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NUMERICAL ADVANCEMENTS IN SIMULATIONS OF ENVIRONMENTAL FLOWS

600

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ABSTRACT

This mini-symposium seeks to establish a focal point for dialogue between scientists interested in the simulation of environmental flows. Modern computational models, representing a wide variety of interesting problems ranging from 2D shallow water equations through to global multiscale models, are constantly evolving. Advances relating to both modern algorithmic developments and future and emerging computer architectures will be presented. The mini-symposium follows successful mini-symposiums of environmental flows in ECCOMAS Congress 2016 (Crete), and ECCOMAS 2018 (Glasgow) [1].

Possible areas of interest include (but are not limited to):

- Algorithmic development for limited area and global weather modelling.
- Geophysical flows and hydrodynamics, such as weather and climate environmental flows or civil engineering applications including flood simulation in urban areas, rivers and estuaries dynamics, sediment transport modelling and evolutionary bedforms.
- Scalable algorithms at exascale and beyond, including aspects such as accuracy, computational efficiency, mesh geometry and partitioning, and aspects of parallelisation and scaling.

Theoretical developments will be supported by examples of complex simulations of challenging problems, encompassing a wide range of scales and physical considerations, including multiscale problems.

REFERENCES

[1] ECCM-ECFD 2018, http://www.eccm-ecfd2018.org/frontal/ProgMS.asp.