

BUILDING AN OFFSHORE BREAKWATER REINFORCED BY THREE SHEET-PILE WALLS

Purpose(s): Analysis of the stability of a breakwater

Client: Sogréah

Date: Octobre 2003

Location: Confidential

Partners: None

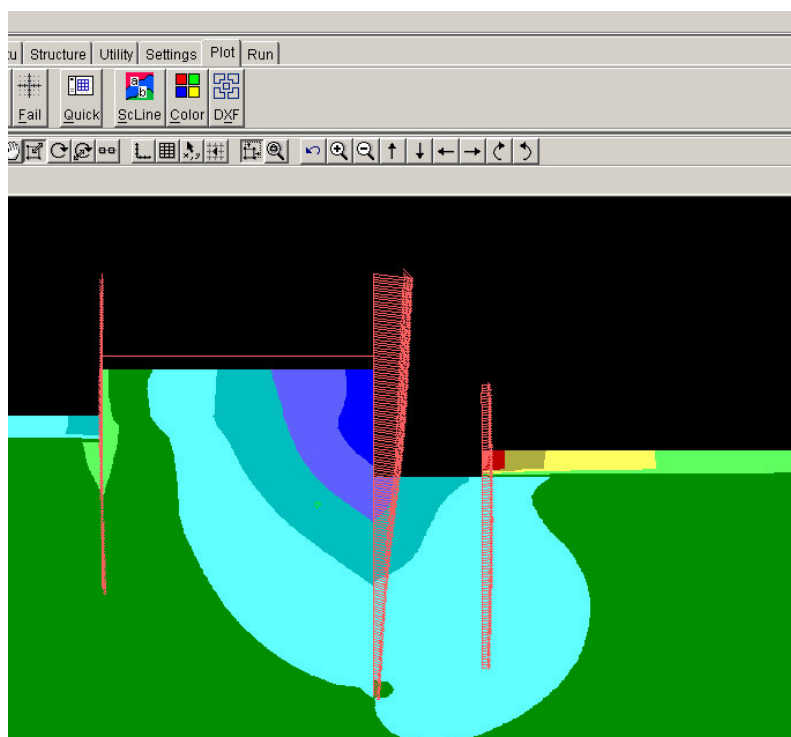
Project manager:
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Code(s) used: FLAC

In order to design a breakwater structure, a 2D numerical model was built using the FLAC software. Questions concerning the depth of sheet pile needed to ensure stability of the structure (1) during intermediate construction phases, and (2) in the long term after corrosion would have taken place.

A simulation of the **12-phase breakwater construction** was performed, extreme storm conditions were modelled, and simulations of the long-term effect of corrosion on the steel structure were performed for the final model.

These **coupled hydro-mechanical simulations** encompassed 18 phases, beginning with the insertion of the first sheet-pile wall and ending with the application of **storm conditions** to the "corroded" model.



Horizontal displacement field and sheet-pile displacement.

KEYWORDS:

- Offshore
- Extreme loading
- Earth-structure Interaction

⇒ **RESULTS:**

- The model confirmed the stability of the structure during the construction phases and in the long term.
- The depth of the sheet piles was optimized.