Simulation of a fragat in waves.

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Cooperative Research Navies focuses on dynamic stability and safety

A cooperative effort that started in 1990 between a group of navies and MARIN has culminated in a successful research venture, which has a multitude of practical applications for naval ship design and operation. Research has focused on the dynamics and safety issues surrounding capsizing, in waves and wind, whether vessels are damaged or intact.

Having identified naval needs the Cooperative Research Navies (CRNAV) group decided to focus research efforts for the period 2003 to 2005 on the following areas: (1) simulation of extreme motions and capsizing of intact ships, (2) simulation of dynamics (flooding, motions, capsizing) of damaged ships, (3) stability safety assessment and design criteria for intact ships, (4) stability safety assessment and design criteria for damaged ships and (5) operational guidance and training.

The FREDYN ship motion simulation programme plays a key role in all of the above areas. Increasingly, the programme is used as an interactive, generic tool to study the operational behaviour of ships in waves, because it is one of the first tools where propulsion, manoeuvring, seakeeping and (where relevant) flooding and capsizing are fully integrated. Recently it has been coupled to a full bridge simulator.

The CRNAV group interacts closely with the Naval Stability Standards Working Group and with the Operator Guidance and Training Working Group. Both naval groups will ensure that the CRNAV work will lead to practical applications in terms of sound design and safe operation.