

INTERNSHIP SUB-MODELING DEEPLINES



INTRODUCTION:

For several years, PRINCIPIA is developing DEEPLINES, in particular with DEEPLINES WIND™ for design of floating wind turbine considering coupling between hydrodynamic and aerodynamic effects.

This is indeed a major progress for the design of Floating Offshore Wind Turbines (FOWT), but also for the Fixed Offshore Wind Turbines.

PRINCIPIA would like now to improve the sub-modelling procedure to ease local fatigue analyses, in particular the development of influence matrix in DEEPLINES™ in order to assess efficiently the local fatigue behaviour in time domain.

SCOPE OF WORK:

The scope of work includes the 3 following tasks:

- ✓ State of the art
- ✓ Sub-modeling procedure development
- ✓ Influence matrix development

State of the art

Review of different sub-modeling approaches including FE model condensation.

Submodeling procedure development

From the different sub-modeling approaches studied, define a general procedure to qualify the methodology to couple local FE capabilities of ABAQUS or NSO in a global analysis with DEEPLINES™.

Algorithm development

Based on typical offshore structure, develop an algorithm:

- ✓ To catch the local stress concentration,,
- ✓ To catch the local flexibility

DELIVERABLES:

Technical report including

- ✓ State of the art
- ✓ Screening and comparative analysis
- ✓ Improvement ways

GENERAL:

- ✓ Duration: 6 months
- ✓ Start date: Early 2022
- ✓ Location: PRINCIPIA offices in La Ciotat (Bouches du Rhône) or in Nantes (Loire-Atlantique)
- ✓ To apply: job@principia.fr