COMPUTATIONAL METHODS FOR COUPLED ENVIRONMENTAL FLUID MECHANICS PROBLEMS

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Models for environmental fluid dynamics are important tools in making predictions about a variety of quantities such as water surface levels, water velocities, or salinity levels. Many problems in environmental fluid mechanics exhibit a wide range of scales and physics and must be solved over large complex spatial domains, often for long periods of time. These physics can include but are not limited to tides, storm surges, wind waves, overland flow, sediment transport, rainfall runoff, and groundwater flow. Computational methods for these types of problems have matured considerably in recent years. This minisymposium will examine the latest developments in solving coupled and multidimensional problems arising in environmental fluid mechanics problems. Topics of interest include:

- Model development.
- Application of multiphysics solvers and solvers for mixed dimensional problems.
- Coupling of flow and transport processes and models.
- High-performance computing and parallelization strategies.
- Error analysis, verification and validation.
- Mesh generation algorithms and criteria.
- Novel discretization methods.