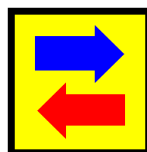




**NATIONAL TECHNICAL UNIVERSITY OF ATHENS
SCHOOL OF NAVAL ARCHITECTURE AND MARINE ENGINEERING
DIVISION OF SHIP DESIGN AND MARITIME TRANSPORT**

LABORATORY FOR MARITIME TRANSPORT



<http://www.martrans.org>

May 2011

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Dear LMT friends,

This is the third year that an Annual Report of the Laboratory for Maritime Transport (LMT) at NTUA is being produced, and this one gives a general picture of what happened in 2010.

These are not particularly rosy times for the university system in Greece, as the acute economic crisis has imposed severe stresses on the system and has made work more challenging than ever before. In spite of this, I am pleased to say that 2010 was full of important activities for our Laboratory. Among other things, we saw the launching of new EU project SuperGreen, which LMT coordinates, and of the new Centre of Excellence in Ship Total Energy-Emissions-Economy, funded by The Lloyd's Register Educational Trust, in which LMT is involved. Last but not least, in December 2010 LMT received the Award for Achievement in Safety or Environmental Protection, in the context of Lloyds List Greek Shipping awards. This is the second time a Lloyds List award has been received by LMT since 2008.



These developments reinforce our hope that LMT will continue producing high-quality work in 2011 and beyond, and will continue to be at the leading edge of research in the areas in which it is involved.

We hope that you will find the contents of this report interesting, and any comments are welcome.

Best regards,

Harilaos N. Psaraftis
Professor, NTUA
Director, LMT

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1. INTRODUCTION

1.1 About LMT



The establishment of the Laboratory for Maritime Transport (LMT) was officially approved by the National Technical University of Athens (NTUA) Senate in May 2006. Until then, and since 1989, LMT functioned as a research and educational unit within the School of Naval Architecture and Marine Engineering (NAME), known as “NTUA Maritime Transport”. LMT holds a long-standing experience in the design, development and simulation of maritime and intermodal transport, marine environmental protection, safety analysis and human elements. Following Greece's rich maritime tradition, LMT is active in practically all areas of maritime transport R&D, having completed or being involved in projects in areas such as technology, management, economics, logistics, telematics, human aspects, environment, and safety. It has also been involved in projects and studies with a substantial policy analysis element. Linking R&D with education, LMT is also fully active in the School's undergraduate and post-graduate educational programs.

People

Faculty Members

Harilaos N. Psaraftis (Professor)
Dimitrios V. Lyridis (Assistant Professor)
Nikolaos P. Ventikos (Assistant Professor)

Doctoral Candidates

Stefanos Chatzinikolaou
Nikolaos Gavriilidis
Stelios I. Iordanis
George Kokkalas
Christos A. Kontovas
George Lykos
Nikolaos Manos
Vassilios Zagkas

Post-Doctoral Associates

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1.2 About this report

This report is a summary of LMT's achievements and activities during calendar year 2010. LMT's electronic newsletters inform regularly during the year about current and forthcoming activities and you can find them, as well as subscribe to our emailing list, at <http://www.martrans.org/news.htm>.

2. YEAR 2010 HIGHLIGHTS

2.1 LMT wins Lloyd's List Award for Achievement in Safety or Environmental Protection

LMT won the “Award for Achievement in Safety or Environmental Protection” at the 2010 Lloyd's List Greek Shipping Awards. This award is given to any Greek individual, crew, company or organisation whose act, initiative or product has contributed to either safety or protecting the environment, or both.



The award was received by the Director of LMT, Professor Harilaos N. Psaraftis on Friday December 10, 2010, at the seventh anniversary of the Greek Shipping Awards. Close to 1,000 people attended the annual presentation dinner at the Athenaeum Intercontinental Hotel in Athens that paid tribute to the world's largest shipowning community, their service partners and some of the industry's outstanding achievements during the preceding year. The Greek government was represented by the Minister of Maritime Affairs, Island Policy and Fisheries Mr. Ioannis Diamantidis.

Other award categories this year included the Dry Cargo Company of the Year, the Tanker Company of the Year, the Passenger Line of the Year, the Shipbroker of the Year, the Shipping Financier of the Year, the Technical Achievement Award, the International Personality of the Year, the Ship of the Year, the Award for Achievement in Education or Training, the Piraeus International Centre Award, the Seafarer of the Year, the Greek Shipping Newsmaker of the Year, the Lloyd's List / Propeller Club Lifetime Achievement Award, and the Greek Shipping Newsmaker of the Year.

