Preface

Special Issue on Windborne Debris

Observations in severe wind events, such as hurricanes and typhoons, have shown that windborne debris, either directly or indirectly, can produce comparable amounts of damage to direct wind pressures and forces. However, up to about a decade ago there had been relatively little serious research on the topic, apart from a period in the 1970s when the effects of tornadoes on nuclear facilities were of great interest in the United States.

In the last ten years, however, there has been a resurgence of interest in studying the mechanics and effects of windborne debris, and in making predictions for risk and damage studies, and for development of physical test velocities.

The papers in this Issue cover a broad range of studies reflecting recent work in this field, from four continents. The paper by Martinez-Vazquez, *et al.* describes an innovative experimental technique for direct measurement of pressures on moving and autorotating plates – representative of roofing materials such cladding sheets and tiles. Two papers, by Scarabino and Giacopinelli, and by Kakimpa, *et al.*, describe analytical and numerical studies of the trajectories of plate-type debris.

The experimental model study in a boundary-layer wind tunnel by Kordi, *et al.* reveals the important effects of turbulence and wind direction on the trajectories of plate-type debris, represented by roof sheathing panels.

There are three papers related to damage risk modelling for windborne debris. That by Holmes reviews previous work in this area, and includes discussion of how trajectory studies can assist with this. The two papers by Lin, Vanmarcke and Yau describe the continuing development by these authors of a risk model based on the Poisson Distribution for debris impacts; Part II by Lin, *et al.* describes the interactions between damage produced by direct wind pressures and windborne debris, and an application of their models to a residential development in Florida.

The Editors wish to thank all the contributors to this Special Issue for their excellent contributions, and for complying with our deadlines, allowing the process of submission of abstracts, full papers reviewing, editing and publication to occur within one year.

J.D. Holmes and C.J. Baker