

Strength and crashworthiness of ship structures

This special issue of *International Shipbuilding Progress* collects eight papers that have been produced in the initial phase of the work in MARSTRUCT – Network of Excellence in Marine Structures. This is a 6th Framework Programme project funded by the European Union to support work on improving the safety, effectiveness, reliability, environmental behaviour and comfort of ship structures. The network brings together 33 research groups from Europe which are aiming at the application of advanced structural and reliability assessment methods within design, fabrication and operation, with the aim of increasing public and commercial confidence in the competitiveness and use of waterborne transportation. It covers areas of loads and load effect assessment, methods for strength assessment, experimental methods, materials, design and optimization as well as safety and reliability.

The eight papers included in this issue cover basically the activity in one of the six workpackages of MARSTRUCT, which deals with methods for strength assessment.

The first paper deals with the effects of vibrations from engines and propellers as are the design parameters of the current codes.

Two papers deal with fatigue strength, one dealing with a comparison of numerical and experimental results of the fatigue strength of joints and the other exploring the effect of fabrication defects in fatigue life.

There are then two papers on ultimate strength applied to plate elements and to the hull sections. These two papers are the results of round robin studies in which the results of different codes are compared in a way to provide confidence in the use of established codes and on the other hand to provide measures of the uncertainty that can be involved in their use.

The problem of structural degradation during operation is treated in a paper that presents new full-scale measurements of corrosion wastage in bulk carriers and uses them to fit a theoretical model of predicting corrosion degradation.

Finally, the last two papers deal with the strength of ship structures in collisions, in which methods to assess the effect of collision are studied.

This series of papers reflect the interest that is being put across Europe in the various aspects related with the strength assessment of ship structures and show the cooperation among European research groups that is being promoted by the MARSTRUCT project. We hope that the presentation of this closely related series

of papers can be of interest to readers and can support the continued need of further research in this subject area.

Guest Editors:

C. Guedes Soares

Instituto Superior Tecnico

Technical University of Lisbon, Portugal

P.K. Das

Universities of Glasgow and Strathclyde, UK