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Time-dependent 2-D modeling of edge plasma transport with high intermittency due to blobs A.YU. PIGAROV, S.I. KRASHENINNIKOV, UCSD, T.D. ROGNLIEN, LLNL — Edge plasma transport is well known to be highly intermittent and non-diffusive via coherent structures (so-called blobs and ELM filaments) moving ballistically to walls. This intermittent transport has strong impact on both edge plasma parameters and plasma-wall interactions. The "macro-blob" approach to simulate simultaneously the edge plasma transport, statistical turbulent properties, impurities, and wall dynamics within the framework of 2-D edge-plasma fluid transport code has been developed and implemented into UEDGE. The results of time-dependent modeling of bursty plasma and wall responses with the improved UEDGE will be presented. The effect of a sequence of macro-blobs on background plasma profiles, on hydrogen radiation and recycling, and on particle and energy fluxes will be discussed. Impurity dynamics with macro-blobs is also presented showing the enhancement of sputtering rates, alteration of charge state profiles (caused by enhanced outward transport of high states and simultaneous advancement of low states toward the core), and change in erosion/deposition patterns. Work supported by DOE grant DE-FG02-04ER54739 at UCSD and DE-AC52-07NA27344 at LLNL.

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