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Comparison of Edge Turbulence Characteristics Between DIII-D and C-Mod Simulations with XGC1[1] I KERAMIDAS CHARIDAKOS, LANL, J.R. MYRA, Lodestar, S. KU, R.M. CHURCHILL, R. HAGER, C.S. CHANG, PPPL, S.E. PARKER, U. Colorado — Processes taking place at the edge region of tokamaks govern the interaction of hot plasma with the vessel walls. Numerical modeling of the edge attempts to elucidate interactions between neoclassical drifts, turbulence and flows that control the SOL region. Here, we present post-processing analysis of simulations from the gyrokinetic code XGC1, comparing edge turbulence from a simulation of DIII-D against one of C-Mod. We find that the equilibrium $E \times B$ flux across the separatrix has a similar poloidal pattern in both discharges which can be explained by magnetic drifts and trapped ion excursions. Collisionality is noted to play a major role in that it prevents local charge accumulations from having global effects in C-Mod. In both cases, turbulent electron heat flux is higher than the ion one. We identify turbulent frequencies and growth rates of the dominant mode in both simulations. In C-Mod, these numbers point to the presence of a drift wave. In DIII-D, linear simulations with Gene reveal a trapped electron mode. Amplitude distributions of blobs are in agreement with experimental observations. Size distributions are consistent with the fact that most blobs are not connecting to the divertors and suggest that they are generated by the shearing of the turbulent modes.

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