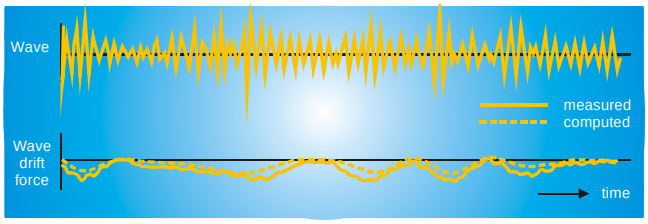
Generation of time domain characteristics from frequency domain data

Frequency/time domain transformation programs 6

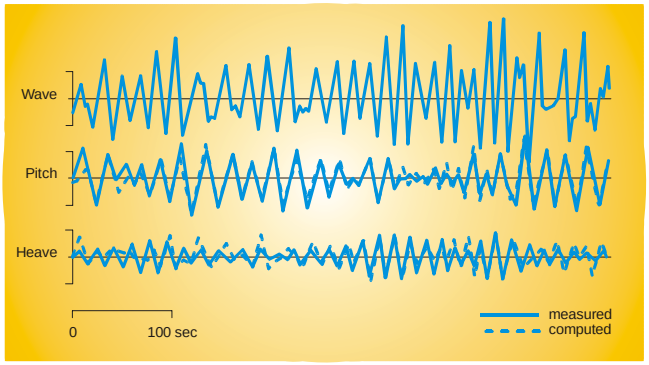
For the simulation of a moored vessel (TERMSIM/DYNFLOAT), heavy lift operations (LIFSIM) or a dynamically positioned structure (DPSIM) cost effective computation of the instantaneous wave excitation forces and fluid reactive forces is required. For this purpose frequency domain results (e.g. DRIFTP from DIFFRAC or SHIPMO) are often used. They can be transformed to time domain characteristics by means of FTP techniques.



Computational approach

Time records of first order wave loads and second order wave drift forces are supplied by the program FORSIM. The input is obtained from results computed by the program DIFFRAC, calculating the first order wave loads in regular waves, as well as by DRIFTP, which computes the second order wave drift forces in regular wave groups. Both programs give frequency domain results.

FORSIM transforms these frequency domain results into time series of first and second order wave loads for a given wave train or wave spectrum. The program IRFUN translates the frequency dependent added mass and damping coefficients into frequency independent added mass and retardation functions, which guarantee the correct usage of added mass and damping in time domain analysis programs.



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