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**“3D, Unsteady, Non-stationary, non-Gaussian
wind fields and their effects”**



ABSTRACT

During the last two decades, the wind engineering debate was dominated by the issue of non-synoptic windstorms (Hangan and Kareem, 2021). These winds are way more complex, from a spatio-temporal perspective, compared to the typical synoptic winds. They are three-dimensional (3D), unsteady, non-stationary and non-Gaussian and are dominated by vortex dynamics.

Given these complexities, we attempt to characterize them and their effects through superpositions of isolated flows and their vortex structure, instabilities, translation and turbulence. We use tornadoes, downbursts and gusts as examples. Finally, we point out to issues to be addressed such as the non-linearity of these possible superpositions, the definition of references, and further developments.

Reference:

Hangan H., Kareem A., The Oxford Handbook of Non-Synoptic Wind Storms, Oxford University Press, 2021



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channel: wlp9vyt



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