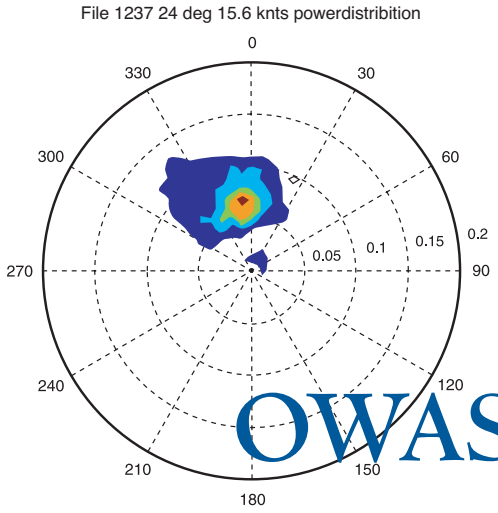

OWASE II: capturing waves

Wind, waves and currents: the environment that ships and offshore structures have to stand up against. Having accurate information on the actual environment available on board is becoming increasingly important, not only for design and research, but also for contractual and operational purposes.

Jos Koning

The Joint Industry Project OWASE II (Ocean WAve Spectrum Estimation) was initiated to obtain a complete and reliable measurement tool for the wave climate in the direct vicinity of ships. Boskalis, Radac, Litton, ENRAF, HMC, TNO FEL and MARIN participated in this project. Project objectives were to obtain three-dimensional wave spectra derived from the backscatter of standard ship navigation radar, measured ship motions and a relative wave height sensor at the bow, and to calculate motions under arbitrary headings and speeds with the measured wave spectrum. The system was based on commercially available components, and user IO and control was via regular Microsoft PC interface. The OWASE system's output could then be used for input in seakeeping decision support, warning or monitoring tools.

In the autumn of 2000, a test set-up of the OWASE system was installed on board the Boskalis WD Gateway dredging vessel. First test results indicated reliable acquisition of the wave directions and spreading. The evaluation of the "data fusion" algorithms for the various sensors is still in progress and results look very promising. The graph shows a measured seastate taken from this test set-up. The next phase in developing the OWASE system will be in 2001.

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MARIN

The importance of accurate information on wind, waves and currents is clearly illustrated by this transport arrangement of Petrobras' P40 production facility on top of Mighty Servant 1 from Singapore to Rio de Janeiro (see also cover photo). To avoid discussions on fatigue and transport conditions afterwards, MARIN monitored the encountered waves and ship motions on behalf of Dockwise. Statistics, number of load cycles, distributions and spectra on waves, motions and resulting inertial loads were recorded.

Courtesy Dockwise N.V.