



## **Viscous effects and runup. Are small scale experiments reliable for full scale description or benchmark tests ?**

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New experimental investigations have revealed that there may be large discrepancies between measured and computed runup heights, even for non-breaking waves on moderately steep beaches (10 degrees). The application of PIV and acoustic wave gauges allows a detailed comparison with results from the models, which employ hydrodynamic theory that range from the NLSW equations to the Navier-Stokes equations with a VOF description of the free surface. Based on experimental and theoretical velocity fields the viscous boundary layers in the swash zone are analyzed and shown to have an important effect on the runup. This may have severe implications for the use of experiments in relation to tsunami studies and benchmark tests.