Abstract Submitted
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Free-stream turbulence influence on jets in cross-flow[1] RAUL BAYOAN CAL, GRAHAM FREEDLAND, Portland State University, JAMES MCNEAL, Washington State University - Vancouver, LARRY MASTIN, U.S. Geological Survey, STEPHEN SOLOVITZ, Washington State University - Vancouver — A wind tunnel experiment is performed to produce a jet in cross-flow. Levels of background/inflow turbulence are varied to observe the effects on the development of the plume. The background turbulence is varied by means of a grid operated passively or actively; three levels are employed, two active and a passive. Flow fields are acquired using particle image velocimetry, thus providing access to computing first and second order statistics. The development of the jet is assessed in response to the free-stream turbulence. The mean flow as well as the Reynolds stresses prove to be susceptible to this effect. The findings have implications in description and modeling of volcanic plumes.

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