

Convection between two differentially heated vertical plates with stratification

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ABSTRACT

We consider the DNS of air between two differentially heated, vertical plates with stable stratification. The stratification parameter is kept constant. The simulation is compared with a complex Ginzburg-Landau equation (CGLE) which was derived from the equations of motion. The difference with other approaches such as [1] is that (i) the Boussinesq approximation is used (ii) stable stratification is present. A good agreement between the model and the DNS is observed around the first bifurcation. As the Rayleigh number increases, cnoidal waves are observed in the simulation.

REFERENCES

- [1] Suslov, S.A. and Paolucci, S., Stability of non-Boussinesq Convection via the Complex Ginzburg-Landau Model, *Fl. Dyn. Res.*, **35**(3), pp. 159-203, 2004.