

Abstract Submitted  
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**Effect of Localized Particle Injection and Particle Migration on Turbulence Modulation in Particle-Laden Turbulent Flows.**<sup>1</sup> PRADEEP MURAMULLA, Indian Institute of Technology Bombay, V KUMARAN, Indian Institute of Science Bangalore, PARTHA S GOSWAMI, Indian Institute of Technology Bombay — To study the effect of localized particle injection and particle migration on turbulence collapse, we segmented the channel into four different zones along cross stream direction. Particles injection and particle migration were limited to those zones only for all simulations. In zone-I, the turbulence production is maximum; in zone-II the rate of increase in turbulence dissipation due to particle drag increases at maximum rate, zone-III included complete half channel excluding zone-I, and zone-IV includes complete half-channel excluding zone-II. When the particle local volume fraction in each zone is kept constant the percentage attenuation in turbulence intensity is maximum for the case of zone-IV. Zone-IV, covers the channel where turbulence production is maximum, and buffer layer, where the turbulence structures are dominant. In summary, location of particle injection and cross stream distance of particle migration strongly influences the turbulence.

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