$$\frac{\partial\theta}{\partial t}+u\frac{\partial\theta}{\partial x}+w\frac{\partial(\theta+\theta_0)}{\partial z} = \frac{\partial}{\partial x}\left(K\frac{\partial\theta}{\partial x}\right)+\frac{1}{\rho_0}\frac{\partial}{\partial z}\left(\rho_0 K\frac{\partial(\theta+\theta_0)}{\partial z}\right) + \frac{(Q_{rad}+Q_{dis})}{(p_0/p_s)^{R/c_p}}.$$