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A stable and scale-aware dynamic modeling framework for subgrid-scale parameterizations of two-dimensional turbulence

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Highlights

- Scale-aware dynamic eddy viscosity parametrization models are proposed for 2D turbulence.
- The proposed hybrid approaches minimize error between functional and structural models.
- These modular approaches include the Smagorinsky, Leith, Bardina, Layton and AD models.
- The robustness of these models has been tested by considering two different numerical schemes.
- It is shown that the proposed models could be viable tools for dynamic subgrid-scale modeling.

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