

















It consists in an advanced seakeeping assessment tool, based on SeaFEM, affordable in cost, time and usability by SMEs and large companies in the sector. SeaFEM is a realistic seakeeping simulations of 3D multi-body radiation and diffraction problems in available CESGA HPC infrastructures that allows to analyze cases that until now were unfeasible to calculate.



- Fortissimo 2
- I4MS



- Wavec
- Vicusdt
- Cimne
- Cesga

Features

The challenge addressed was to demonstrate the use of advanced simulation in seakeeping design analysis. Such simulations require large amounts of computing power to realise viable calculation times, and the use of computing resources from an HPC provider.

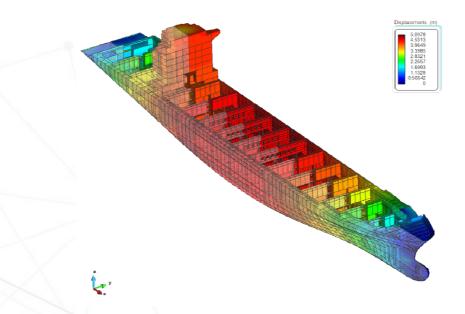
This experiment provided the opportunity to develop an efficient and easy-to-use integration of SeaFEM in available HPC structures, to become an efficient alternative to frequency-domain solvers, reducing significantly the computational time and making this advanced seakeeping solution available at very early stage of the design phase of the companies.

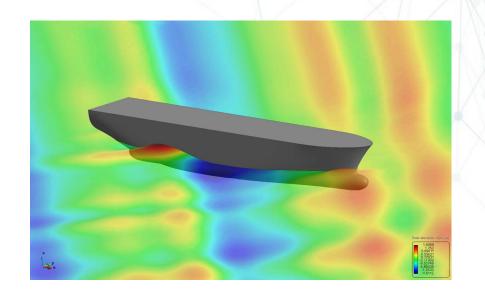




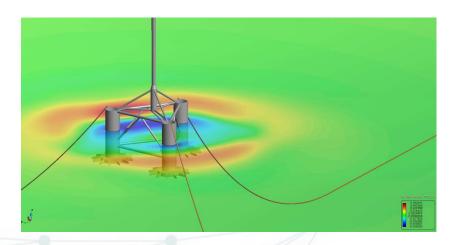


HPC Simulations







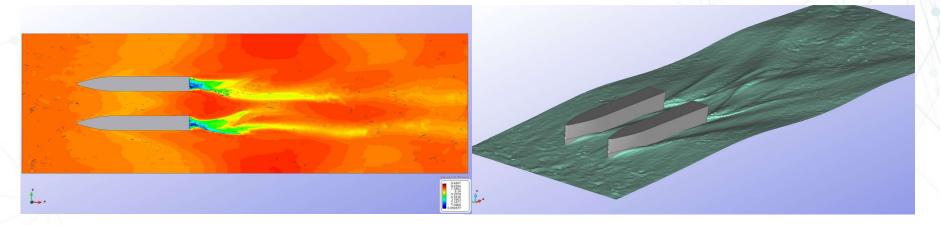








Results so far



Fortissimo project has provided the opportunity to develop an efficient and easy-to-use integration of SeaFEM (already existing advanced non-linear time-domain diffraction-radiation seakeeping software that allows to study scenarios where non-linear effects can be relevant in the most accurate way) in available HPC structures to become an efficient alternative to frequency-domain solvers, reducing significantly the computational time and making this advanced seakeeping solution available at very early stage of the design phase of the companies.

This demonstrated a significant speed-up by a factor of 45 through the use of an HPC system. This makes previously infeasible simulations now feasible and paves the way for new services to be offered by the endusers.





