

عنوان مقاله:

Seismic Analysis of an Offshore Structure in Persian Gulf Utilizing a Physical Model

محل انتشار:

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خلاصه مقاله:

A simple dynamic model of an offshore jacket platform is developed based on the scaled hydro-elastic model of the jacket to estimate the dynamic response of the system. The finite element model of the platform is updated numerically by using the experimental modal analysis (EMA) results. Dynamic characteristics of the improved simple dynamic model (SPM) and idealized model are specified based on updated model properties. The effects of the experimental test are studied to investigate the dynamic response of a scaled model of an offshore jacket platform through the SPM and idealized models. Seismic response of the jacket platform is studied by using the idealized model under an earthquake acceleration. The effects of marine growth and the corrosion are considered within the calculation process by considering the jacket mass and stiffness variation. The developed SPM and idealized model provide a feasible and effective approach for evaluating the dynamic response of the offshore jacket platform. The results indicate the importance of the experimental studies in validating the numerical results and reducing the uncertainties for the fixed marine structures.

کلمات کلیدی:

Offshore jacket platform, Improved reduction technique, Simplified platform model, Dynamic response analysis, Model updating

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