It is reminded that LMT had won the “Piraeus International Centre Award” at the 2008 Greek Shipping Awards.

Safety & environmental protection figure prominently within the roster of LMT R&D over the years, with (among others) EU projects such as ATOMOS I-IV, Safeco I-II, Disc I-II, Themes, EU-MOP (LMT coordinator), OSH and Flagship, or Greek projects such as the AEGEAN. More recently, LMT has been engaged in several R&D projects on ship air emissions, sponsored by the Hellenic Chamber of Shipping (HCS), by ABS, by DNV and by The Lloyds Register Educational Trust (Centre of Excellence in Ship Total Ship Energy – Emissions – Economy). LMT is the coordinator of EU project SuperGreen (22 partners, 13 European countries) to assist the European Commission on their Freight Transport Logistics Action Plan on "green corridor" issues. Moreover, LMT is centrally active at the IMO, both at the Maritime Safety Committee (MSC) and at the Marine Environment Protection Committee (MEPC).

2.2 The SuperGreen project is launched



On January 15, 2010, a new EU project entitled “Supporting EU’s Freight Transport Logistics Action Plan on Green Corridors Issues” (abbreviated name “SuperGreen”), with NTUA-LMT assuming the role of Coordinator, was officially launched. The 3-year project is a Coordinated Action supported by the European Commission (DG-TREN) in the context of the 7th Framework Programme. The purpose

of the project is to promote the development of European freight logistics in an environmentally friendly manner. Environmental factors play an increasing role in all transport modes, and holistic approaches are needed to identify ‘win-win’ solutions.

The objectives of the SuperGreen project concern supporting the development of sustainable transport networks by fulfilling requirements covering environmental, technical, economic, social and spatial planning aspects. This will be achieved by:

- *Benchmarking of Green Corridors.* Based on a total picture of relevant parameters (KPIs) like energy consumption and emissions, operational aspects and SCM issues, external costs (including social and spatial planning aspects), infrastructure costs and internal costs: identification of areas and candidates for improvement (i.e. bottlenecks).
- *“Green technologies”.* Methods for improving the identified bottlenecks. Among the green technologies considered may be novel propulsion systems, alternative fuels, cargo handling technologies, new terminal technologies, cleaning technologies, heating and cooling technologies, or novel concepts of any kind relevant for the multimodal Green Corridors.
- *“Smarter” utilisation of ICT-flows* already available in the multimodal chain may improve the identified bottlenecks and make the Green Corridors even greener. The influence of issues like e-freight, supply chain management, smarter planning (vehicle navigation technologies), scheduling and track & trace need to be considered.
- *Recommendations for R&D.* Where the available “Green technologies” and present knowledge about “Smarter utilisation of ICT-flows” are not sufficient to improve the identified bottlenecks, recommendations for future calls for R&D proposals will be suggested.
- *Policy Implications.* The implications of related regulatory policies on the possible solutions proposed by the project will be examined, so as to provide assistance to the Commission in the formulation and harmonisation of policies on Green Corridors.
- *Dissemination and Awareness Raising.* The project is paying particular attention to dissemination and creation of awareness on its results. This would involve liaison with stakeholders involved in the topics addressed by SuperGreen (infrastructure managers, transport and terminal operators, shippers, logistics operators, national and local authorities, etc.). It would also include the development of a dissemination plan, promotional material, workshops and other events with stakeholder participation.

The stakeholders that will be engaged in the SuperGreen project include: transport operators, terminal operators including ports, infrastructure operators, authorities etc. responsible for developing and maintaining the infrastructure, cargo owners (shippers), industry/consultants, Non Governmental Organisations (NGOs), environmental organisations, authorities responsible for social and spatial planning and R&D. In addition to industry partners, an external Advisory Committee of industrial and other stakeholders will be connected to the project. Through a 3-year programme of studies, networking, data dissemination and expert engagement, SuperGreen will work with all stakeholders to identify and seek solutions to bottlenecks.

