OpenFOAM_Cases-Diffusion

The below cases were simulated using oepnFOAM. The cases are only concerned with pure diffusion. Each example has a seperate solver.

Variables involved :

$$\Gamma = Diffusivity$$

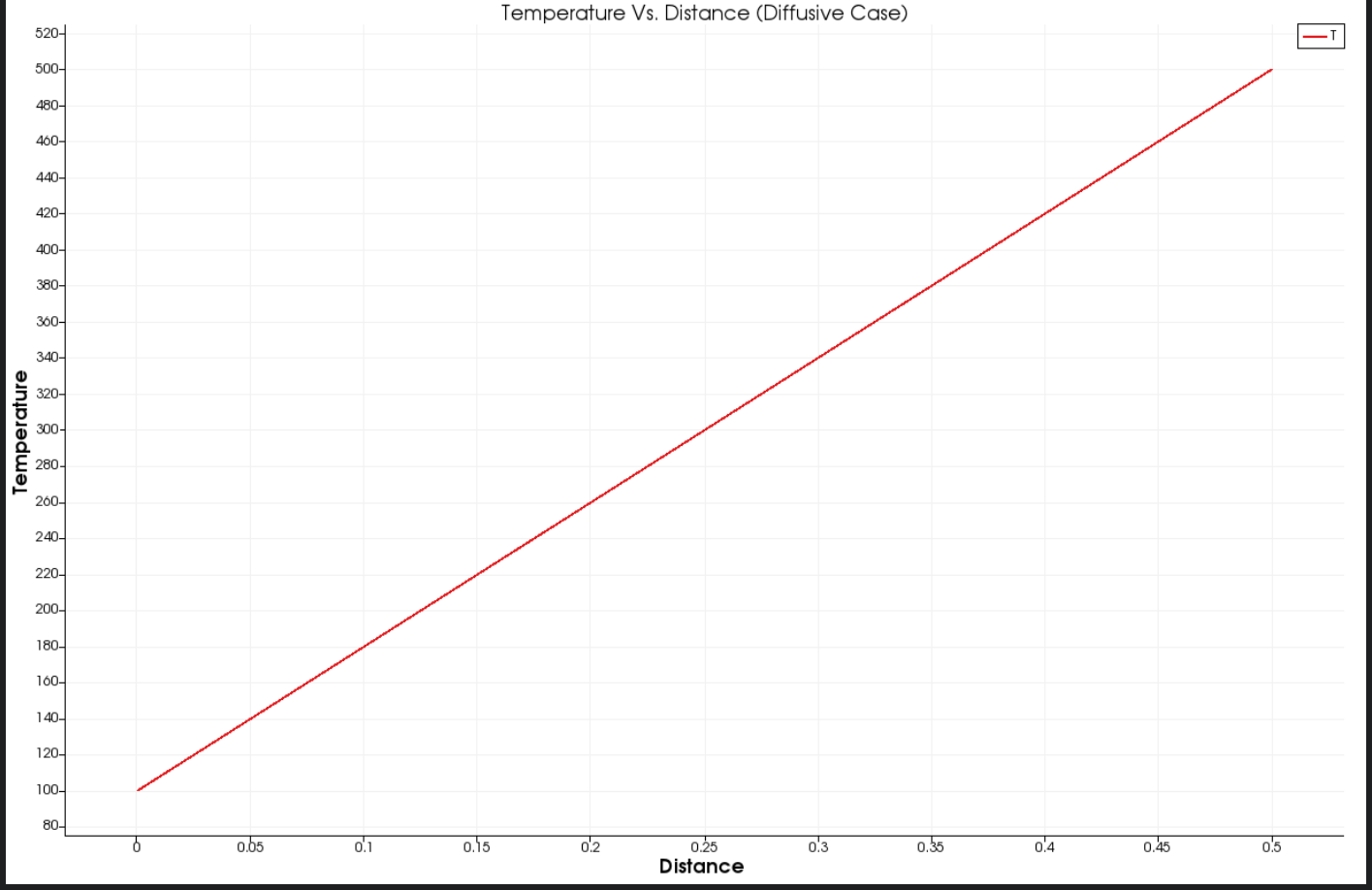
$$T = Temperature$$

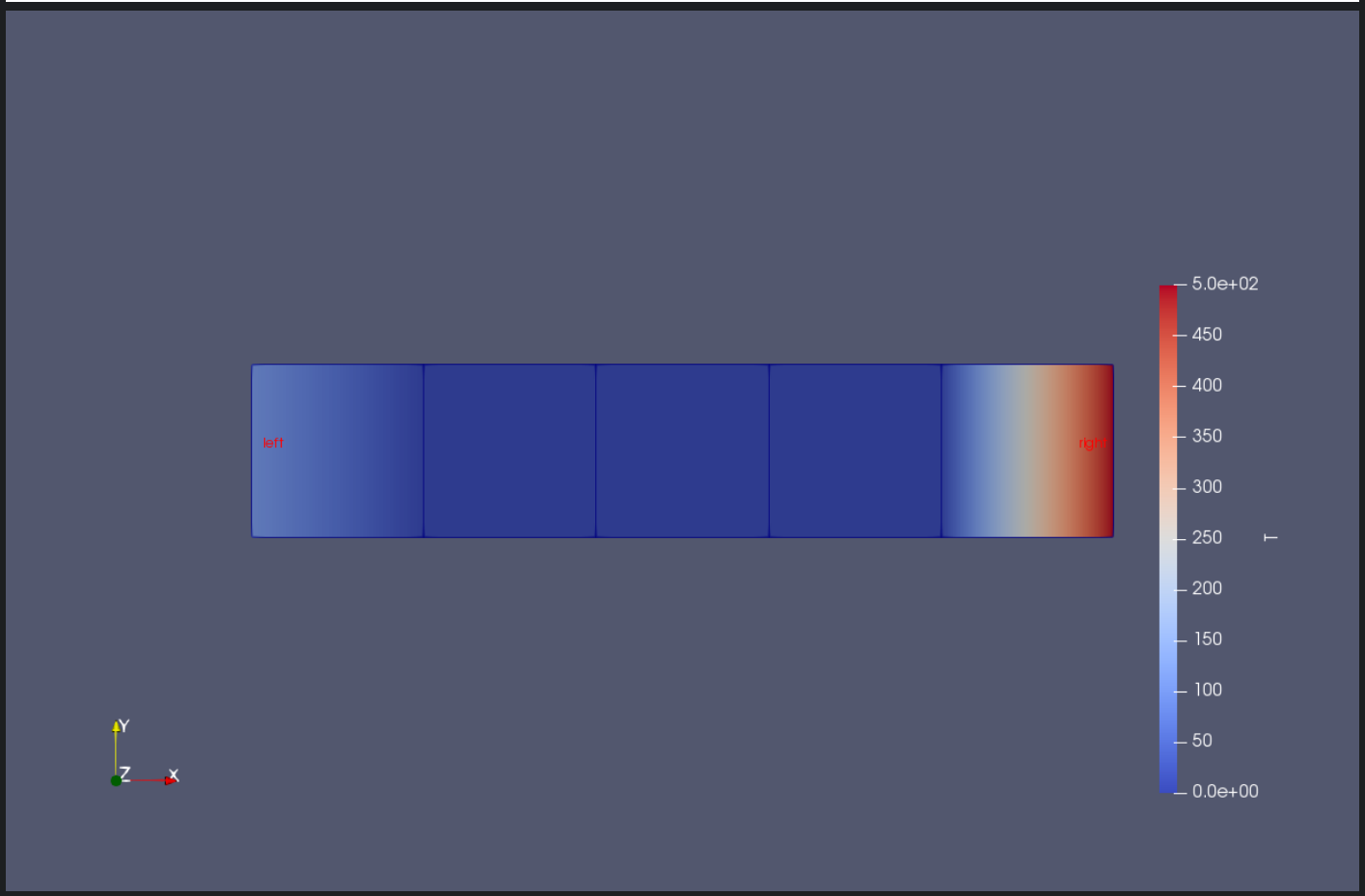
$$Q = Source$$

Case of Pure Disffusion :

