

## **Forecasting dangerous sea-states: beyond Hs and Tp**

Jaak Monbaliu and Alessandro Toffoli

Hydraulics Laboratory K.U.Leuven

Hydraulics Laboratory, Department of Civil Engineering, Belgium

E-mail: jaak.monbaliu@bwk.kuleuven.ac.be

Ships that founder represent a great disaster both from an economical and from a human point of view. For dangerous sea-states, the best possible warnings should therefore be given to mariners.

A forecasted wave height and peak period is routine information. Also swell conditions are often provided. But a forecasted wave spectrum contains a lot more information, unfortunately information that is difficult to translate into warnings. Within the framework of the E.U.-project MaxWave, a data base with information about ship accidents for the period 1995-1999 and reported as being caused by heavy seas was provided by Lloyd's Marine Information Service (LMIS). Consequently concurrent wave spectra and wave spectral parameters were extracted from the ECMWF-archive and analysed. The findings might eventually lead to the formulation of risk indicators or warning criteria, i.e. combinations of thresholds and bounds for parameters characterising both the complex sea-state and the marine structure.

key words: wave spectra, forecast, heavy seas, ship accidents; warning criteria