

A 3D baroclinic model of the Burdekin River Plume

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Abstract

The Burdekin River is the largest single source of sediment delivered to the Great Barrier Reef (GBR), Australia. Understanding its dynamics is crucial for studying the evolution of the ecological system in the GBR. A recent study has shown that, according to field data, most sediment deposits within 50 km of the river mouth, which contrasts with previous theories. A simulation of the Burdekin dynamics can support this new theory.

SLIM 3D is a baroclinic dg finite element model, developed to study coastal flow dynamics. Up to now, it has only been applied to simple test cases. Applying it to the Burdekin river is a challenge due to the complexity of the geometry and the physical processes occurring there.

During this presentation, the challenge of modelling the Burdekin dynamics without losing accuracy, consistency or stability will be presented, and the first results of this study will be expounded.

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