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Scaling The Size And Time Interval Of Pocket Events In The Turbulent Boundary Layer[1] MEREDITH METZGER, ARI FERSHTUT, CHERIE CAMBRON, University of Utah, JOSEPH KLEWICKI, University of New Hampshire — Smoke visualization and axial velocity measurements are combined in order to establish the scaling behavior of pocket events in the viscous sublayer of the turbulent boundary layer. The present study is the first to employ an identical analysis methodology over an extensive range of Reynolds numbers based on momentum thickness between $1000 \leq R_\theta \leq 1.5 \times 10^6$. Both the pocket width (W) and time interval between pocket events (T) increase logarithmically with Reynolds number when normalized by viscous units. Normalization of W and T by the Taylor microscales evaluated at a wall-normal location of about 100 viscous units, however, appears to successfully remove this Reynolds number dependence. The present results are discussed in the context of coherent vortical motions.

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