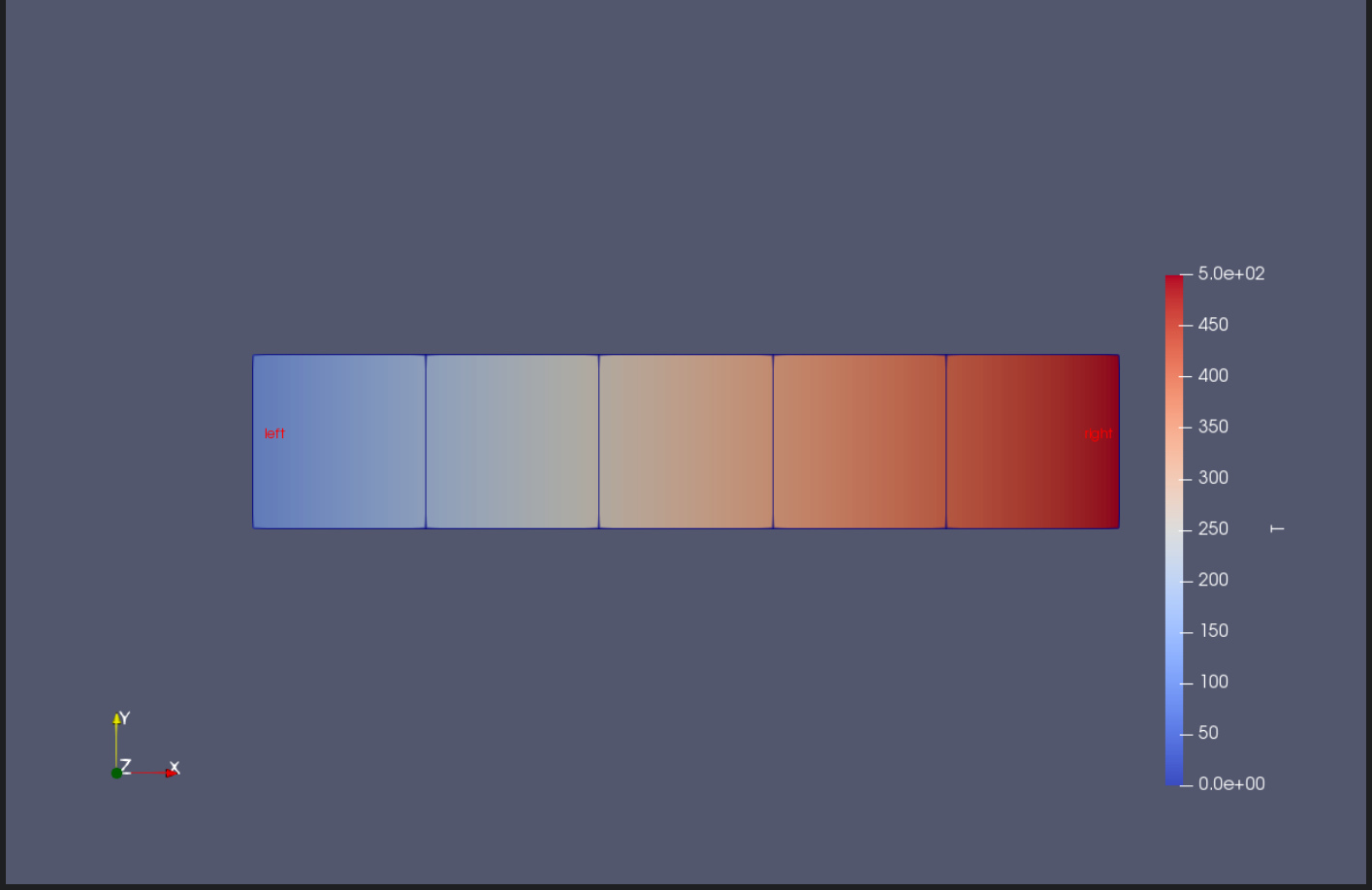
The below equation describes a state of pure diffusion :

