

Abstract Submitted
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Carbon Migration during JET ^{13}C Injection Experiments.¹

JIM STRACHAN, Princeton University, P. COAD, G. CORRIGAN, G.F. MATTHEWS, J. SPENCE, UKAEA, J. LIKONEN, EURATOM-TEKES, M. RUBEL, EURATOM-VR, R.A. PITTS, EURATOM-Confederation Suisse, A. KIRSCHNER, Juelich, A. KALLENBACH, EURATOM-Garching, JET EFDA CONTRIBUTORS TEAM — JET performed two dedicated migration experiments using ^{13}C labeled methane injected into repeated discharges. The ^{13}C migration was measured by IBA and SIMS techniques on removed vessel components. One experiment used toroidally localized injection into L-Mode plasmas from the vessel top. In the second, methane was introduced toroidally uniformly at the outer strike point vicinity into in Type I ELMy H-Mode plasmas. The EDGE2D/NIMBUS code has been used to model carbon migration in both experiments. Three migration pathways were important: 1. Re-deposition near the injection location, 2. Migration through the main chamber SOL, and 3. Migration through the private flux region. In H-Mode, the migration is influenced by the ELM cycle. Most of the long-range migration occurred in the inter-ELM periods when the SOL and divertor were cooler and carbon was ionized closer to the separatrix.

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