Contribution ID: **55**   Type: **Paper**

THE EFFECT OF THE LONG-PERIOD COMPONENTS OF ADDED RESISTANCE IN IRREGULAR WAVES

Wednesday, 20 June 2018 15:00 (15 minutes)

Added resistance in irregular waves is generally calculated as the mean value with wave spectrum and frequency response of the added resistance in regular waves. In the calculation, the added resistance in regular waves is assumed to be proportional to square of wave height based on the wave theory. However, from the experiment it is not always proportional. Therefore, the mean value from the calculation is different from the time averaging value in consideration of long-period components of added resistance in irregular waves.

The long-period components of added resistance in irregular waves have been rarely considered. Since the experimental technique with appended restoring force has not been established, calculated results is not validated.

In this paper, the long-period components of the added resistance in irregular waves is evaluated with Newman's approximation that has been used for the estimation of the drifting force acted on an offshore structure. And the analysis method for tank tests which employs the modification of inertia force in order to eliminate the effect of appended restoring force. The comparison of the present estimation method with tank test results and the effect of the long-period components are examined.

Primary author: Ms KURODA, Mariko (National Maritime Research Institute)

Co-authors: Mr FUJISAWA, Junichi (National Maritime Research Institute); Prof. TAKAGI, Ken (The University of Tokyo); Dr TSUJIMOTO, Masaru (National Maritime Research Institute)

Presenter: Ms KURODA, Mariko (National Maritime Research Institute)

Session Classification: Hydrodynamics

Track Classification: Numerical & experimental hydrodynamics