$$\Gamma \frac{\partial^2 T}{\partial x^2} = 0$$





Initial State with boundary conditions

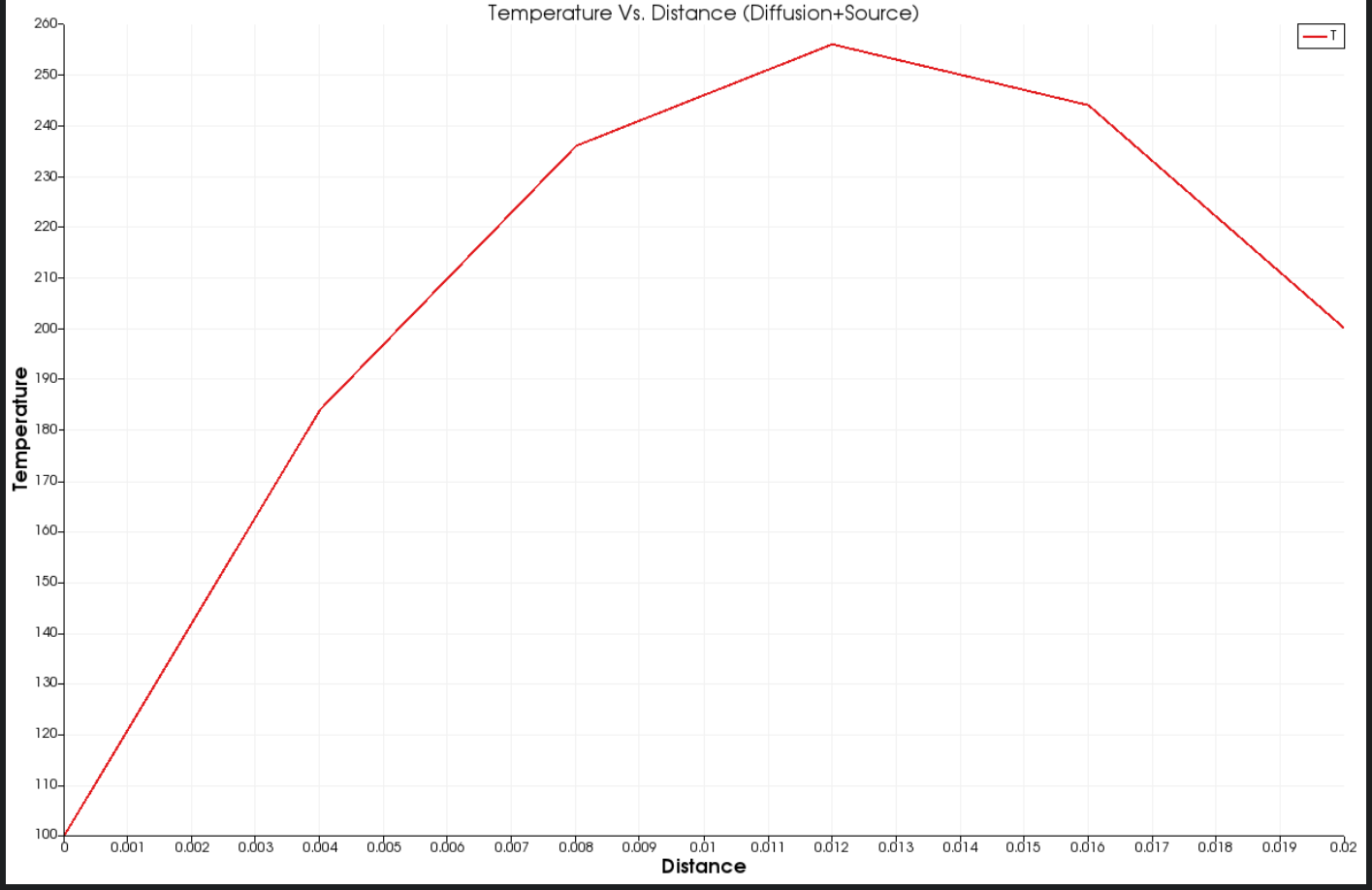


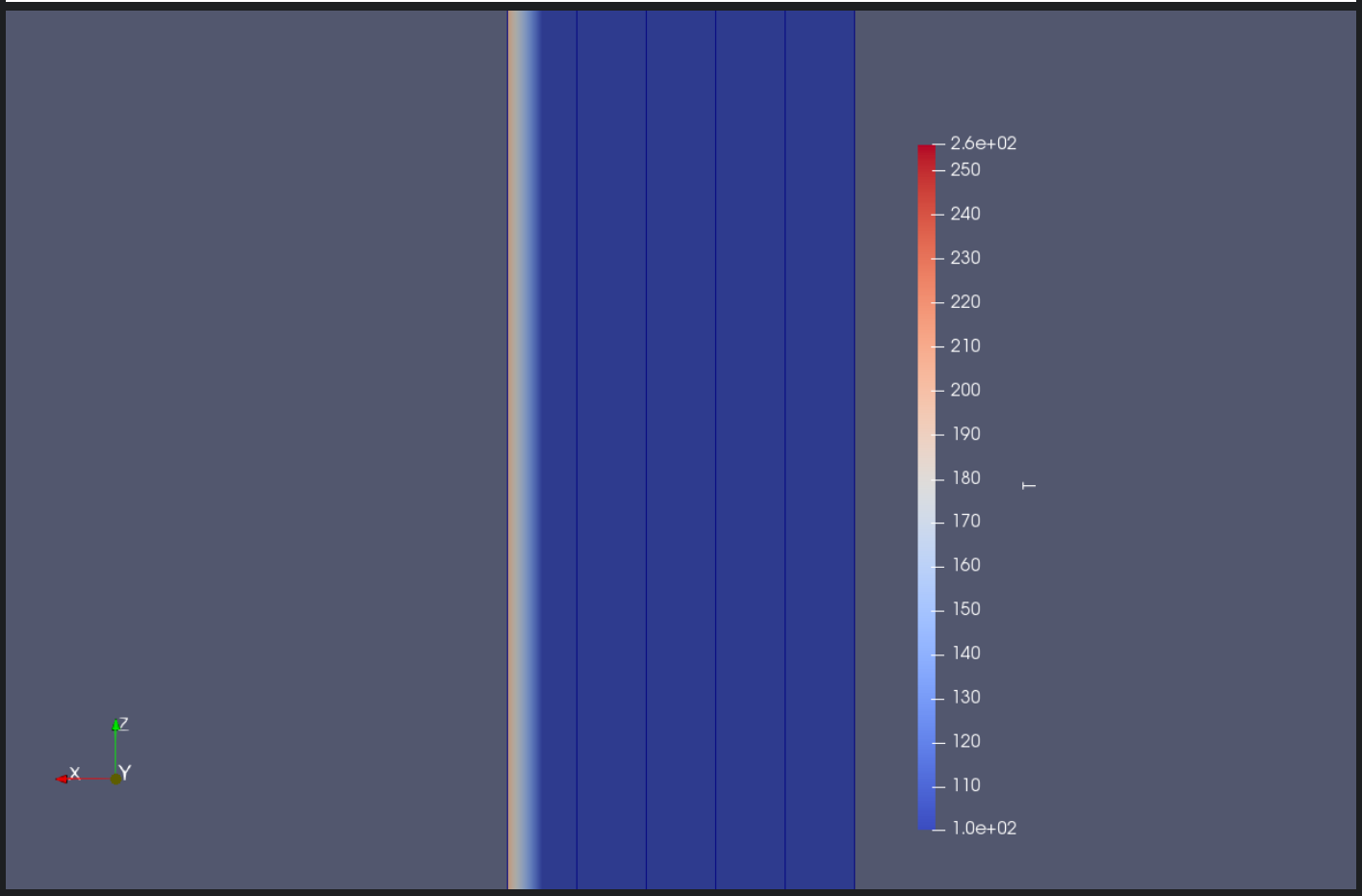
Final State

Case of Pure Disffusion with Source :

