



Spatially correlated signals in turbulent windfields

T. Laubrich and H. Kantz

Max-Planck-Institut fuer Physik komplexer Systeme

Wind velocities at different points in the atmosphere are highly spatially correlated. The understanding of turbulent wind fields and its correlated structures plays an important role for atmospheric applications, e.g. the design of wind turbines. The focus in this presentation is put on the exchange of spatial-temporal structures in the Prandtl Layer causing the correlations. Data collected at a windmast with cup-anemometers installed at different altitudes are used. Different filters are applied to the series before the linear cross-correlations between the wind speeds at different altitudes are computed. This helps us to gather information about the nature of highly correlated signals.