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Special Issue Reprint

High Performance Computing Serving Atmospheric Transport & Dispersion Modelling

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This reprint brings together fifteen articles published in the Special Issue of the journal *Atmosphere*, entitled “High-Performance Computing Serving Atmospheric Transport & Dispersion Modelling”. These articles cover a wide variety of topics related to air quality in urban areas and nature-based solutions to improve it in the context of climate change; impact studies on human health and the environment of facilities and infrastructure projects as well as risk studies; the assessment of emerging threats; and preparations for and responses to emergencies involving toxic, flammable, or explosive atmospheric releases. As the fifteen articles presented here remarkably illustrate, what these contemporary topics have in common is the implementation of multi-scale simulations of atmospheric transport and dispersion by means of physical models of computational fluid dynamics (CFDs), whose potential is enhanced by high-performance computing (HPC). This reprint thus addresses the answers provided by modelling and the most advanced simulations to some societal matters of major interest.

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