Large modification of bow type
With
Surface Delta Shift

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SHIPFLOW FRIENDSHIP Design Package
Example - Fore body optimization

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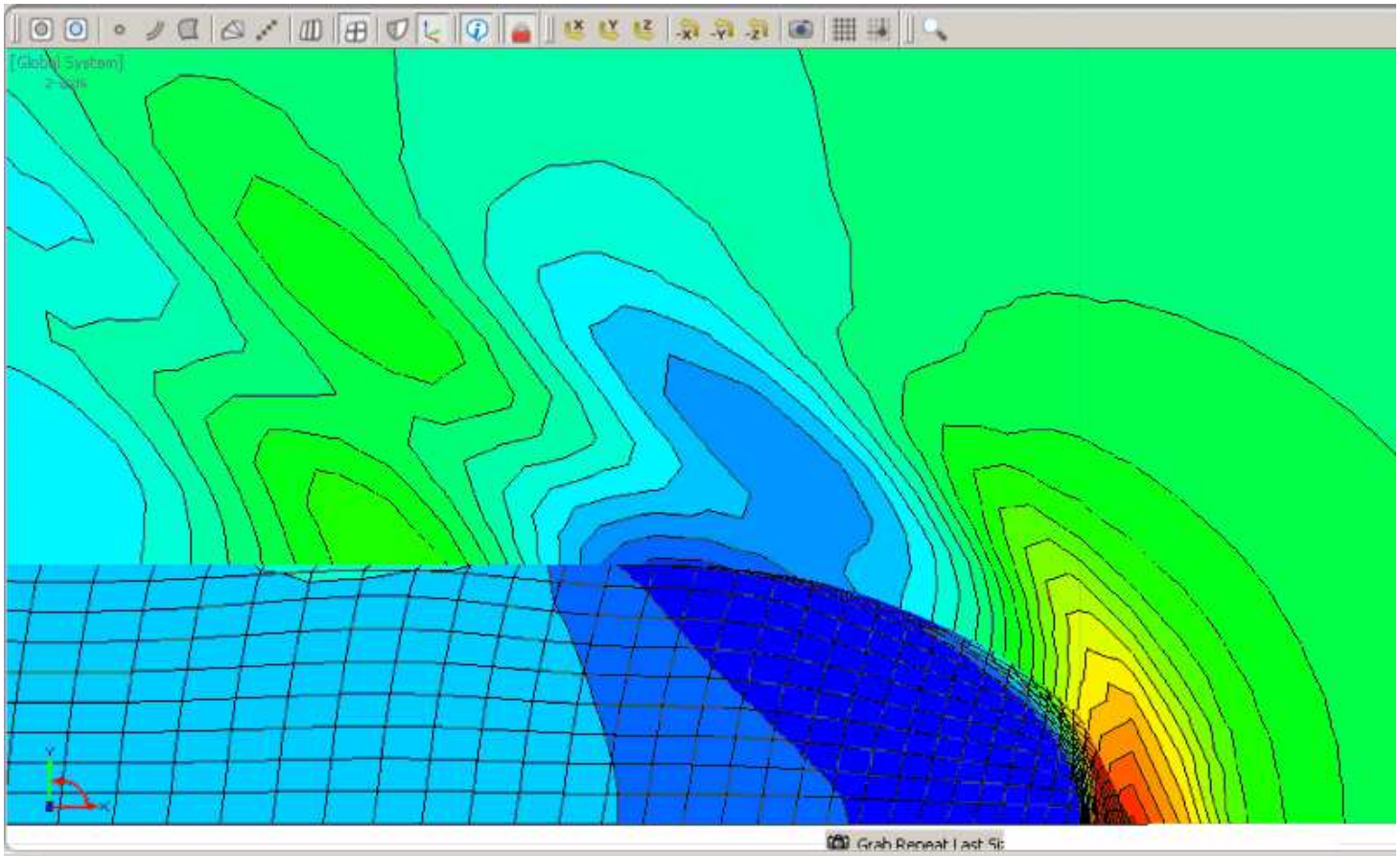

