

Abstract Submitted
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Variations in Edge and SOL Turbulence in NSTX¹ S.J. ZWEBEN, W.M. DAVIS, R.M. BELL, B.P. LEBLANC, S.M. KAYE, PPPL, T. MUNSAT, Univ. Colorado, J.R. MYRA, Lodestar Inc., Y. SECHREST, Univ. Colorado, NSTX TEAM — Variations in edge and SOL turbulence were studied using a 140 shot database from the NSTX gas puff imaging (GPI) diagnostic. Analyses of the turbulence structure and motion was done using both cross-correlation and blob-tracking techniques. The relative fluctuation levels and blob formation rates were lower near and inside the separatrix for H-mode plasmas compared to Ohmic and L-mode plasmas, but similar in the far SOL. Poloidal correlation and blob lengths were roughly the same as radial turbulence correlation and blob lengths, and roughly independent of confinement regime. The radial turbulence velocity was outward in all cases, but the poloidal velocity reversed direction inside the separatrix for Ohmic and low-power L-mode plasmas. Variations of the turbulence quantities with global and local edge parameters will be described in detail. An attempt will be made to identify the basic mechanisms of the turbulence based on these variations and to evaluate the scaling of turbulent transport in the edge and SOL.

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