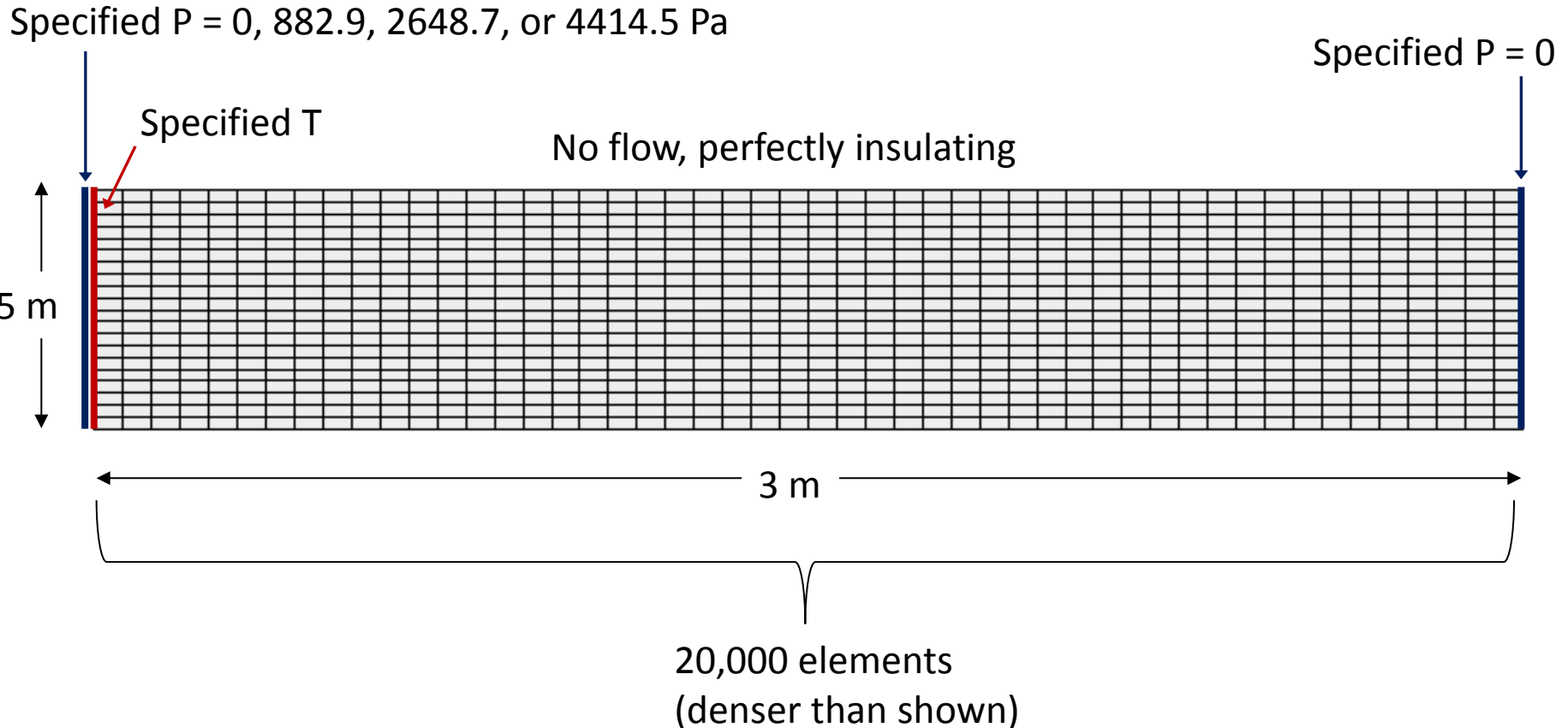


Thermohydraulic code comparison: TH2 Results with SUTRA

Barret Kurylyk and Jeffrey McKenzie

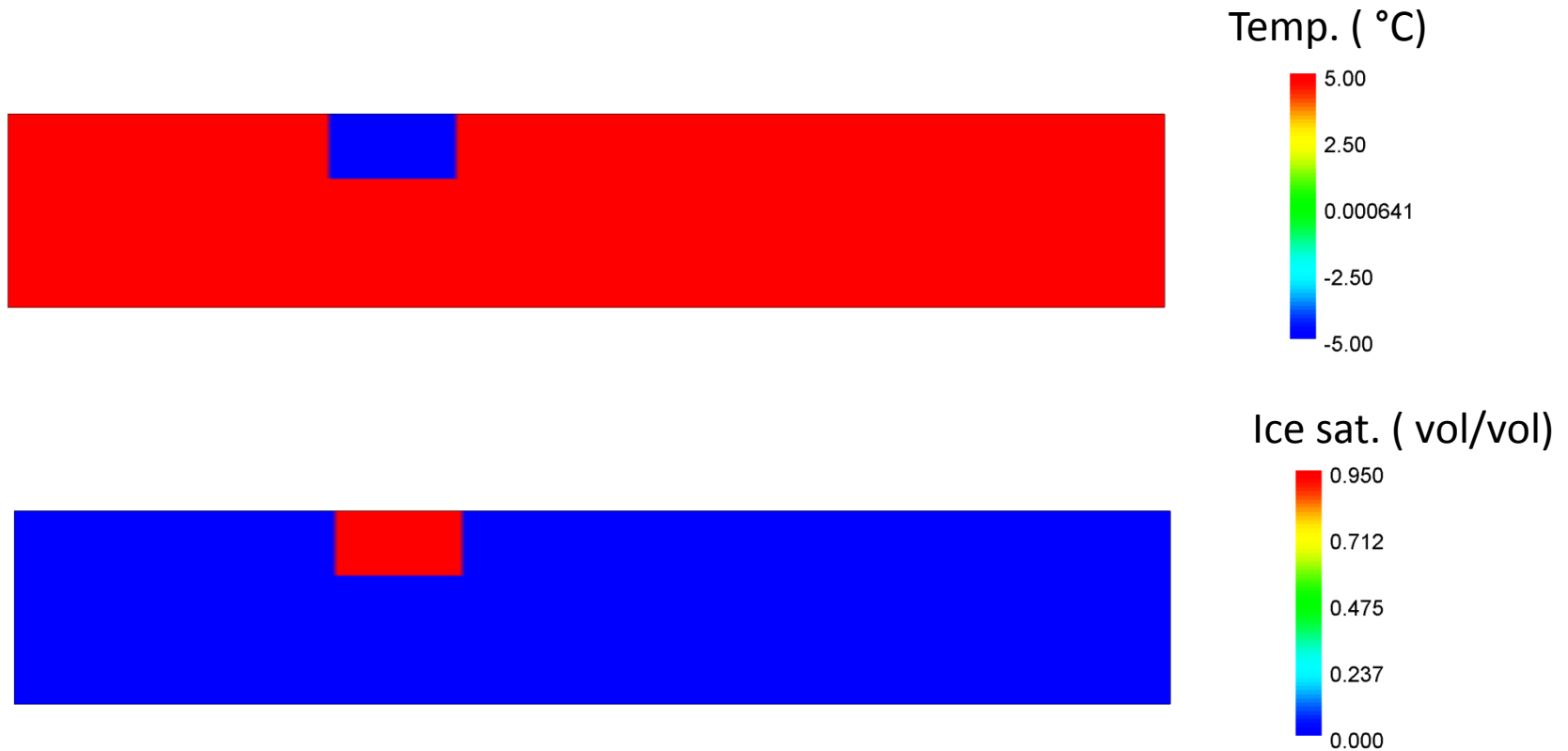
Model Setup

- Due to the temperature-dependence of water density, SUTRA solves the coupled water flow and heat transport equations using pressure.

