

Abstract Submitted
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A metric for assessing the dynamic content of large-eddy simulations GABRIEL NASTAC, MATTHIAS IHME, Stanford University — Current metrics used to identify the quality of large-eddy simulations commonly rely on a statistical assessment of the solution. While these metrics are valuable, turbulence is inherently a dynamic phenomenon, so a dynamic measure is desirable to characterize the quality of a numerical prediction. A dynamic metric utilizing a form of Lyapunov exponents and error growth rates is proposed and applied to two test cases: homogenous isotropic turbulence and a turbulent jet diffusion flame. A grid refinement analysis is performed for each test case utilizing this dynamic metric and current results show monotonic trends versus LES filter width. Results for the homogenous isotropic turbulence show insights into the effect of LES-resolution on the initial rapid error growth rate.

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