

This technical note deals with a class of linear hyperbolic systems of balance laws with multiple time scales. The scale of time constants is modeled by a perturbation parameter. This parameter is introduced in both dynamics and boundary conditions. The solution of the full system is approximated by that of the reduced subsystem when the perturbation parameter is small enough. Lyapunov technique is used to prove it. The main result is illustrated by an academic example. Moreover, the boundary control synthesis to a gas flow transport model is shown based on singular perturbation approach.