Statistical Features of the Large Scale Coherent Motions in a Single-Stream Shear Layer (SSSL)[1] JOHN FOSS, KYLE BADE, Michigan State University — A dedicated PIV flow facility provides uniform seeding in the primary *and* the entrainment flows for the subject SSSL. PIV images within the nominal range: $500 \leq x/\theta(0) \leq 680$ have been examined by subtracting $U_o/2$ from each streamwise component of the measured velocity (in-plane) vectors. The resulting vector fields exhibited a sparse distribution of clearly defined nodes and saddles in contrast with the dense population of singular points in the original images. A total of 917 isolated coherent motions, identified by the topological considerations utilized in Foss (2004), have been identified in 1000 PIV images. Of these, 538 involved one node (coherent motion) in the observation window. The population of the areas that produced the largest spatially averaged vorticity: $<\omega_z>A=\Gamma$, and the $<\omega>$ values will be presented. 28.6% of the realizations did not exhibit coherent motions, 9.3% showed two or more nodes. Other statistical properties of the coherent motions will be reported. J.F. Foss (2004) "Surface Selections and Topological Constraint Evaluations for Flow Field Analyses," *Experiments in Fluids*, Springer-Verlag, **37**, pp. 883-898.

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