



CURRICULUM VITAE

ROBERT PRIOR

BEng (Hons) MSc ACGI

Contact Details

Telephone : +44 (0) 207 237 2617
E-mail : rp@tmcmarine.com

Qualifications

BEng (Hons) Aeronautical Engineering, Imperial College London
MSc Maritime Engineering Science, University of Southampton

Graduate Member of RINA
Member of SNAME

Background and Experience

Technical Consultancy
TMC (Marine Consultants) Ltd
August 1997 to Present
Naval Architect

Since joining TMC in August 1997, Rob's role has covered all aspects of naval architecture and general engineering, from hydrodynamic aspects to geodetic transformations. Rob has often needed to write computer code from scratch and develop methods of analysing problems from first principles in order to meet the needs of the TMC's clients.

Rob has extensive experience reconstructing ship collisions and groundings, approaching 150 individual cases, many of which were heard in the High Court, Admiralty Courts and arbitration. Rob has become particularly adept at extracting the information from voyage data recorders (VDRs/SVDRs).

Rob has frequently used the OPTIMOOR mooring analysis program to generate computer models of ships and terminals to determine whether a vessel's mooring



equipment and arrangement can withstand the environmental forces they are likely to be subjected to, using either site specific criteria or the OCIMF standard environmental criteria. This has often extended to running OPTIMOOR in 'Dynamic' mode to model ship drifting and passing ship interactive forces and motions.

Other areas of Rob's work include: the preparation of strength and stability programs to assist with salvage, speed trials analysis for new building disputes and all forms of technical drawing and 3-D modelling.

Approaching 150 Collision & Grounding Investigations Including:

- Course recorder analysis
- VTIS/AIS data analysis
- Engine data logger analysis
- Extraction of VDR/SVDR data
- Analysis of ship's documents
- Speed and angle of blow calculations
- Calculation of hydrodynamic coefficients for manoeuvring models
- Extensive use of manoeuvring models
- Squat estimation calculations
- Equivalent speed in shallow water calculations
- Modelling of bank interaction

OPTIMOOR Analysis:

- Compliance with OCIMF/Berth Requirements
- Investigation of Breakout Incidents

Other areas of expertise:

- Development of ship manoeuvring code
- Development of ship resistance and propulsion programs
- Development of plotting and animation programs
- Development of vessel bridge-view program
- Preparation of strength and stability programs (SeaMaster/GHS)
- Calculations to ensure compliance with Classification Society Rules
- Flooding calculations
- Regression analysis and curve fitting
- Geodetic co-ordinates transformations, conversions and calculations
- Analysis of ultrasonic survey results
- Technical drawing
- Construction of previous TMC web-sites



Selected Cases:**ZHE HAI 522**

TMC were asked to model the way that the movement from a mechanical grab used by a vessel's crane to unload cargo into a barge tied up alongside would become very difficult to control when the vessel started rolling. This was virtually impossible to achieve using Newtonian mechanics so a required the use of the Lagrangian method with a Fourth Order Runge Kutta method to solve the equations of motion.

CHINA STEEL REALIST – IASONAS

TMC were asked to produce a 'BridgeView' reconstruction to depict a collision from the viewpoint of the officers on the bridge of the respective vessels. This involved a comprehensive analysis of the VDRs from both vessels integrating the data, X-Band radar displays and audio with 3D models of the vessels.

KYLA - ZHEN HUA 27

This case involved a VLCC which had been converted into a heavy lift vessel delivering a number of large gantry cranes to a container terminal in Santos, Brazil. During a sudden and very strong localised storm, the heavy lift vessel broke free from her moorings and accelerated into the stern of the bulk carrier loading at the terminal ahead. As well as analysing the vessel's VDR, TMC's investigation included an extensive OPTIMOOR analysis and a reconstruction of the collision relying heavily on evidence from CCTV.

