ADVANCES IN COMPUTATIONAL METHODS FOR ENVIRONMENTAL FLOWS

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ABSTRACT

The aim of this mini-symposium is to bring together scientists working on computational models for simulation of environmental flows to discuss new trends and challenges that address computational efficiency, accuracy and parallelization in a spectrum of implementations from 2D shallow water equations through 3D quasi-hydrostatic to partial differential equations of fully non-hydrostatic multiscale models. It follows the success of the mini-symposium on simulation of environmental flows in [1].

Topics will include but are not limited to:
- Algorithm developments contributing to advection and elliptic solvers, explicit and implicit time integration techniques for stiff problems [2], physical parameterisations, mesh adaption and generation, computational efficiency, accuracy and parallelisation including energy-efficient scalable algorithms for extreme-scale computing [3].
- Applications to geophysical flows, hydrodynamics and other relevant engineering and physical problems could include environmental flows connecting weather and climate as well as simulations of flooding, rivers and estuaries, dam-break flows, drying and wetting areas and will include analytical and numerical models accounting for sediment transport [4] and evolution of bathymetry [5].

REFERENCES

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