

# **Turbulent kinetic energy dissipation rate and eddy diffusivity study in the tropical mesosphere using Jicamarca radar data**

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The MST radar at Jicamarca Radar Observatory (JRO) is a powerful radar that can detect atmospheric turbulence on the Bragg scale of 3 m in the daytime mesosphere (60-85 km). Since 2002, the radar was operated for a few days each year in the mode that collecting 1 minute Doppler spectra in four beam directions and 150 m resolution. The spectral widths along with GSWM, MSIS and SABER temperatures have been used to compute the kinetic energy dissipation rate due to atmospheric turbulence. Eddy diffusivities  $K$  have also been calculated. A small contamination due to beam broadening (beam width 0.7 degree) has been removed. For most days, median kinetic energy dissipation values of 1-10 mW/kg increase with height consistent with the results from other VHF radars. The variability during each day is large. Turbulent dissipation rates and eddy diffusivities for individual layers and the day-to-day variability are discussed in relationship with the observed wind shear and estimated Richardson number.