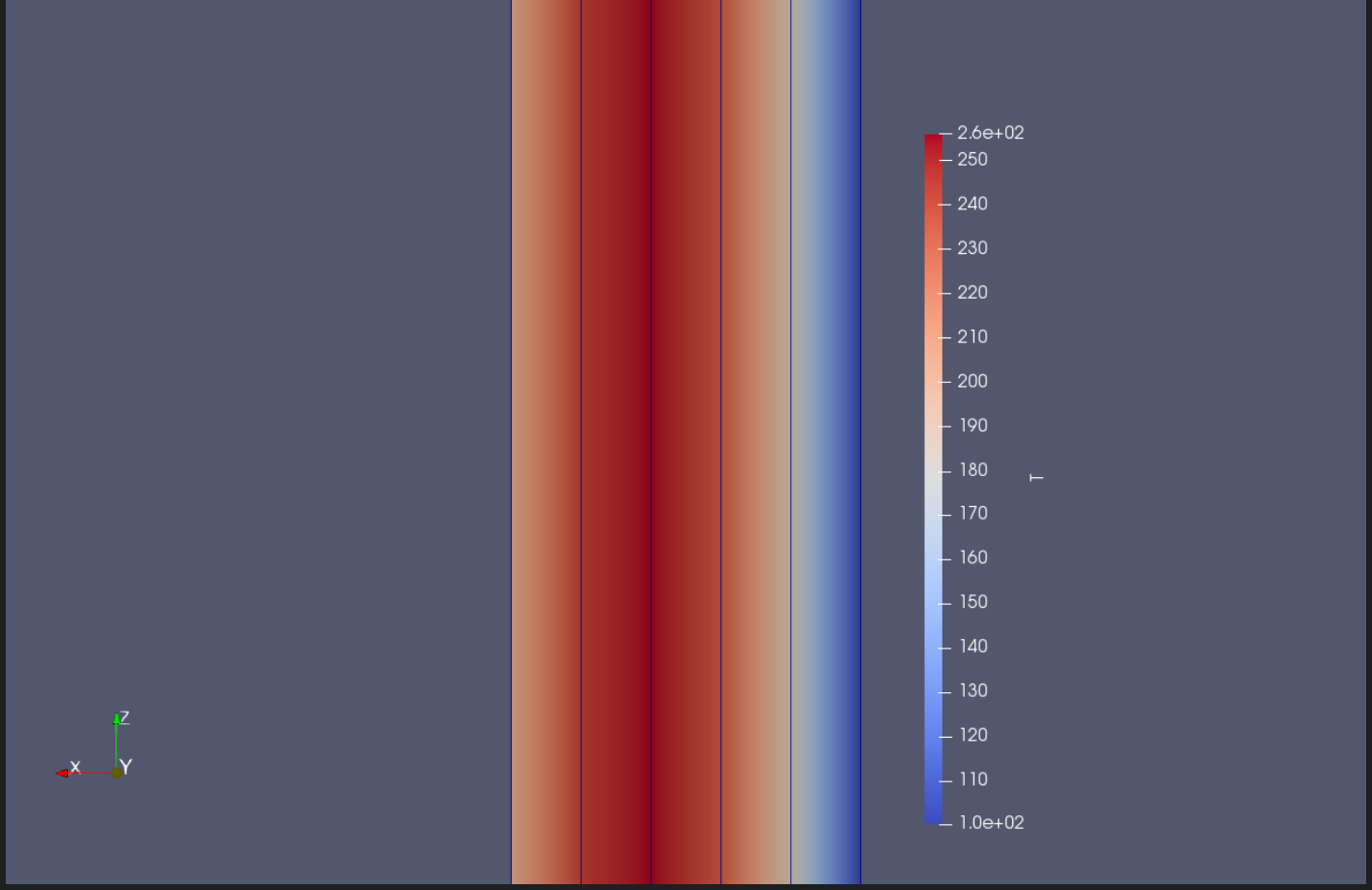
The below equation describes a state of pure diffusion with source:

