

# Special issue on Non-Synoptic Wind II

## Preface

Numerous buildings, transmission lines, wind turbines and other structures have been devastated by non-synoptic winds including thunderstorm downbursts and tornados in US, Canada, China, Japan and many other countries. Because of the local and transient features, and random occurrences, the non-synoptic winds are significantly different from the traditional boundary layer winds. The studies on these winds, wind loading and load effect are of priority to wind engineering, and also important in extending the well-known Davenport chain to non-synoptic winds. Currently, many scholars are working on field measurement, physical and numerical simulations, and theoretical analysis associated with non-synoptic winds, wind loads and wind load effects. To better spread the latest advances on these studies, two issues are developed.

As the second collection on non-synoptic winds, this special issue is targeting the state-of-art developments on the research of non-synoptic winds, wind loads and wind load effects. A total of 6 peer-reviewed papers have been selected in this issue. Paper 1 validates the numerical modelling of aero-elastic behaviour of transmission line under downburst wind by experimental data; paper 2 studies the characteristics of downburst winds and the wind loading on high-rise building using a numerical approach; paper 3 presents a numerical study of a confined turbulent wall jet with an external stream in order to simulate downburst winds; paper 4 addresses the effect of aspect ratio on laboratory simulation of tornado-like vortices; paper 5 investigates the topographic effects on tornado-like vortex numerically; and paper 6 examines the performance of structures and infrastructure facilities based on the wind hazard survey after an EF4 Tornado in Yancheng, China.

The guest editors would like to take this opportunity to appreciate all of the authors and the reviewers for their great contributions on this issue. Furthermore, the guest editors particularly thank Prof. C.K. Choi (Editor-in-Chief of Wind and Structures) and Dr. J.D. Holmes (former Editor-in-Chief of Wind and Structures) for their kind initiative and guidance of this special issue.

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