عنوان مقاله:

Evaluation of Moonpool Effects on Hydrodynamic Resistance of a Supply Vessel, Using Experimental and Numerical Methods

محل انتشار:

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خلاصه مقاله:

Moonpool is an opening in the floor or base of a hull ship which can be used to lower tools and vehicles into the sea in a protected area. In this paper, the effect of a rectangular cross section moonpool on the resistance force of a supply vessel was investigated both by experimental and numerical methods. For both methods a ۱:۳۷.۲ scale of a surface vessel was used. Experiments were carried out at various Froude numbers in the range of ۰.۱۸۵-۰.۳۷۰ in the towing tank for cases with moonpool, i.e, when the entrance at the bottom of the ship was open and without moonpool, i.e, when the entrance was closed. A two phase flow CFD simulation based on volume of fluid (VOF) method was used to calculate the resistance coefficients of the vessel and to investigate fluid flow around the ship and inside the moonpool. The acquired numerical results showed fair agreement with the experimental results. The results showed that the resistance coefficient of the ship with moonpool was about ۲۱ percent larger than that of the ship without moonpool.

کلمات کلیدی:

Ship resistance, Moonpool, Towing Tank tests, CFD Simulation

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