

# A Study of the Flow Characteristics near Channel Confluence using CCHE2D/3D Models

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**Abstract:** In fluvial channel networks, significant changes of flow dynamics, sediment transport and bed morphology often occur near channel confluences, the flow characteristics dominate the sediment transport, water quality and morphological processes. In this research, CCHE2D/3D computational models have been applied to study the turbulent flow at a schematized channel confluence which is characterized by a small and steep tributary and a larger main channel. The tributary carries a high supply of poorly sorted sediments entering the clear water main channel and creates a large deposition bar. The strong mixing of momentum and complex channel geometry make the measured experiment data an excellent case for validating free surface turbulent flow computational models.

In this presentation, the physical experiment<sup>[1]</sup> setting-up will be illustrated and the CCHE2D<sup>[2]</sup> and 3D<sup>[3]</sup> model introduced. These two models were applied to simulate the flow near the channel confluence. Although uncertainty exists in the measured data, good agreements between the computed water surface elevations and velocity profiles using both CCHE2D and CCHE3D models have been obtained and will be presented.

**Keywords:** Flow Characteristics, Channel Confluence, CCHE2D/3D Models, Model Verification.

## References:

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