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Low Mach Number Modeling of Stratified Flows

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Low Mach number equation sets approximate the equations of motion of a compressible fluid by filtering out the sound waves, which allows the system to evolve on the advective rather than the acoustic time scale. Depending on the degree of approximation, low Mach number models retain some subset of possible compressible effects. In this talk I present an overview of low Mach number methods for modeling stratified flows arising in astrophysics and atmospheric science, and discuss the algorithmic components necessary to model such flows.