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Statistical parameters of thermally driven turbulent anabatic flow[1] RONI HILEL, DAN LIBERZON, Civil and Environmental Engineering Faculty, The Technion, Israel — Field measurements of thermally driven turbulent anabatic flow over a moderate slope are reported. A collocated hot-films-sonic anemometer (Combo) obtained the finer scales of the flow by implementing a Neural Networks based *in-situ* calibration technique. Eight days of continuous measurements of the wind and temperature fluctuations reviled a diurnal pattern of unstable stratification that forced development of highly turbulent unidirectional up slope flow. Empirical fits of important turbulence statistics were obtained from velocity fluctuations' time series alongside fully resolved spectra of velocity field components and characteristic length scales. TKE and TI showed linear dependence on Re, while velocity derivative skewness and dissipation rates indicated the anisotropic nature of the flow. Empirical fits of normalized velocity fluctuations power density spectra were derived as spectral shapes exhibited high level of similarity. Bursting phenomenon was detected at 15% of the total time. Frequency of occurrence, spectral characteristics and possible generation mechanism are discussed.

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