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Comparison of Two Numerical Turbulent Flow Models of a Sharp-Groyne Field

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ABSTRACT

This contribution presents the application of two 3D numerical techniques (RNG and LES) to compute a sharp-groyne field in a rectangular channel. In the laboratory, flow velocities and water levels were measured in order to calibrate and verify the accuracy of the numerical models. Two turbulence parameters, namely the Reynolds Shear Stresses in the XY-plane and the Turbulent Kinetic Energy, were estimated and compared. Both numerical techniques present good agreement with the time average velocity components recorded in the laboratory. Nonetheless, as expected, the Large Eddy Simulation (LES) is more appropriate for the computation of turbulence characteristics, but more expensive (in terms of computational terms). In the dead zone, the output of both models results less accurate.