In atmospheric physics some key unresolved issues are associated with wall-bounded turbulence, such as: the existence of a logarithmic sublayer, validity of the locally isotropic turbulence hypothesis and relations between inner and outer scaling. The first step in addressing these issues is to statistically analyse the data. Available to us is a six-month sample of wind data taken at 10Hz in an experimental wind farm at the height of 43 meters. Out of the 181 days available only 161 days were without error. A spectral representation of the data allowed us to observe a unique power law for all three velocity components over small scales up to approximately 40 seconds. This scaling is in agreement with Kolmogorov’s famous -5/3 law for the isotropic 3D inertial subrange, although its empirical value -1.4 did not match the theoretical value. This difference can be accounted for a strong intermittency with a correction K(2)=mu=0.27, i.e. with a fractal dimension of the turbulence support lower than usual. This might be due to the influence of the wind turbines and/or the selection of the experimental site. We will discuss the observed changes in scaling behaviour among different wind velocity components with the help of an anisotropic multifractal model. In particular the results that seemingly support the hypothesis of locally isotropic turbulence in the inertial subrange simply coinciding with the spheroid-scale of the anisotropic model i.e. the scale at which turbulence is roughly isotropic.