$$\Gamma \frac{\partial^2 T}{\partial x^2} = Q$$





Initial State with boundary conditions



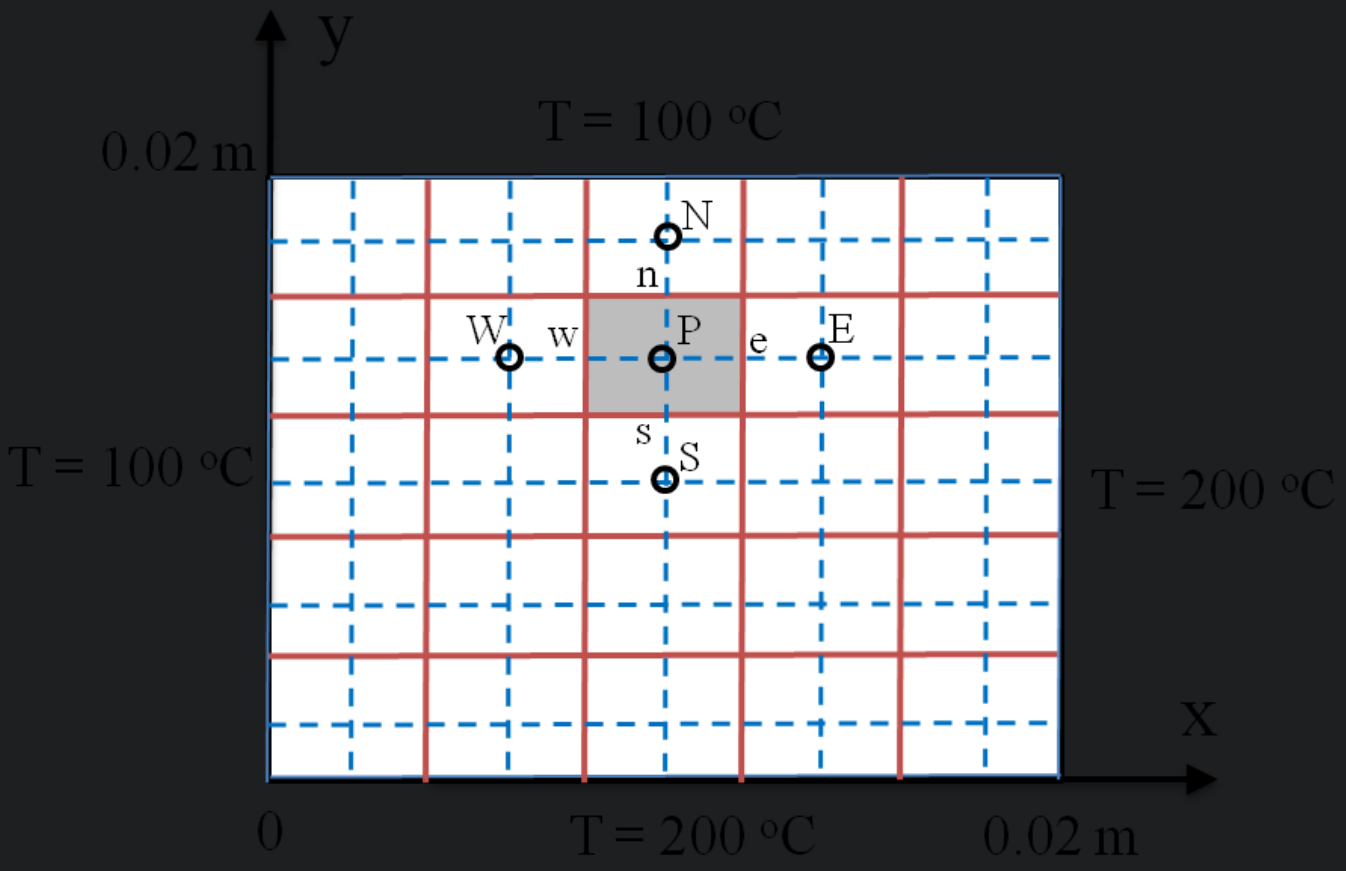
Final State

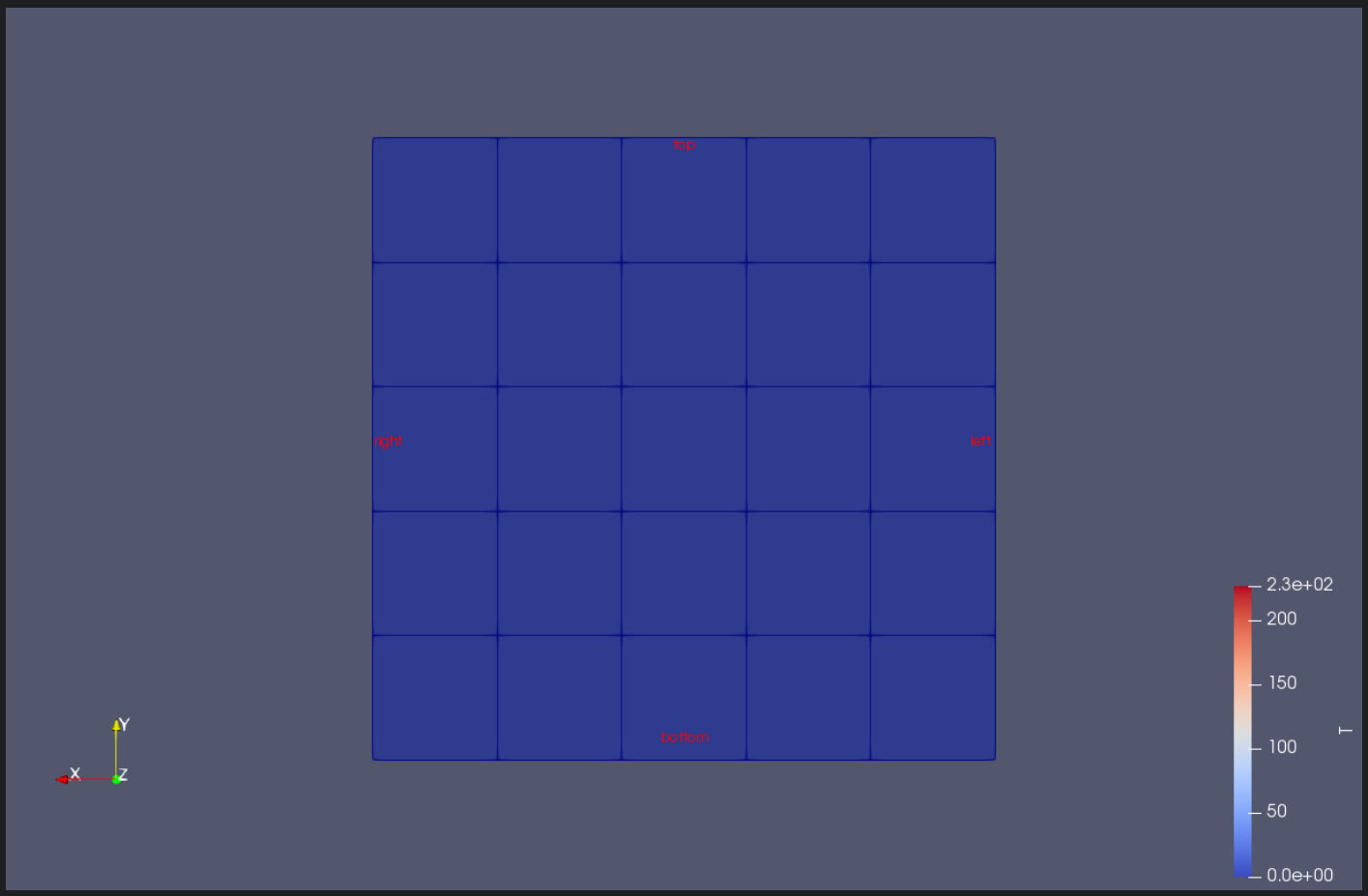
