

Human behaviours in evacuation crowd dynamics: From modelling to “big data” toward crisis management

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Abstract

This paper proposes an essay concerning the understanding of human behaviours and crisis management of crowds in extreme situations, such as evacuation through complex venues. The first part focuses on the understanding of the main features of the crowd viewed as a living, hence complex system. The main concepts are subsequently addressed, in the second part, to a critical analysis of mathematical models suitable to capture them, as far as it is possible. Then, the third part analyses how the model can depict critical situations and how these can be managed with the aim of minimizing the risk of catastrophic events.

Keywords: Crowd dynamics, human behaviour, complexity, kinetic theory, stress propagation, decision making.

The full article can be requested at the publisher or at HKV consultants (secretariaat@hkv.nl), for personal use only.