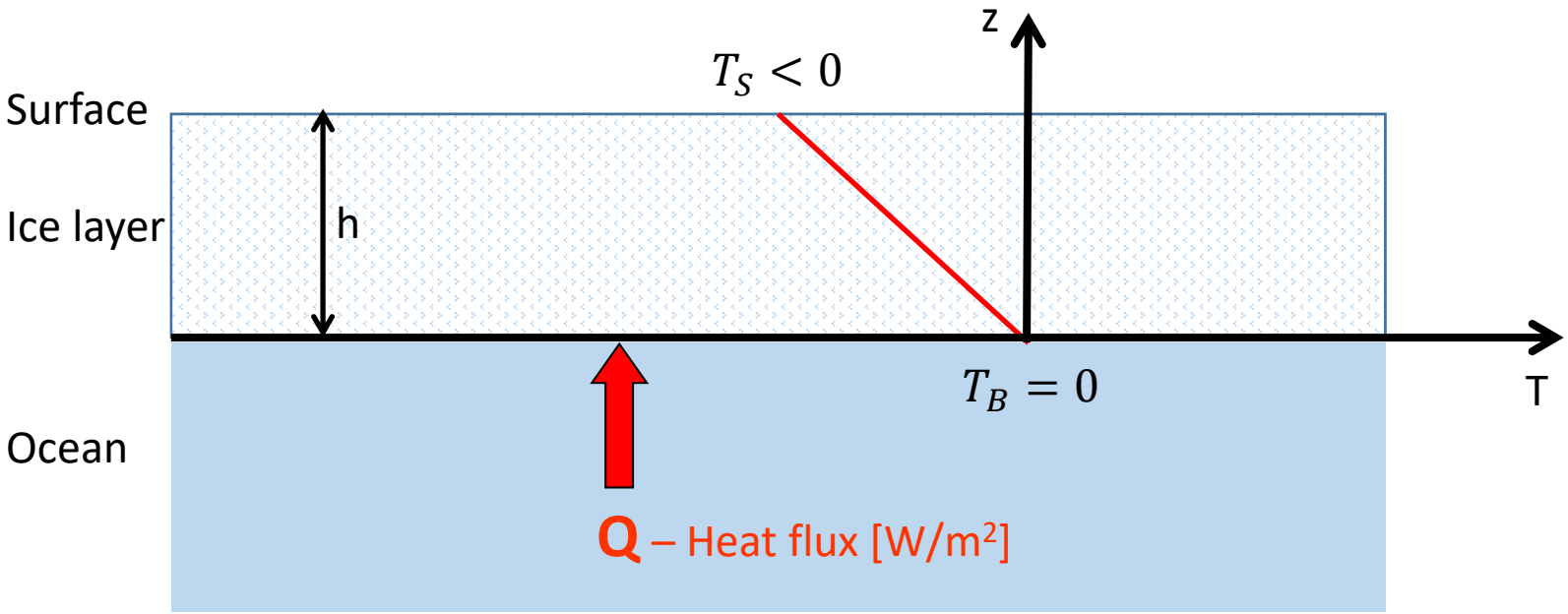
Temperatures in an ice layer:

- The ice layer covers the warm ocean underneath
- The surface of the ice layer is cold, and the bottom is at the melting point
- Heat from the warm ocean is conducted up through the ice towards the surface



The heat flux Q is proportional to the temperature gradient $\frac{\partial T}{\partial z}$, and for a steady state ice layer, we can write:

$$Q = -K\frac{\partial T}{\partial z} = -K\frac{T_S - T_B}{h} \Leftrightarrow h = \frac{K(T_B - T_S)}{Q}$$

K is the heat conductivity, $K = 2.1\frac{W}{m^2}$ (for ice at $T = 0°C$)

Q is the geothermal heat flux, $Q = 50 \cdot 10^{-3}\frac{W}{m^2}$