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=Modeling of Global Particle Balance in ELMing and RMP ELM-Suppressed DIII-D Discharges With SOLPS5-EIRENE,* S. Mordijck, I. Joseph, R.A. Moyer, G.R. Tynan, *UCSD*; L.W. Owen, *ORNL*; T.E. Evans, T.H. Osborne, *GA*; X. Bonnin, *LIMHP-CNRS*; D. Coster, *MPI-G*; D. Reiter, *FZ Jülich* – The global particle balance in single-null DIII-D H-mode plasmas, with density control using the lower cyropump, is studied with a 2D fluid code coupled to a Monte-Carlo neutral code, SOLPS5-EIRENE. We compare DIII-D discharges with type-I ELMs to ELM-suppressed discharges using n=3 I-coil resonant magnetic perturbations (RMPs). We observe that RMP leads to a strong reduction in the density. This may result from an increase in stochastic particle advection, increased fluctuation driven transport or improved coupling of the plasma to the pump due to changes in the magnetic footprints. To identify the importance of each effect, we construct a grid and derive transport parameters to fit the radial profiles between ELMs in an ELMing discharge. We investigate the relative impact of changes in the pumping efficiency by comparing the numerical profiles to the experimental RMP profiles.

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