

# Advanced numerical modeling for dispersive free surface water waves

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## ABSTRACT

In the last decades, several advanced numerical models have been developed, allowing the simulation of water wave physical phenomena in ocean and coastal environments at increasing fidelity, computational speed and scale. From robust and accurate approximations of the Euler equations of different/increasing order [1,4,5,6,7], to reduced order models for dispersive water waves [2,3]. All these approximations have some potential to study the near shore processes, as well as for risk assessment and mitigation against flood or storm waves in coastal and urban areas. In all these processes wave dispersion plays a crucial role. It is important not only for propagation off-shore and near shore, but also in other physical phenomena like for example the flow behind a spillway, where dispersive effects need to be considered, particularly for the sediment transport. Significant research effort has been put into advancing understanding of important processes taking place in coastal, ocean and river flows and are inextricably linked with dispersion. This mini-symposium aims at providing an overview of the most recent progress on advanced numerical modelling for dispersive free surface waves and their applications.

## REFERENCES

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