

NUMERICAL SIMULATIONS OF LOW MACH COMPRESSIBLE TWO-PHASE FLOWS:  
PRELIMINARY ASSESSMENT OF SOME BASIC SOLUTION TECHNIQUES

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Abstract

The objective of this paper is to give a preliminary assessment of several existing approaches (compressible or incompressible, preconditioned or not preconditioned) to the numerical simulation of low Mach compressible two-phase flow problems in more than one space dimension. We

consider a broken dam problem of Martin and Moyce [Philos. Trans. Roy. Soc. London A, 244(1952), pp. 312-324] and a wave breaking problem of Yasuda et al. [Costal Engineering, 29(1997), pp. 317-346]

as our benchmark tests, where the computed results obtained by using the numerical methods can be compared with the laboratory experiments for the basic solution validations.

Keyword : two phase flow, low Mach number flow, cavitation, free surface