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70 km long including 2 dams

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Benchmark FLOW3D Shallow water/TELEMAC2D on a river 70 km long including 2 dams

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Abstract:

Past floods have shown important differences in flow estimation going through 2 dams. Those dams are built on a plain river and are separated by 30 km. A tributary converge downstream the first dam but its supply can't explain the differences in flow estimation.

It is expected that the differences come from a lack of integration of the downstream water level in the flow estimation of the downstream dam. A 70 km modelling including the 2 dams and their reservoirs and 20 km of downstream river has been decided.

The main complexity of this model was to properly integrate the dams' discharge capacity in the model: Two solutions were implemented:

- A TELEMAC2D model using a FORTRAN program to represent the dams discharge capacity previously defined with parametrical local FLOW3D models of the dams
- A FLOW3D Shallow water model of the 70km of river including 3D portions for the dams

The benchmark compares:

- the global investment in hours of engineer for the 2 solutions
- the calculation capacities and duration
- the hydraulic accuracy

Proposed session: *River and urban floods, flood forecasting and management*

Key words: 2D model, 3D model, dam

Speaker: Julien Vermeulen