

Speed@Sea

Together with DAMEN, TNO, TUD, KNRM and DMO, MARIN participated in the Speed@Sea project. The goal was to assess the limiting aspects and criteria for fast sailing vessels.

To obtain more insight, several full-scale measurements were executed on fast sailing Search & Rescue vessels of the Royal Netherlands Sea Rescue Institution (KNRM) with different helmsmen in varying weather conditions. On board motions and accelerations were measured and videos were recorded of the crew and from the sea. After the installation of the sensors, a range of headings was sailed at the highest safe speed along a predetermined track.

The measured data was then split into separate tracks with a constant heading and analysed in detail, comparing it to several comfort and safety criteria. Extreme

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events in the measurements could be compared to the recorded videos to analyse the behaviour of the crew, providing insight into human response.

The magnitude of the accelerations for these type of vessels rapidly exceeds the range for the standard seasickness scales. Hence, in this context, the wellbeing of the crew should be considered as preventing the crew from injuries and being too exhausted to perform a particular job on arrival.

One of the findings of the full-scale measurements was that the experienced helmsmen seemed to be able to control the magnitude of the accelerations quite well. For instance, in the most severe headings, the level of the accelerations on the "Koos van Messel" were just below the tolerable limits according to the standards that indicate risk of injuries. These results were however, on the conservative side as the accelerations were measured directly on the vessel, whereas the crew were sitting on seats with shock absorbers, which reduce the impact loads on the crew.

In similar wave conditions, crew comfort had a higher priority on the "Jeanine Parqui". On this vessel there is an unofficial rule that the helmsman has to buy a beer for the crew after a mission in which the crew is sent flying above their seats. Hence, he temporarily reduced the sailing speed even further if high waves were encountered, which resulted in a longer sailing time but hopefully, with a less exhausted crew when they arrived at the casualty. And because of the lower magnitude of the accelerations, the crew were probably a little disappointed they weren't owed a beer! —