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**The Effect of Water Compressibility on a Rigid Body Movement in Two Phase Flow** CHAN WOOK PARK, Daebul Univ., HAK SUN KIM, SUNGSU LEE, Chungbuk National Univ. — The motion of a rigid body in a tube full of water-filled, initiated by a sudden release of highly pressurized air is simulated presuming the flow field as a two dimensional one. The effects of water compressibility on the body movement are investigated, comparing results based on the Fluent VOF model where water is treated as an incompressible medium with those from the presently developed VOF scheme. The present model considers compressibility of both air and water. The Fluent results show that the body moves farther and at higher speeds than the present ones. As time proceeds, the relative difference of speed and displacement between the two results drops substantially, after acoustic waves in water traverse and return the full length of the tube several times. To estimate instantaneous accelerations, however, requires implementation of the water compressibility effect as discrepancies between them do not decrease even after several pressure wave cycles. This work was supported by a research fund granted from Agency for Defense Development, South Korea.

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