

BREAKING WAVE INDUCED VIBRATION OF A MONOPILE SUPPORTED OFFSHORE WIND TURBINE

Presentation by Arunjyoti Sarkar, Subsea7

In this paper, the response characteristics of an offshore wind turbine (OWT) structure under breaking wave forces and wind forces are studied. A 3D numerical model, based on solving the viscous and incompressible Navier-Stokes equations and the volume of fluid method (VOF), is employed to estimate the breaking wave forces on an OWT structure (supported by a 6.0 m diameter monopile). The calculated wave forces are then applied with the wind forces on the OWT structure modeled in the computer program HAWC2 to understand the nature of its response. The effects from the aerodynamic damping and the foundation flexibility on the structure's response are also discussed.