

Multi-site observation of large-scale eddies in the surface layer of the Loess Plateau





(a)–(d) are the fitting linear relationships, Dut = Dur, related to the longitudinal velocity after 10-min, 20-min, and 40-min high-pass filtering and without filtering, respectively; (e)–(h) are the fitting linear relationships, Dvt = Dvr, related to the cross velocity after 10-min, 20-min, and 40-min high-pass filtering and without filtering, respectively. Credit: Science China Press

A study recently published in the journal *Science China Earth Sciences* was led by Dr. Chen of the Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences. Based on the principle of turbulence correlation and ensemble averaging, his team first used four-



site observations of atmospheric turbulence under complex conditions.

On the basis of the fact that <u>atmospheric turbulence</u> in the atmospheric boundary layer is usually random and stationary, the time series data of each point were combined with the <u>spatial distribution</u> to form a long time series. This can be used to analyze the various states of regional <u>turbulence</u> observation, and to more comprehensively analyze turbulence structure and estimate turbulence spectra.

Using the four-site observation data under the complex conditions of the Loess Plateau region, it was demonstrated that the various states of turbulence can be more easily satisfied with four-site turbulence observations on the scale of the entire atmospheric boundary layer (

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