

## Simulation of a Lock Exchange Gravity Driven Flow

The project aims to capture the gravity currents produced by lock exchange. One or both of the lock release initial conditions shown in [1] may be used for the simulation. The project should include:

- i. Phase fraction contours showing the movement of gravity currents
- ii. Comment(s) on the physics of the gravity current produced. A good reference to start from would be [2].

Use of adaptive mesh refinement (AMR), to capture the interface clearly, will earn extra credit.

Solver: interFoam or any other appropriate multiphase solver

### References

1. Shin, J., Dalziel, S., & Linden, P. (2004). Gravity currents produced by lock exchange. *Journal of Fluid Mechanics*, 521, 1-34. doi: 10.1017/s002211200400165x
2. Wood, I. (1970). A lock exchange flow. *Journal of Fluid Mechanics*, 42(4), 671-687. doi: 10.1017/s0022112070001544