

Scale dependent models in climate modelling

Tuesday, 23 April 2024 09:00 (30 minutes)

One of the main features of the global climate is that it incorporates a very wide range of length and time scales and associated physical processes. Therefore it is important to understand which phenomena occur according to the use of single scales or to the interactions of them (i.e. internal gravity waves, Rossby waves, cloud formation). From a mathematical point of view, these various physical behaviors give rise to different singular limits and, consequently to a different analysis of the asymptotics of the governing equations. In this talk first we will show a very general scaling analyse and then we will work on a simplified model for geophysical fluids

and we will show, according to the values of different scales, that the asymptotic behavior of the model will be those of an incompressible fluid or of a geostrophic flow.

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