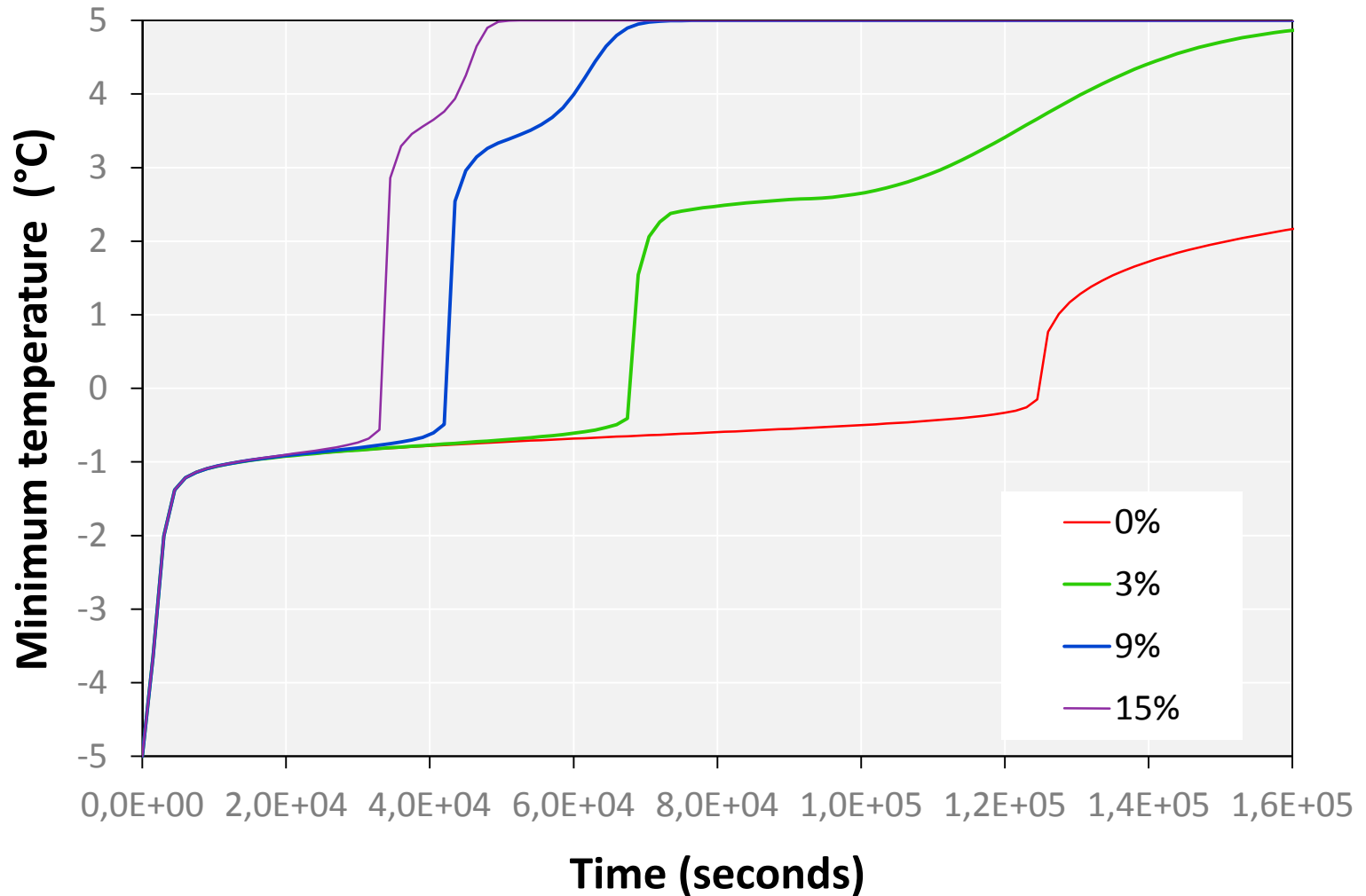


Initial Conditions

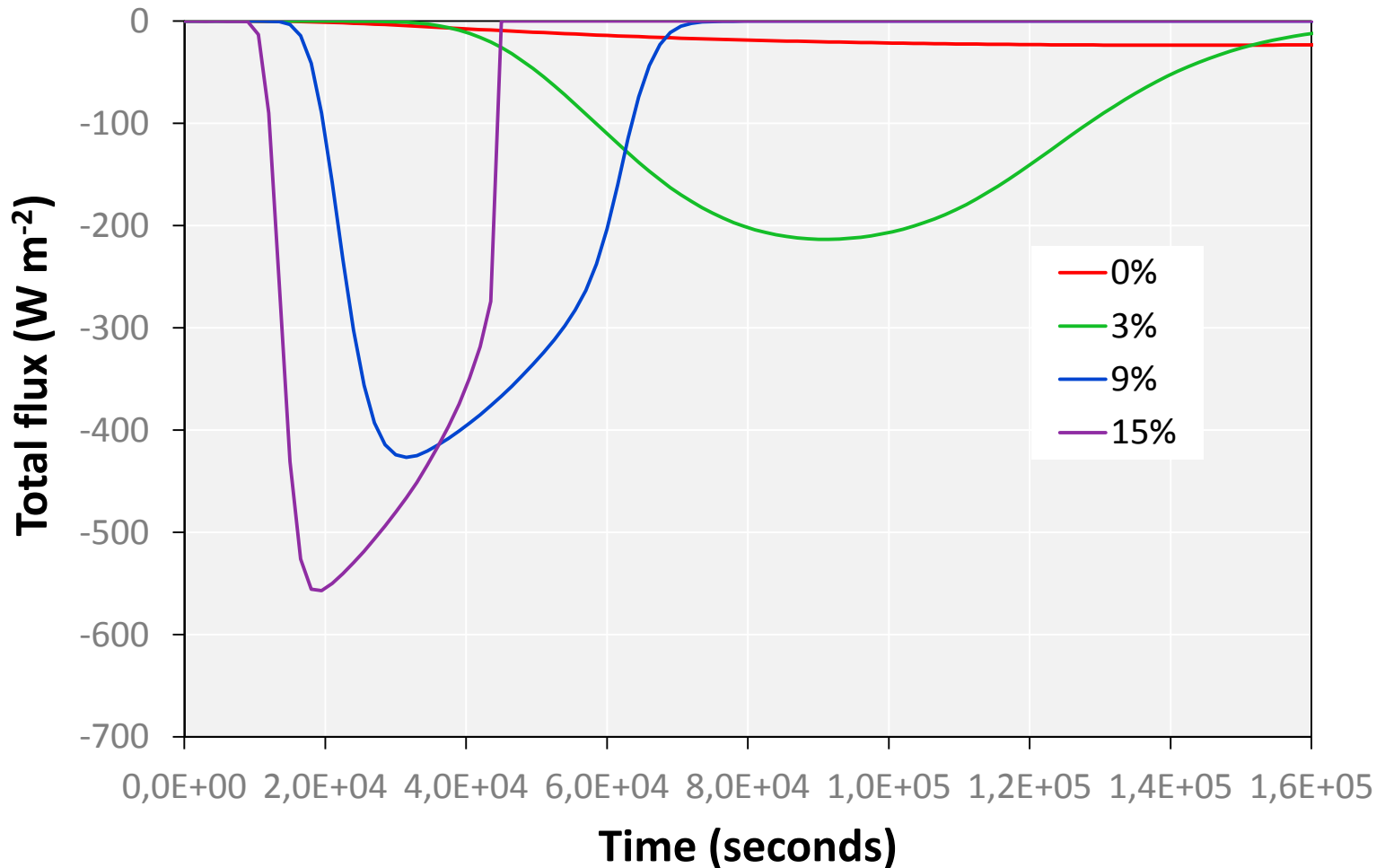
- Initial conditions = Boolean temperature field and discrete 'block' of ice.



