



COLLOQUIUM

Conform artikel 4.6.8 van het SSNS-wb.

Vakgroep: **Technische Stromingsleer**

In het kader van zijn/haar doctoraalopdracht zal

Robbert van der Wal

een voordracht houden getiteld:

Prediction of Rudder performance, numerical validation and verification of potential- and RANS-methods for lifting surfaces

Datum: 28-03-2008

Tijd: 14:30

Zaal: Z228

Korte samenvatting:

The Maritime Research Institute Netherlands (MARIN) spends ample time and effort on testing model ships in their basins. The manoeuvrability of ships has to meet certain criteria before construction. MARIN does these model tests to prove whether the ship design meets these criteria. A ship's rudder is in most cases the most important means for a ship to manoeuvre. The hydrodynamic forces acting on rudders due to the velocity of fluid around the rudder steer the ship into the desired direction.

To optimize the manoeuvrability of ships the choice of rudder type, size and location can be varied though it is not always evident what the best choice is. Based on previous experience MARIN is able to "predict" the performance of ships in different configurations. However, in complex cases these predictions have to be validated with model tests in basins. Therefore MARIN wants to be able to predict the forces acting on rudders more accurately and faster and has therefore initiated a study which should lead to the capability to numerically calculate the forces acting on the rudder or at least extend the validity of their empirical models.

This research is the start for that project and explores the opportunities of several in-house created numerical codes to predict the hydrodynamic forces on rudders. To predict these forces and moments and judge the applicability, the potential-method codes and RANS-method codes were verified and validated with experimental results from literature.

Examencommissie:

De afstudeerdocent,

prof. dr. ir H.W.M. Hoeijmakers (afstudeerdocent)

ir. S.L. Toxopeus (MARIN) (mentor)

(handtekening)

dr. ir. M. Hoekstra (MARIN) ??

d.d. _____