The 22 partners of SuperGreen are:

- NTUA-LMT (Greece)- Coordinator
- MARINTEK AS (Norway)
- Sito Ltd -Finnish Consulting Engineers Ltd (Finland)

- D'Appolonia S.p.A. (Italy)
- Gijón Port Authority (Spain)
- Det Norske Veritas (Norway)
- via Donau (Austria)
- NewRail - Newcastle University (UK)
- CONSULTRANS (Spain)
- PSA Sines (Portugal)
- Finnish Transport Agency (Finland)
- Straightway Finland Ry (Finland)
- Captrain Italia (Italy)
- Procter & Gamble Eurocor (Belgium)
- VR Group (Finland)
- Lloyd's Register-Fairplay Research (Sweden)
- Hellenic Shortsea Shipowners Association (Greece)
- Dortmund University of Technology (Germany)
- TES Consult Ltd (Ukraine)
- Turkish State Railways (Turkey)
- DB Schenker AG (Germany)
- The Norwegian Public Roads Administration (Norway)

Information on SuperGreen can be found at www.supergreenproject.eu and will be regularly updated via the LMT newsletter and via other specialized newsletters and newsflashes. People and organizations interested to link up with this project are encouraged to contact us by sending an email to supergreen@martrans.org.

More information on the activities of SuperGreen during 2010 can be found in section 4.8 of this report.

2.3 LMT active in IMO business

LMT's involvement in the activities of the International Maritime Organization (IMO) continued during 2010. Here we provide several highlights.

MEPC 60

At the 60th session of the Marine Environment Protection Committee (MEPC 60, London, March 22-26, 2010) a Working Group (WG) on the subject of Environmental Risk Evaluation Criteria in the context of Formal Safety Assessment (FSA) met under the chairmanship of Prof. Psaraftis. Delegates from some 20 member states and 8 non-governmental organizations attended. The WG was tasked to recommend cost-effectiveness criteria for the subject of oil pollution. To that effect, the group reiterated the previous views expressed by successive correspondence groups that environmental risk evaluation criteria should be expressed on a "cost per volume of spilled oil" basis. Following extensive discussion as to what type of total spill cost function should be used, a majority of the members of the Group agreed that a non-linear function is more justifiable by the available data, with some other Group members supporting a constant total spill cost per tonne, and some other members not being able to take a position on this issue.

Interestingly enough, among three non-linear total spill cost functions on the table, the WG proposed, and MEPC 60 agreed, to use as basis the one produced by Greece, as being the most conservative. It turns out that the Greek function was produced by LMT staff (Kontovas, Psaraftis,

Ventikos), after regression analysis of International Oil Pollution Compensation Fund (IOPCF) data. To that effect, member governments or interested organizations having their own additional data, were invited to verify, and adjust as necessary the Greek regression formula by incorporating their additional (chosen) data in the analysis. In this connection, MEPC 60 agreed to invite the interested stakeholders to submit their data for each cost component (see working definitions) and the results of their analysis for consideration. Also, MEPC 60 agreed to invite member governments and interested organizations to use the non-linear cost function in FSA studies with a view to gain experience with its application and provide information to IMO which may help to improve the proposed functions.

The second involvement of LMT into MEPC 60 business was as regards Green House Gas (GHG) emissions matters: In fact, three submissions by Greece on the so-called Energy Efficiency Design Index (EEDI) had substantial input from LMT. These are documents MEPC 60/4/15, MEPC 60/4/16 and MEPC 60/4/17.

Market Based Measures (MBMs) for GHGs

Since the spring of 2010 LMT has also been involved in one of IMO's most important activities for combating GHGs. An Expert Group was formed to tackle the issue of evaluating a number of proposals on Market Based Measures and Prof. Psaraftis was nominated on that group by the Greek maritime administration. Indeed, MEPC 60 decided to undertake a feasibility study and impact assessment of all the market-based measure proposals submitted in accordance with the work plan for further consideration of market based measures (MBMs). In order to fulfil the above, MEPC 60 requested the Secretary-General of IMO to establish an Expert Group on Feasibility Study and Impact Assessment of possible Market-based Measures.

The scope of the Expert Group was to evaluate the various proposals on possible MBMs with the aim to assessing the extent to which they could assist in reducing GHG emissions from international shipping, giving priority to the maritime sectors of developing countries, least developed countries (LDC) and small islands developing states (SIDS). The Expert Group was chaired by the Chairman of the MEPC, Mr. Andreas Chrysosostomou of Cyprus.

