



The role of scales in the dynamics of parameterization uncertainties

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The dynamics of model error due to parameterization uncertainties are investigated in the context of two spatially distributed systems, the one-dimensional convection system known as the extended Kuramoto-Sivashinsky equation and a quasi-geostrophic atmospheric model. In addition to the different phases of error growth already reported for low-order systems, unexpected behaviors associated with the spectral characteristics of the model perturbation sources have been brought out. Notably, the predictability of the system is less affected by model uncertainties acting at small scales than at larger ones. An interpretation in terms of the spectral properties of the Lyapunov vectors is advanced.