



Skibsteknisk Selskab (Foreningen til Søfartens Fremme samt Søfartsteknisk Forening) i samarbejde med Maritimt Selskab (Ingeniørforeningen - IDA)

Mandag den 5. marts 2012, kl. 16:30 – 19:30 (Forfriskning kl. 18:00 – 18:30)
 Sted: Ingeniørhuset, Kalvebod Brygge 31-33, arrangements nr. 125075

Operational Decision Support and Performance Monitoring

On-board decision support and performance monitoring systems are becoming standard on board many ships and the systems are becoming increasingly sophisticated and widely applicable.

The first two presentations of the evening will be from developers of on-board systems who will introduce state-of-the-art decision support, performance monitoring and route planning systems and the advanced models behind them.

Secondly a presentation will be given on how to carry out performance monitoring of a large vessel fleet in practise from a shipowner's point-of-view.

High quality marine weather forecasts are crucial for most on-board systems, and we will be taken behind the scenes of one model used by the Danish Meteorological Institute. Furthermore, weather routing, performance analysis and the concept of "Virtual Arrival" will be presented.

Finally, a presentation will be given from the Technical University of Denmark about the latest research in the field of sea state estimation on board a ship.

The presentations of this evening will be in English.

16:30 – 16:40	<p>Introduction to the topics of the evening <i>Ingrid Marie Vincent Andersen/Ulrik Dam Nielsen, DTU Mechanics, Section for Coastal, Maritime and Structural Engineering.</i></p>
16:40 – 17:10	<p>How onboard advisory systems are used to increase the vessel's operability and performance <i>v/ Leon Adegeest, AMARCON Decision Support Systems, Holland</i></p> <p>Per today, most offshore operators apply some kind of monitoring system to ensure safe and efficient operations under the influence wind, waves and current. Shipping companies use weather routing services with a similar purpose: a safe and efficient transit from A to B.</p> <p>By proper integration of the information, much more can be achieved. Using the dynamic characteristics of the vessel in combination with weather forecasts and design limits like for example maximum allowable accelerations, roll motion or motions of a crane tip, advice can be generated for safe heading, speed and route.</p> <p>For ships with a Dynamic Positioning system, the forces on the DP-system can be forecasted. As a result, operational windows can be generated in which all the critical responses stay within the limit, and at the same time the vessel can keeps its required position or heading.</p> <p>The advisory system partly relies on measured data. By continuous monitoring of the vessel's speed, RPM, motions, wave, wind and current, etc, the essential information is collected for performance monitoring and fuel-optimization measures such as optimization of RPM or MCR.</p> <p>The presentation will give an overview of the elements of an integrated advisory system, some practical applications and obtained results.</p>



<p>17:10 – 17:35</p>	<p>Advanced Propulsion Modelling in Maritime Decision Support Systems <i>v/ Peter Sinding, R&D Manager, FORCE Technology</i></p> <p>The decision support performed by both performance monitoring systems and voyage planning systems is typically based on fuel optimisation. The propulsion models used for fuel consumption modelling includes simple empirical models, purely mathematical models and advanced physically based propulsion models – each with their own pros and cons. In the presentation the concepts of the advanced propulsion model used in the SeaSuite products, SeaTrend and SeaPlanner are described and discussed. The benefits of using more detailed propulsion modelling will be highlighted. The presentation will also include a preview of where the propulsion modelling at FORCE Technology is heading.</p>
<p>17:35 - 18:00</p>	<p>Performance Monitoring in practice <i>v/ Kristian Bendix Nielsen, Maersk Maritime Technology</i></p> <p>Maersk Maritime Technology is responsible for running the Maersk Ship Performance System, which has roots back to the 1980's. Continuously rising fuel prices and increased competition has significantly increased the focus on fuel consumption and efficiency. The presentation will include an introduction to the performance system, together with a description of some of the main elements in performance monitoring:</p> <ul style="list-style-type: none"> - Hull and Propeller Performance - Main Engine Performance - Cylinder Oil Consumption - Offservice <p>The system is also used in connection with Voyage Planning and Execution on board the vessels, as well as providing input to new-building projects.</p>
<p>18:00 – 18:30</p>	<p>Forfriskning</p>
<p>18:30 – 18:55</p>	<p>DMI Weather routing <i>v/ Carsten N. Kofoed, Head of Maritime Service</i></p> <p>Numerical Weather Models: Reliable numerical weather models are crucial for planning safe and optimum offshore operations and for weather routing. This is a short introduction to how a numerical weather model works. Strategic weather routing: Many ocean passages are longer than what is the reliable forecast range of numerical weather models. Therefore strategic weather routing provides information for long-term route planning, which ensures safe and economical ocean passages. Decisions based on limited information shortly after departure, can turn out to be very costly. Performance analysis and Virtual Arrival: The final part of the presentation will be an introduction to the performance analysis service and Virtual Arrival service provided by DMI - Maritime Service.</p>
<p>18:55 – 19:20</p>	<p>Sea state estimation from an advancing ship <i>v/ Ulrik Dam Nielsen, lektor, Danmarks Tekniske Universitet</i></p> <p>Onboard sea state estimation is relevant for evaluation of ship operations at sea. Applications are related to both decision support systems for</p>



	<p>safety and vessel performance systems. Means to obtain the sea state at fixed positions in the sea include traditional wave rider buoys, where motion measurements of the individual buoy are processed to give a (directional) wave spectrum. Similarly, it is possible to obtain estimates of the sea state at the exact position of an advancing vessel by processing measurements of the vessel's wave-induced responses. The analogy to a wave rider buoy is clear, although the situation of an advancing ship is more complex due to forward speed.</p> <p>This talk outlines the basic approach behind the wave buoy analogy. The difficulties are mentioned and recent progress is presented in which full-scale data will be considered.</p>
19:20	Afrunding og diskussion

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