
MMM SEMINAR NCAR

Between Quasigeostrophic and Stratified Turbulence

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While it is well-established that the frequency disparity between vortical and wave motion is key to understanding the quasigeostrophic limit, i.e. strong rotation and stratification, the starting point for this work is that it has recently been established that there is no such frequency disparity in stratified turbulence without rotation. It remains to ask what happens in between these two limits, long held as the prevailing dynamics between deformation-scale eddies and the microscale where isotropy is recovered. To do this, ideas from numerical weather prediction were borrowed in order to explore numerically the nonhydrostatic Boussinesq equations starting from initial conditions that are close to our current fuzzy notions of balance for a variety of Rossby and Froude numbers. It is found that evolution is spontaneously away from this balance in the small scales, and from steep to much more shallow spectra. It will be argued that this conclusion is robust to uncertainties in the definition of balance. Comparison will be made with numerical models of both the atmosphere and ocean, some of which display similar behaviour, although not necessarily for the same reasons.

*This seminar will be webcast live at:
<http://www.fin.ucar.edu/it/mms/fl-live.htm>*

*Recorded seminar link can be viewed here:
<https://www.mmm.ucar.edu/events/seminars>*

Thursday, 17 December 2015, 3:30 PM
Refreshments 3:15 PM
NCAR-Foothills Laboratory
3450 Mitchell Lane
Bldg 2 Main Auditorium, Room 1022

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