

عنوان مقاله:

Asymmetric Water Entry of Twin Wedges with Different Deadrisers, Heel Angles, and Wedge Separations using Finite Element Based Finite Volume Method and VOF

محل انتشار:

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خلاصه مقاله:

Asymmetric water entry of twin wedges is investigated for deadrise angles of 30° and 50° degrees, and heel angles of 5°, 10°, 15°, and 20° degrees as well as wedge separation ratios of 1 and 2. Finite Element based Finite Volume method (FEM-FVM) is used in conjunction with Volume of Fluid (VOF) scheme for the targeted analyses. Free surface evolution and impact forces versus time are determined and comparisons of the maximum force of the wedges against each other are presented for all the considered cases. It is demonstrated that the impact force on the second wedge is always greater than the first one by a minimum of 6% and maximum of 146% which is a very significant increase in the impact force and may cause high accelerations and damage to the structure. It is also observed that the mentioned effects increase with decreasing deadrise angle and increasing heel angle.

کلمات کلیدی:

Catamaran, Asymmetric water entry, Twin wedges, FEM, FVM, Heel angle

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