



Marine Structures Testing Lab (MaSTeL)

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Since 1964 the Lab allows the implementation of tests and sea trials on full and large scale specimens of ships and offshore structures. It is indeed possible to design and to perform unconventional testing, not yet defined in current practice, as well as to select most adequate instrumentation and equipment, to draft testing specifications according to the goals of the research and to critically analyze the measured data. Generally, testing equipment and measurement systems were not bought on the market rather they were designed and built in house to match the specific needs and purposes of the intended application.

Since 1975, sea trials were carried out to determine the ship's frequency response, also operating in severe environmental conditions like the Antarctic Ocean. The direct measurement of the external hull pressure through pressure gauges installed on hull surfaces and the acquisition of the ship's motion by modern technologies like the GPS RTK satellite system, proved themselves to be very useful in the calibration process of a reliable numerical model in order to determine e.g. impulsive loads (slamming, sloshing).

Some typical examples are presented in the following pictures.



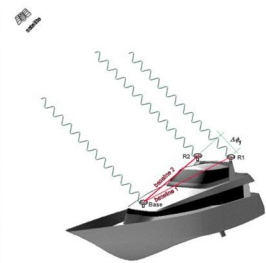
Hull pressures, strain and motion - 2004



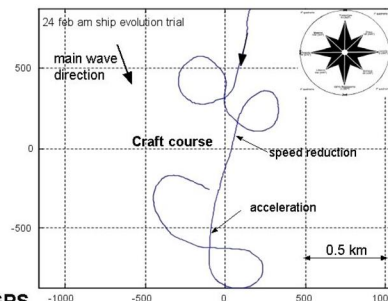
shroud stress measurement



wave wash measurement

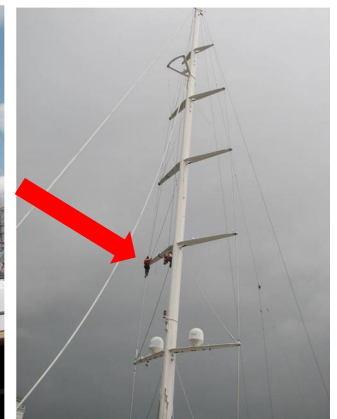


Real Time Kinematic GPS measurement



noise & vibration measurements

Recent applications include the complete design and construction of a structural monitoring system for mast and rigging of a large yacht as well as structural noise and vibration measurements. Propeller blades were also recently studied.



Full scale towing test were performed in past years.

A low cost wire sensor was developed in the lab to be embedded in composite material (laminates, fillers, etc.)

