

## SUMMARY

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The port structures are often established in areas where water levels are fairly low, especially in estuaries. It is then necessary to perform dredging to allow ships accessing to the docks. The dredged sediment is released over a predefined deposit zone. Because of the concentration of the sediment cloud appearing during the release, more than 350 g/l at the beginning, there is an impact on the environment. The chemical composition of water is affected directly.

After the release, the sediments settle under a cloud of very high concentration. This settling step

is followed after impact on the bed by the formation of turbidity current. The purpose of this work is to study the phenomenon via numerical simulations by using a two-phase model of sediment transport [Barbry et al., 2000 ; Chauchat et al., 2008 ; Nguyen et al., 2009]. It is based on the solving of conservation and momentum equations for each phase (water and particles) and then integrates the interaction between the particles and the water. A comparison with the experimental configuration of Villaret et al. (1997, 1998), without current, shows that the different steps of the phenomenon are quite reproduce without turbulence modelling.