Case of Pure Disffusion with Source on a PLATE :

The below equation describes a state of pure diffusion with source: The plate is 2 by 2 cm

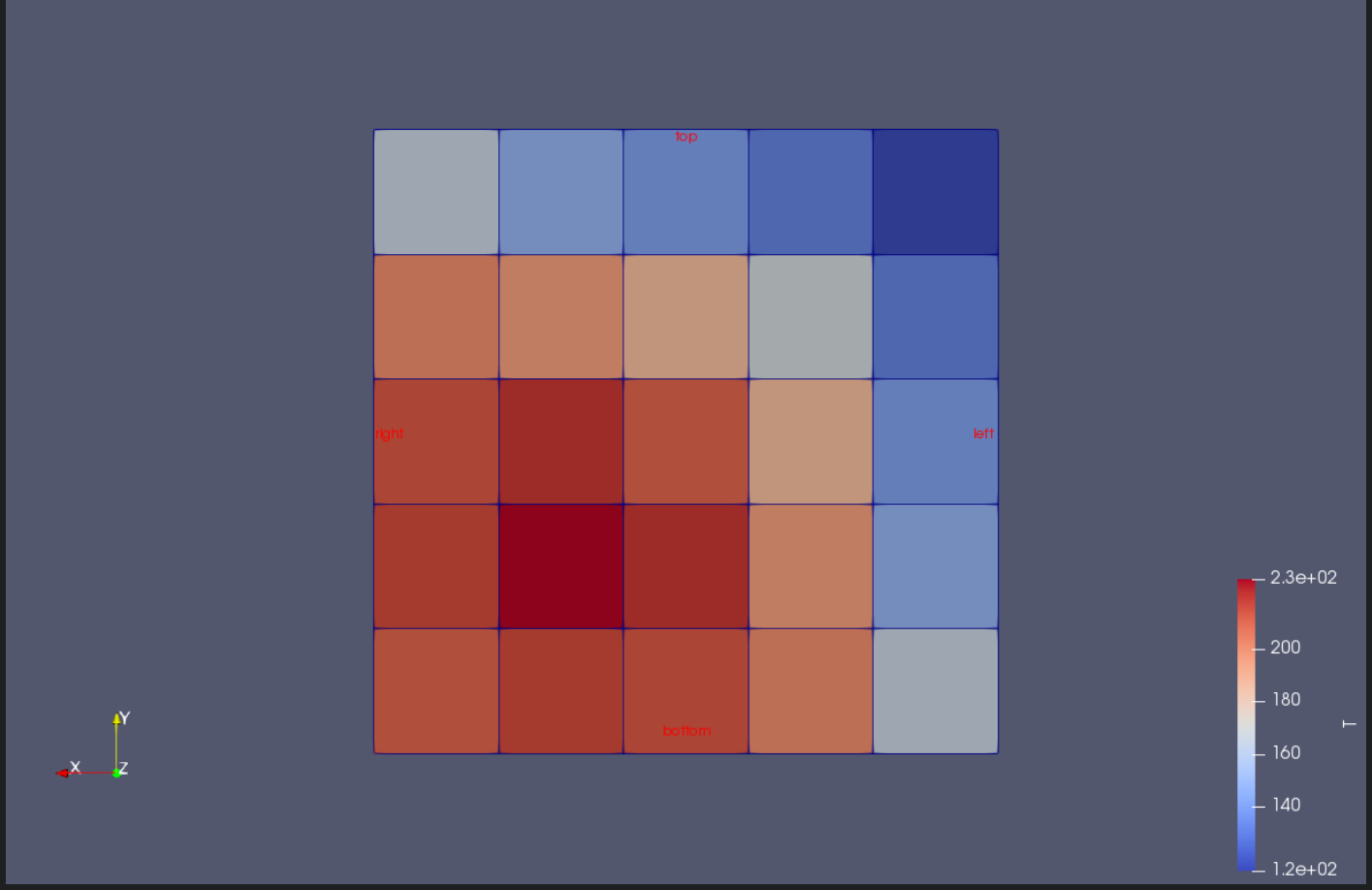
$$\Gamma \frac{\partial^2 T}{\partial x^2} = Q$$

