
EDRISS TITI, Texas A&M University and The Weizmann Institute of Science

Recent advances concerning the Primitive Equations of oceanic and atmospheric dynamics

In this talk I will show the global (in time) well-posedness for the 3D viscous primitive equations of atmospheric and oceanic dynamics for all initial data. Motivated by strong anisotropic turbulence mixing I will also show the global well-posedness of this model with only horizontal viscosity and either horizontal or vertical diffusion. On the other hand, I will show that in the inviscid case there is a class of initial data for which the corresponding smooth solutions of the inviscid primitive equations develop singularity (blow-up) in finite-time.