Estimation of wind sea and swell using shipboard measurements – A refined parametric modelling approach

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Shipboard wave estimation has been of interest in recent years for the purpose of decision support. In this paper, estimation of sea state is studied using ship responses and a parametric description of directional wave spectra. A set of parameters, characterising a given wave spectrum is estimated through an optimisation problem using global search basin with proper constraints. The cost function is established based on the difference between the energies of a set of measured ship responses and the corresponding theoretical spectral moments. A partitioning procedure is applied, which is able to separate swell components from wind seas.

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