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Comparison of Pellet Injection Measurements with a Pellet Cloud Drift Model on the DIII-D Tokamak¹ T.C. JERNIGAN, L.R. BAYLOR, S.K. COMBS, Oak Ridge National Laboratory, P.B. PARKS, GA, G.L. SCHMIDT, PPPL, W.D. SESSIONS, Tennessee Technological U. — Deuterium pellet injection has been used on the DIII-D tokamak from different injection locations to study pellet-fueling efficiency. When the injection point is inside the magnetic axis of the plasma, the fueling efficiency is significantly higher (approaching 100% in some circumstances) than when the injection point is outside of the magnetic axis. Drifting of the pellet cloud from regions of high to low magnetic field has been hypothesized to explain the experimental results. A pellet cloud drift model² has been extended and implemented in a code to compare with the experimentally measured pellet deposition profiles. Measurements of the H_α spectra emitted from the pellet cloud have been made and are used to compare with assumed cloud parameters in the drift model. Comparisons of the resulting fuel deposition profile from different injection locations and the model calculations are presented.

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²P.B. Parks, Phys. Plasmas **7**, 1968 (2000).

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