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A scale invariance criterion for geophysical fluids

Friday 31 January 2020 14:00 (30 minutes)

Scale invariance of geophysical fluids is investigated in terms of a scale invariance criterion. It was developed by Schaefer-Rolffs et al. (2015) based on the implication that each scale invariant subrange shall have its own criterion. Two particular cases are considered, namely the synoptic scales with a significant Coriolis term and a case at smaller scales where the anelastic approximation is valid. The first case is characterized by a constant enstrophy cascade, while in the second case small-scale fluctuations of density, pressure, and temperature are taken into account. In both cases, the respective scale invariance criteria are applied to simple parameterizations of turbulent diffusion. It is demonstrated that only dynamic approaches are scale invariant.

Do you need an official invitation letter?

No

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