The problem is as below :

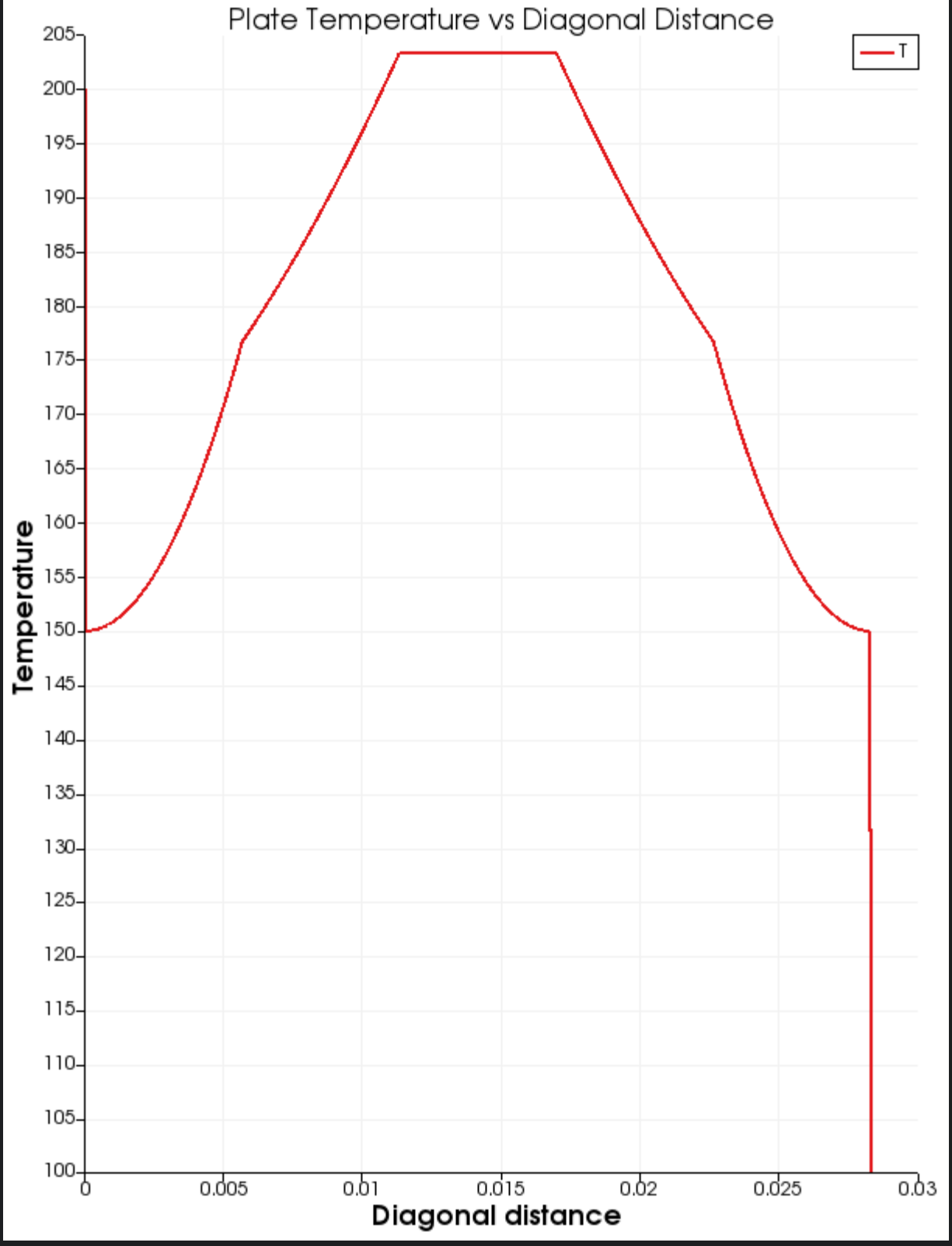




Initial State with boundary conditions



Final State



Plot over Plate Diagonal