

MULTIPHYSICS SOLUTIONS IN OFFSHORE ENGINEERING

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ABSTRACT

The design and analysis of offshore engineering equipment is a challenging process. Offshore marine equipment can be physically complex, expensive, safety critical and operate in harsh environments. In the design and analysis phase of any project the Energy industry is reliant on simulation to ensure that Health & Safety and Industry Standards are adhered to.

This design process requires a fundamental understanding of a number of design parameters and how they interact. For conventional equipment and structures, a range of design standards and guidelines exist. When the behaviour is more complex Prospect Flow Solutions have developed a methodology using a multidiscipline and multiphysics approach.

This paper presents Prospect's methodology. Some real life case studies are presented which illustrate Prospect's use of this methodology including:

- Thermo-mechanical Coupling in a fatigue analysis of a Heat Exchanger
- Fluid Structure interaction in the design of a expansion tank outlet device
- Impact analysis of a subsea pipeline with soil interaction.