

Faculty of Maritime Engineering and Marine Sciences

Ship Dynamics

Course project: Ship response to irregular seas

Aug.20th, 2021

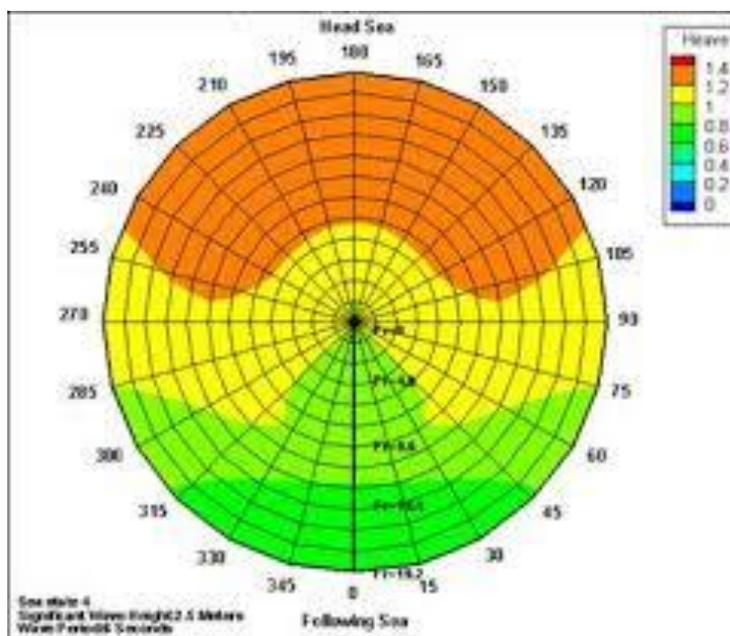
Team work:

Objective: To evaluate the response of a particular ship selected by each team in irregular seas in different navigational situations.

Calculations: Each team selects a ship from the Ship Design course project, and prepares the lines plan in Rhino format. This plan is to be imported from MaxSurf, as was explained in class, to develop the required ship motion calculations. Also with these lines, you may develop any hydrostatic calculations required for the dynamic response.

Using the module `Motions` from MaxSurf computer software, calculate ship response parameters according to the evaluation of your particular design. For operational parameters, consider variation of: ship velocity (at least 3 values), sea state level (3 and 4), load conditions (full and 50% of consumables). You have to consider incoming waves from different directions (0-180°, and use the symmetry).

With the results you have first to do simple calculations to check that they indeed correspond to the case analyzed. For example, resonant conditions, response for limit values, etc. Then you proceed to evaluate the response of the ship in irregular seas, according to its mission. You have to use at least three parameters, and results of the analysis have to be summarized in graphs presenting regions of parameter levels according to the incoming wave direction and velocity of the ship. See attached figure.



Report: It must be written in English, maximum 6 pages long, Times New Roman 11 type, in the previously employed format. It will be evaluated: aesthetics of the report (25%), theoretical development and research (30%), and, result analysis and conclusions (45%).

Project evaluation: The written report represents 75% of the grade, while oral presentation, 25%.

Deadlines: a preliminary oral presentation is scheduled for Monday 30th of August for progress control and final oral presentation including written report for 8 am Friday Sept. 3rd.