
Presentation Abstract - Communication Skills

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The present work presents the implementation and validation of a new solver using the OpenFoam platform for Direct Numerical Simulation of particle-laden gravity currents. The necessary equations that govern this physical phenomena are the Incompressible Navier-Stokes with the Boussinesq approximation. To evaluate the quality of the results, Boundary conditions, initial conditions, configuration, physical parameters and numerical parameters are chosen to be the same as in previously published data (used as reference). Also, all the results will go through post-processing using the same code used by the reference in order to maintain fidelity. Although the new solver is of much lower order than the reference solver, it presents good quality results for all test cases, but is much slower. However, the OpenFOAM platform has the characteristic of being able to easily work with different geometries, differently from the reference code, which justifies the implementation. Now with the new solver tested and running, it can be used as a new tool for continuing the research on the field of particle-laden gravity currents. Improvements can be made regarding the slow computation speed of the code, especially and dealing with three-dimensional problems, which requires a big number of points for DNS.