

Mooring - an evolving science

At first glance, the mooring of large ships, including tankers, might appear a mature technology. Terminal operators have three decades experience of mooring tankers, technological innovation in terms of load monitors and rope materials has made its mark and acceptable mooring arrangements are well established.

However, while the vast majority of tanker moorings pass without mishap, there are still enough incidents of vessels breaking away from jetties to keep mooring specialists on their toes. "Modelling the properties of ropes used in moorings and the consequential effect the ropes have on the response of moorings is the main challenge for those involved in tanker mooring," states Stephen Banfield, managing director of Tension Technology International Ltd, a UK specialist in fibre rope properties and mooring system response.

"We conduct many failure investigations of moorings systems in harbours, all of which add to our knowledge base. We use this information in the continued development of our Optimoor mooring software which is used to calculate mooring forces, vessel excursion and the effect of waves for moored gas carriers, oil tankers and other vessels. This work is carried out on behalf of ship operators, terminals, port authorities and jetty design contractors, amongst others."

Over the past 12 months TTI has added models of seakeeping, i.e. the effect of swell, and other dynamic effects to its Optimoor software package. Amongst specific projects undertaken by the company are analyses of of LNG carriers moored at proposed exposed terminals Western Australia and the US.