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# COMPUTATIONAL METHODS FOR WATER ENVIRONMENTAL PROBLEMS AND COASTAL/FLOOD DISASTER MITIGATION

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## ABSTRACT

Many challenges in geophysical and environmental fluid mechanics, particularly those concerning water environments and flood disasters, are characterized by multi-scale physical processes and complex geometries. These phenomena necessitate numerical solutions across spatially extensive domains and over prolonged temporal scales, posing significant computational demands. Building upon the maturation of computational methodologies, this mini-symposium serves as a forum to examine the latest advancements in the field.

Topics of interest include:

- Model development and application
- Coupling of flow and transport processes
- High-performance computing and parallelization strategies
- Unstructured mesh generation algorithms and criteria
- Fluid-structure interactions (FSI)

Through this technical exchange, the session seeks to advance computational frameworks essential for robust disaster prevention and mitigation.