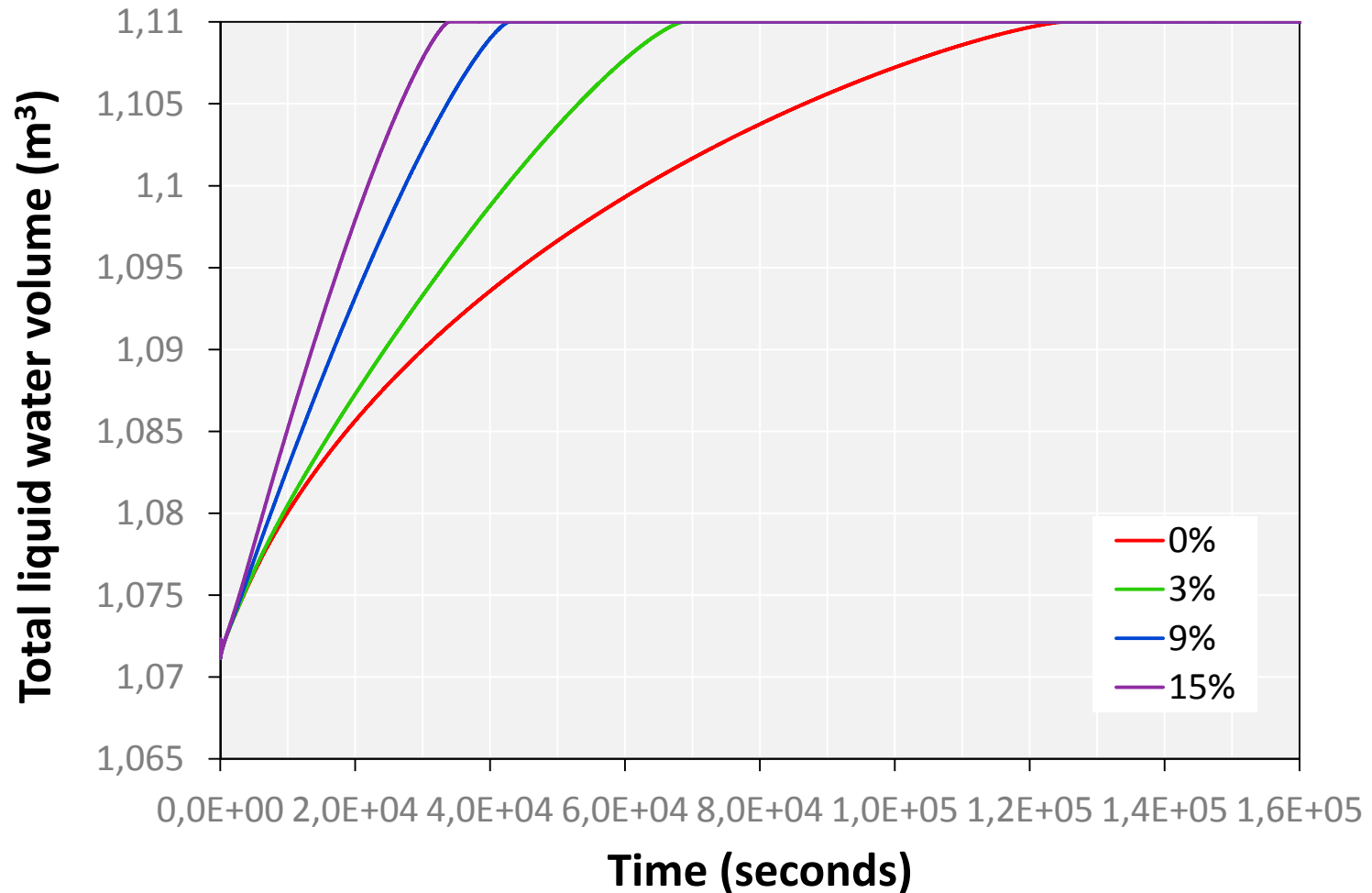
PF1: Evolution of Minimum Temperature



PF2: Evolution of Total Heat Flux



PF3: Evolution of Total Liquid Water Volume



Temperature Movie (0 vs 0.15 gradient)

Grad = 0

Grad = 0.15

Summary

- SUTRA TH2 results appear to match Christophe's results, except for low gradient (0 and possibly 0.03).
- Refining the mesh and decreasing the time step size did not yield different results.