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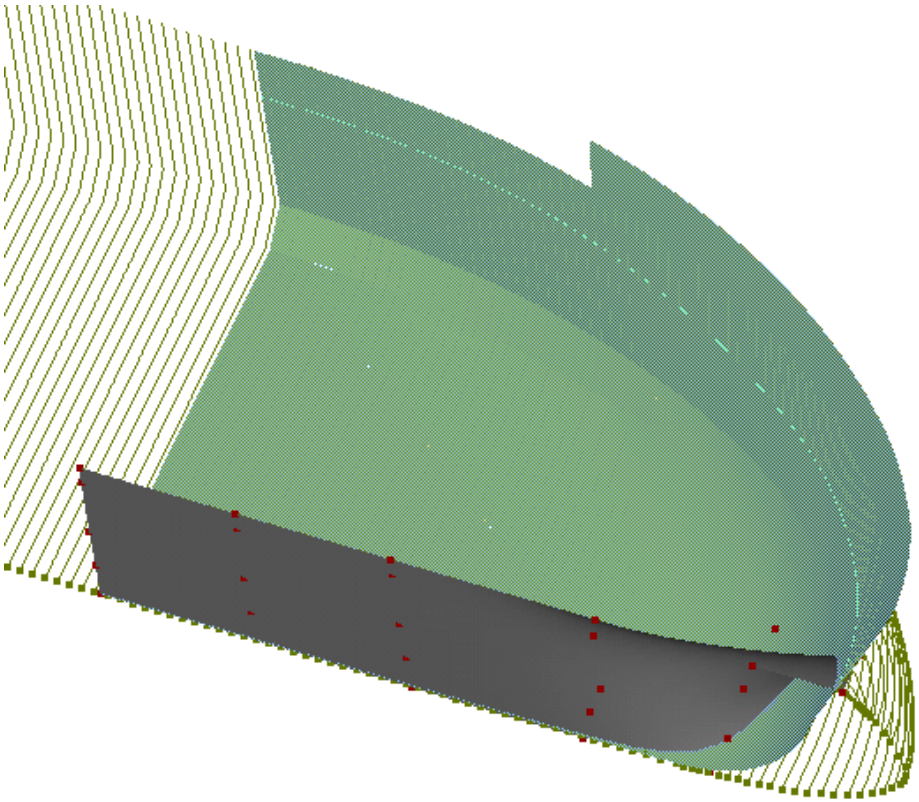
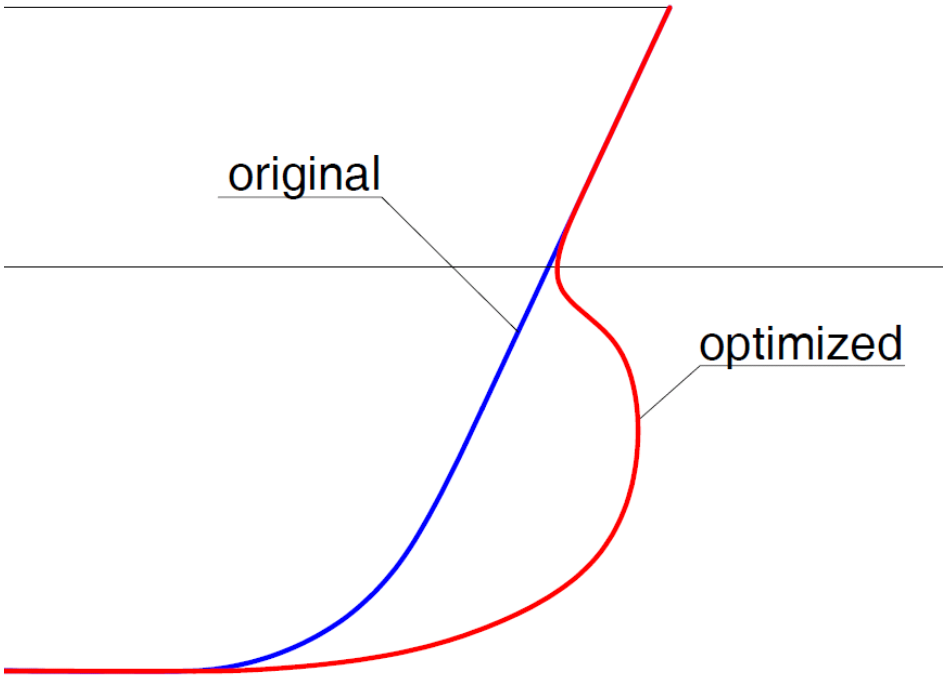
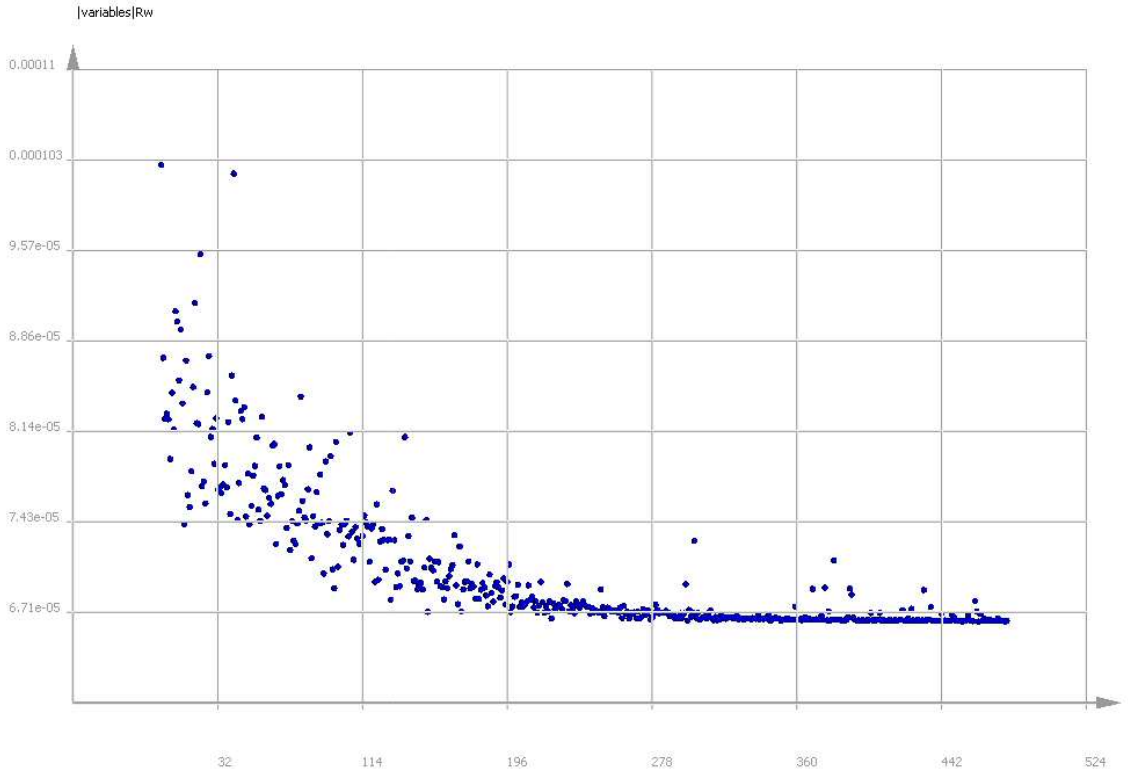
- Partially parametric modelling
  - Surface delta shift
    - Deviation from surface patch (grey) is applied to the hull
    - Design space allows for conventional and bulbous bow
    - Manageable number of control points (8)





