# Neptune   by Zentech

Wave Radiation-Diffraction Program For Floating Bodies

Neptune analyzes structures ranging from a simple barge or a caisson, to a complex semi-submersible, FPS or TLP.

Neptune employs a 3D constant panel radiation-diffraction analysis procedure to compute the hydrodynamic coefficients, motion RAOs and wave drift loads.

Neptune is fully integrated with the structural analysis program **StruCAD*3D**, and the mooring analysis program **ZenMoor**, and motion simulator **MOTSIM**.
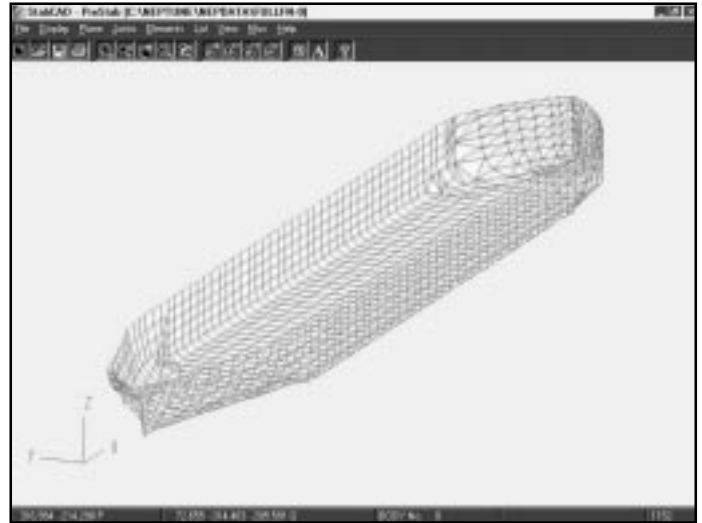

Program Highlights

- Graphical Interface for Model Generation
- Computation of Hydrodynamic Coefficients and Wave Loads
- Wave Frequency Motion Response and RAOs
- Mean Wave Drift Forces and Static Offset
- Slowly Varying Wave-Drift Forces and Damping Spectrum
- Regular and Random Waves
- Static Loads due to Wind and Current and Mean Position
- Pressure, Velocity, Acceleration and Free Surface Elevations
- Air Gap Calculations
- Load Mapping to Structural Beam and Plate Elements
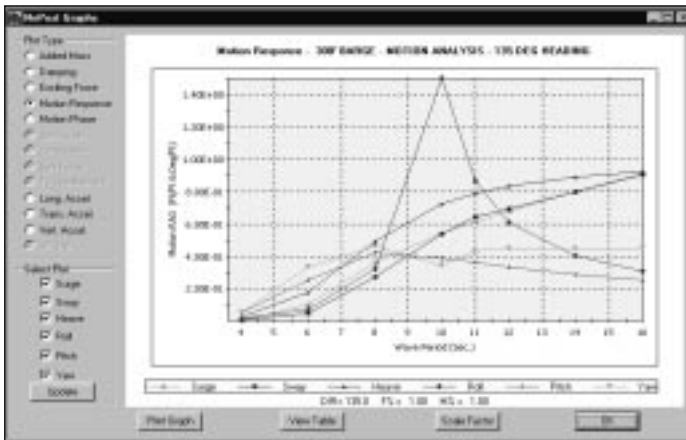
Other Features

- Large Bodies represented by Panels and Small Diameter Members Represented by Morison Elements
- Graphic Post-Processing of Results such as Hydrodynamic Coefficients, RAOs and Pressure Contours
- Load Balance and Automatic Load Generation for Structural Strength and Fatigue Analysis
- Transfer Functions for Load Responses such as Splitting Force, Longitudinal Shear and Torsional Moment
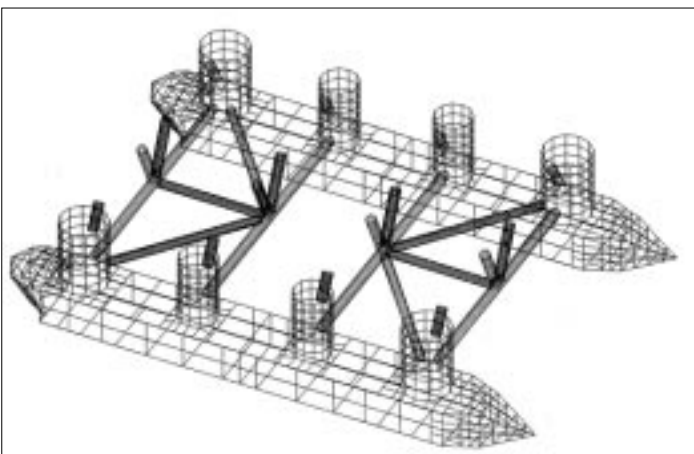
Semi-submersible Model with Panels and Morsion Elements
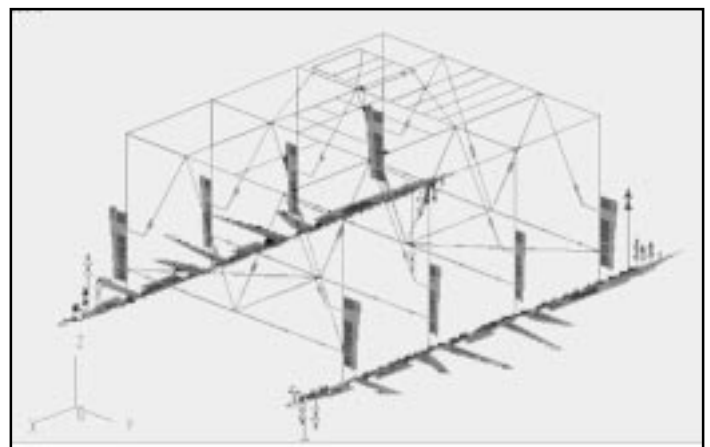
Panel Pressures Mapped to a Semi-submersible Beam Model