

Abstract Submitted
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Compressible convection in geophysical fluids: comparison of anelastic, anelastic liquid and full numerical simulations¹ JEZABEL CURBELO, THIERRY ALBOUSSIÈRE, STEPHANE LABROSSE, FABIEN DUBUFFET, YANICK RICARD, Laboratoire de géologie de Lyon (CNRS/ENS Lyon/Lyon1) — In this talk we describe the numerical method implemented to study convection in a fully compressible two-dimensional model, which may be reduced to the different simplifications such as the anelastic approximation and the anelastic liquid approximation. Various equations of state are considered, from the ideal gas equation to equations related to liquid or solid condensed matter. We are particularly interested in the total value and spatial distribution of viscous dissipation. We analyze the solutions obtained with each approximation in a wide range of dimensionless parameters and compare the domain of validity of each of them.

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