1105-65-39   **Youngjoon Hong*** (`hongy@indiana.edu`), 831 E. 3rd Street, Bloomiongton, IN 47405. *Numerical methods for inviscid primitive equations of the atmosphere with humidity and saturation.*

In this talk, I will present a finite volume scheme to solve the two dimensional inviscid primitive equations of the atmosphere with humidity and saturation, in presence of topography and subject to physically plausible boundary conditions to the system of equations. In that respect, a version of a 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. In the numerical simulations, we first present the associated good convergence results that are satisfied by the solutions simulated by our scheme when compared to particular analytic solutions. We then report on numerical experiments using realistic parameters. Finally, the effects of a random small-scale forcing on the velocity equation is numerically investigated. (Received August 16, 2014)