Resolved scales and nonlinear interactions in limited-area models

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Abstract

A procedure for identifying the resolved scales in limited-area models (LAMs) and for computing the nonlinear interactions between these scales is sketched in this paper. The spectral perspective is adopted and implemented semi empirically by analogy with global and sectorial models. The analysis reveals clearly that resolved scales and their interactions are limited in LAMs and sectorial models compared to global models of similar resolution. A further result of the analysis is the evidence of the paramount importance of nesting which acts as a type of closure scheme required by LAMs due to their limited computational domain.

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