- Multi-objective genetic algorithm NSGA II
  - To avoid being trapped in a local minima
  - Objective function is the wave resistance
    - Transverse wave cut technique
  - 400 variants were computed (potential flow code)



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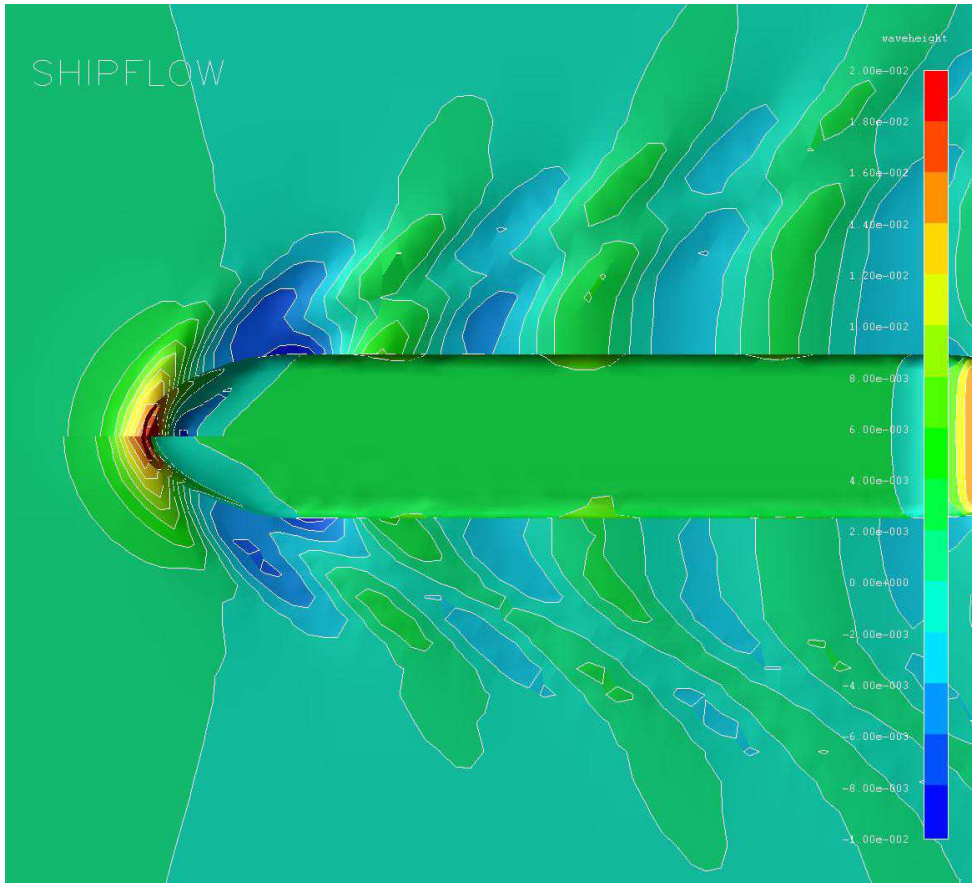
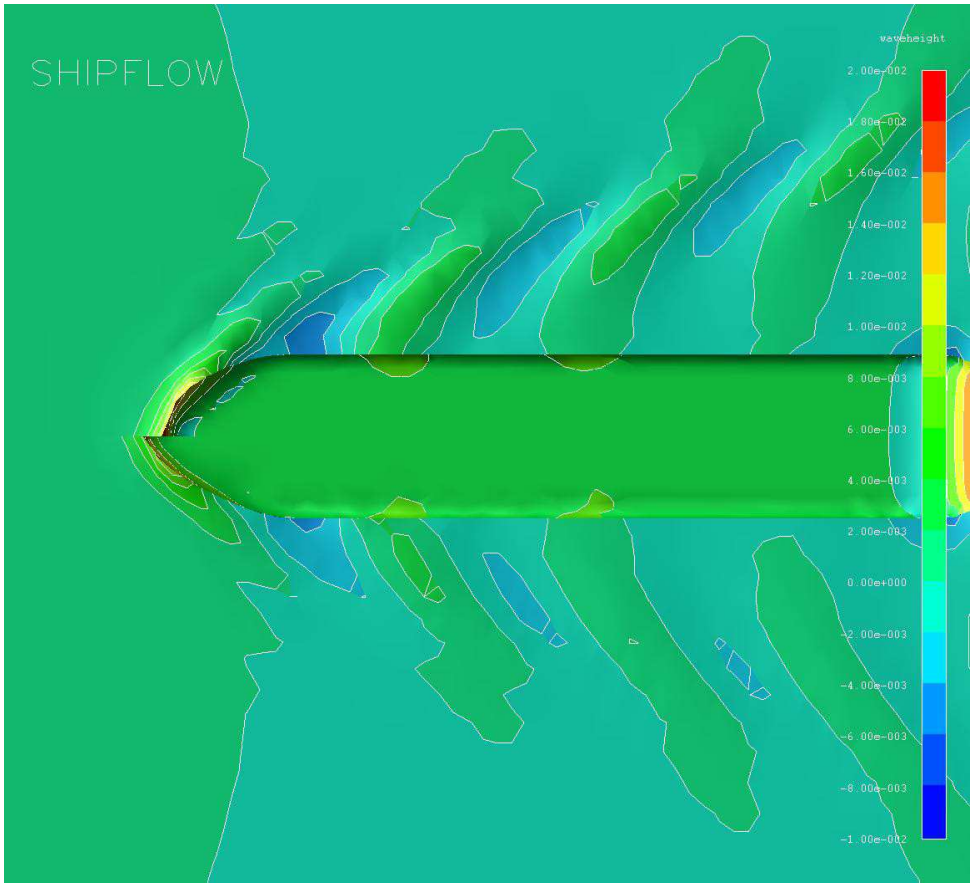
Design Draft

Ballast Draft

Before





After