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Time-dependent recycling modeling with edge plasma transport codes A. PIGAROV, S. KRASHENINNIKOV, UCSD, T. ROGNLIEN, LLNL, S. TAVERNIERS, E. HOLLMANN, UCSD — First,we discuss extensions to Macroblob approach which allow to simulate more accurately dynamics of ELMs, pedestal and edge transport with UEDGE code. Second,we present UEDGE modeling results for H mode discharge with infrequent ELMs and large pedestal losses on DIII-D. In modeled sequence of ELMs this discharge attains a dynamic equilibrium. Temporal evolution of pedestal plasma profiles, spectral line emission, and surface temperature matching experimental data over ELM cycle is discussed. Analysis of dynamic gas balance highlights important role of material surfaces. We quantified the wall outgassing between ELMs as 3X the NBI fueling and the recycling coefficient as 0.8 for wall pumping via macroblob-wall interactions. Third,we also present results from multiphysics version of UEDGE with built-in, reduced, 1-D wall models and analyze the role of various PMI processes. Progress in framework-coupled UEDGE/WALLPSI code is discussed. Finally, implicit coupling schemes are important feature of multiphysics codes and we report on the results of parametric analysis of convergence and performance for Picard and Newton iterations in a system of coupled deterministic-stochastic ODE and proposed modifications enhancing convergence.

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