

An Approximate Method for Wake Estimation (with particular reference to afterbody form analysis)

Abstract

In the first part of the thesis, Bujnicki's method of predicting wake distributions in the propeller plane through afterbody form analysis has been critically evaluated.

The second part has been devoted to making the method a practically useful one by introducing a few new parameters. Consequently, some useful parameters and coefficients are recommended for ship wake analysis and estimation.

From the work carried out, it was concluded that:-

- The block coefficient and the draft can not be the measures for estimating the wake distribution in the propeller plane behind a ship.
- The length, speed and trim of a ship have only minor influences on the wake field.
- The *section coefficient* of a ship has a strong influence on forming the wake field.
- The ratio, B_1/HSC indicates whether the wake field has a scattering of isowake contours in the upper part of the propeller plane or not, where B_1 is the ship's breadth at the level of propeller shaft centre, and HSC is the height of shaft centre. This implies that the wake distribution can be modified by altering the position of the propeller shaft.
- The ratio, B_1/B can be used as a measure of the flow bending, where B is the breadth of a ship as normally defined.