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Measurement and Modeling of Carbon Flows in the Main SOL of the DIII-D Tokamak,* M. Groth, M.E. Fenstermacher, G.D. Porter, M.E. Rensink, T.D. Rognlien, *LLNL,* J.A. Boedo, D.L. Rudakov, J.H. Yu, *UCSD*, N.H. Brooks, *GA*, R.C. Isler, *ORNL*, J.G. Watkins, *SNL* – Carbon ion velocities of ~1/2 of the deuterium ion sound speed in the direction of the inner divertor were measured in the scrape-off layer (SOL) at the top of DIII-D low-density, low-confinement plasmas with the ion **B**x∇B drift toward the divertor. The use of upper single-null discharges and injection of methane from the bottom of the DIII-D vessel in toroidally symmetric fashion enabled simultaneous measurements of the flow of deuterium ions with a reciprocating Langmuir probe and of low charge-state carbon ions with a tangential viewing spectrometer and cameras. Modeling of the SOL with the UEDGE code predicts significantly weaker flow of deuterium ions in the SOL compared with the data, leading to an underestimate of the carbon flow in the main SOL. The dependences of the simulated flows on the assumed radial transport model and boundary conditions are investigated and will be presented.

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