

WGRE Seminar



*Large scale
geomorphic and
hydrodynamic flood
modelling: from
research to insurance
industry applications*



9 October 2025



Room 2,
WGRE
Building



16:30

Abstract

Floods are among the most devastating natural hazards, causing severe physical, social, and economic impacts worldwide. Flood hazard and risk zoning models play a crucial role in understanding, quantifying, and mapping the frequency, distribution, and magnitude of these hydro-meteorological phenomena across multiple spatial scales. However, many regions, particularly inland and data-scarce areas, still lack accurate and reliable flood assessments. This seminar introduces the principles, methodologies, and technical specifications of the main flood modelling approaches. Physically based hydrodynamic models—considered the de facto standard for high-resolution flood hazard simulations—are presented and compared with large-scale geomorphic floodplain zoning algorithms. The seminar provides a comparative overview of the performance and limitations of these modelling frameworks, highlighting current research advancements as well as practical applications, with a particular focus on their relevance for the flood and NATCAT insurance industry.



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