SAMCO EUROPE - MSC PRESTIGE

TMC investigated this collision in the Gulf of Aden between a VLCC and a large container ship. This included a reconstruction based on the VDR and ECDIS data from both vessels, and the calculation of the range and bearing, CPA and TCPAs as the vessels approached each other. TMC were asked to produce manoeuvring models of the two vessels in order to investigate what options were available to the vessels in order to avoid the collision.

PEQUOT - MAERSK HOLLYHEAD

This was a collision in a narrow, poorly maintained channel, where a small container ship was diverted into the path of a bulk carrier as a result of bank rejection. This investigation required numerous geodetic transformations to convert coordinates from local datum to the various charts in use aboard the vessel. Manoeuvring models were used to investigate the role that bank interaction had played alongside excessive speed, shoaling inside the channel boundaries and missing navigation buoys.

ARABELLA

TMC were asked to investigate a number of groundings in the Mississippi river where strong currents made anchoring and manoeuvring extremely difficult for the vessel. TMC made use of satellite imagery and local VTS radar in order to reconstruct the groundings accurately.



ATHOS 1

This case centred on a tanker which pierced a fuel tank on a submerged anchor which had been lost by an unknown vessel. As part of TMC's investigation the dynamic under-keel clearance for the entire track from the mouth of the Delaware River to the berth in Philadelphia was calculated using positions and vessel speed recorded by the vessel's ECDIS, US Army Corps of Engineers survey charts and published formula for estimation of Squat.

HYUNDAI 105 – KAMINESAN

This collision occurred in congested waters in the Singapore Straits as a result the actions of three separate vessels. TMC's reconstructed the collision using VTS and AIS positions for the vessels, manoeuvring models were then used to explore the potential options available to each of the vessels to investigate whether the collision could have been avoided.

PRESTIGE

TMC's investigation into the loss of the PRESTIGE required an extensive review and comparison of historical ultrasonic thickness measurements and steel replacement as well as a thorough review of underwater surveys conducted on the wreck.

BOW SPRING vs MANZANILLO II

This unusual case heard at the Admiralty court in London, occurred in the northern entrance channel to the Suez Canal where the Master of the BOW SPRING deliberately ran his vessel aground to avoid the threat of colliding with a dredger which was taking part in works to build a new by-pass channel. TMC were asked to reconstruct the path of the two vessels in order to establish the perceived risk posed by the speed of the dredger and how closed it approached before turning abruptly through 180°.

STANDARD VIGOR

This grounding occurred in very shallow water in the River Plate access channel. TMC used manoeuvring models to investigate the role that the water depth, possible bank interaction and rudder failure may have had on the cause of the grounding.

MARINE RANGER - NORTH COUNTESS

This collision between two panama bulk carriers occurred in very shallow water in the River Plate. TMC used manoeuvring models to determine the ability of the vessels to manoeuvre in progressively shallower water in order to demonstrate that the description of the collision in one of the witness statements might not have been feasible.

BARBAROSSA - HAGIENI

This collision which occurred in the Bosphorus, the tracks of the vessels were reconstructed by TMC using manoeuvring vessels and the course recorder trace from one of the vessels. This helped to identify the falsifying of the collision position on the



working chart from one of the vessels, which after forensic examination was found to have been altered from one side of the traffic separation scheme to the other.

PELOPIDAS - TRSL CONCORD

This collision in an Argentinian river occurred when a bulk carrier over-shot a bend and was rejected by the far bank into the path of an oncoming container ship. This was one of the first cases where TMC used manoeuvring models extensively.

MINERAL DAMPIER - HANJIN MADRAS

This collision in the South China sea resulted in the sinking of the MINERAL DAMPIER with the loss of all hands. TMC's reconstruction relied on the course recorder and witness statements from the HANJIN MADRAS using manoeuvring models prepared for the two vessels. This collision which made case law when no blame was attached to the MINERAL DAMPIER for making a last minute alteration to port in an attempt to avoid the collision.

Employment History

Proctor Masts Ltd
April 1995 to August 1997
Composite Engineer

Production of carbon-fibre yacht masts, spars and components.