

Applied Mathematics Seminar

Numerical simulations of the primitive equations with humidity and saturations above mountain

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Abstract: New avenues are explored to study the two dimensional inviscid primitive equations of the atmosphere with humidity and saturation, in presence of topography and subject to physically plausible boundary conditions for the system of equations. The filtering of the gravity waves produces a compatibility condition similar to the condition of incompressibility for the Navier-Stokes equations, which we treat in a similar manner. In that respect, a version of the projection method is introduced to enforce the compatibility condition on the horizontal velocity field, which comes from the boundary conditions. The resulting scheme allows for a significant reduction of the errors near the topography when compared to more standard finite volume schemes.

Monday, March 2 at 4:00 PM in SEO 636