Abstract Submitted
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Developing Validation Metrics for Simulations of Plasma Turbulence[1] C. HOLLAND, G.R. TYNAN, UCSD, G.R. MCKEE, M.W. SHAFER, U. Wisconsin-Madison, A.E. WHITE, ORISE, T.L. RHODES, L. SCHMITZ, UCLA, R. PRATER, J.C. DEBOO, J. CANDY, R.E. WALTZ, General Atomics — Robust model validation efforts require the use of metrics for quantifying the skill or fidelity of a given model in reproducing experimental results [1]. In this work, we propose a variety of different metric forms for evaluating the fidelity of gyrokinetic models of drift-wave turbulence. The metrics are applied to GYRO simulations of DIII-D L-mode plasmas at multiple radial locations, including data from a recent elongation scaling experiment. The relative performance of global and local GYRO fixed-gradient simulations, as well as TGYRO fixed-flux simulations, will be quantified. In addition, the impact of using an upgraded magnetic geometry interface for GYRO will be reported. Initial work on ensemble simulation algorithms for propagating experimental profile uncertainties through these turbulence models is also discussed.

[1] P.W. Terry et al., Phys. Plasmas 15 (2008) 062503.

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