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H-mode ITER Scenario Modeling A.H. KRITZ, T. RAFIQ, G. BATEMAN, Lehigh University, C. KESSEL, D.C. MCCUNE, R.V. BUDNY, Princeton Plasma Physics Laboratory — The TSC and PTRANSP codes are used in modeling ITER 15 MA H-mode discharges from ramp-up through flat-top. The simulations, in which the temperatures, toroidal angular frequency and currents are evolved, are carried out using the PTRANSP code starting with initial profiles and equilibria obtained from TSC code studies. The goal of these whole-device ITER simulations is to identify physical processes that critically impact fusion performance in ITER scenarios. The ITER 15MA H-mode simulation results are compared with ITER hybrid 12.5MA results [1]. The PTRANSP code includes a wide range of options for predictive simulations using different theory-based transport models, prescribed boundary equilibrium solvers, as well as sophisticated computations of heating, momentum and particle sources. The time evolution of temperature, toroidal angular frequency, current density profiles and fusion power production predicted using the new MMM v7.1 transport model are compared with those predicted using the GLF23 transport model.

[1] Self-Consistent Simulations of Plasma Scenarios with Fixed Boundary Equilibria, T. Rafiq, et al., Final Report for ITER Task Agreement C19TD38FU.

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