A total of eleven (11) MBM proposals were evaluated according to the following nine (9) criteria:

- 1) the environmental effectiveness, e.g. the extent to which the proposed MBM is effective in contributing to the reduction of greenhouse gas emissions from international shipping;
- 2) the cost-effectiveness of the proposed MBM and its potential impact(s) on trade and sustainable development;
- 3) the proposed MBM's potential to provide incentives to technological change and innovation – and the accommodation of current emission reduction and energy efficiency technologies;
- 4) the practical feasibility of implementing the proposed MBM;
- 5) the need for technology transfer to, and capacity building within, developing countries, in particular the least developed countries (LDCs) and the small island developing states (SIDS), in relation to implementation and enforcement of the proposed MBM, including the potential to mobilize climate change finance for mitigation and adaptation actions;
- 6) the MBM proposal's relation with other relevant conventions such as UNFCCC, Kyoto Protocol and WTO, as well as its compatibility with customary international law, as depicted in UNCLOS;

7) the potential additional administrative burden, and the legal aspects for National Administrations by implementing and enforcing the proposed MBM;

8) the potential additional workload, economic burden and operational impact for individual ships, the shipping industry and the maritime sector as a whole, of implementing the proposed MBM; and

9) the MBM's compatibility with the existing enforcement and control provisions under the IMO legal framework.

After several months of deliberations and three meetings, the Expert Group submitted and presented its report to MEPC 61, held in London Sep. 27- Oct. 1, 2010.

On December 16, 2010, the third SNAME Greek Section technical meeting for the 2010-2011 season took place in the hospitable premises of Maran Tankers in Athens. In the presence of some forty members, Prof. Psaraftis presented his experience on the MBM expert group, along with a comparison of the MBM proposals.

For more information of LMT's recent work on emissions, please visit this web link:

<http://www.martrans.org/lemis.htm>

MEPC 61

At MEPC 61, LMT continued its involvement as regards environmental risk evaluation criteria in Formal Safety Assessment. In document MEPC 61/18/2, submitted by Greece, Kontovas, Psaraftis, and Ventikos presented further experience with non-linear oil spill cost functions, by testing these functions with US spill data. It is expected that a Working Group will be formed at MEPC 62 (July 2011) to make further progress on this issue.

LMT's involvement in IMO has started in 2007 and relevant documents can be found at this web link: <http://www.martrans.org/limo.htm>

Check out also recent updates of IMO-related matters, including those in 2011, in the LMT newsletter.

2.4 LMT in Venice

Prof. Psaraftis made a brief trip to Venice in February 2010, to participate in a meeting in the context of the peer review report presented by the port management.

A discussion with various port stakeholders took place. The meeting was hosted by Prof. Paolo Costa, President of the port authority of Venice, and in addition to Prof. Psaraftis, Messrs. Manfred Reuter of the Hamburg port authority and Honoré Paelinck of Antwerp also attended.

2.5 LMT teams up with WWF Hellas

On February 18 2010, LMT signed a memorandum of cooperation with WWF Hellas in the context of enhancing safety and environmental friendliness of shipping in Greek waters. LMT and WWFH's cooperation is about issues of prevention of marine accidents and mitigation of their consequences, including pollution related incidents (e.g. oil spills) from ships. In particular, the cooperation's initial focus is the development of a comprehensive document / leaflet capable to provide an overall picture of maritime transport and of its dangers in Greece and equally promote some dedicated solutions for the recorded problems. The future oil pipeline from Burgas to Alexandroupolis and the effort of setting an operational framework for the protection of the marine and littoral environment in the Aegean Sea is another field of cooperation between the two parties.

2.6 LMT at the Hellenic Joint Branch

Dr. Nikolaos P. Ventikos (Lecturer of LMT) was invited by the Hellenic Joint Branch of the Institute of Marine Engineering, Science & Technology (IMAREST) and the Royal Institute of Naval Architects (RINA) to give a speech on issues of marine oil pollution and ways for confronting / mitigating it.

The presentation took place at Tsakos Shipping & Trading Auditorium (Macedonia Bldg) on April 29, 2010. The title of the speech of Dr. Ventikos was "The A-B of Oil Pollution from Ships: Elements of Risk" and it focused on topics such as oil spill statistics, risk analysis methodologies, oil spill response capabilities and oil spill cost. After the presentation an interesting discussion took place regarding the aforementioned issues and the event finally closed with a small reception.

2.7 LMT Thesis Receives Honorary Award from IMAREST

In conjunction with the last Posidonia Exhibition that took place in Athens (June 7 to 11, 2010) the Institute of Marine Engineering, Science and Technology (IMAREST) organized on June 8 a small ceremony for the awarding of prizes for the best Diploma Theses that were submitted in the School of Naval Architecture and Marine Engineering of the National Technical University of Athens in 2009. In this context, the thesis of Mr. Ioannis Asimomitis with title "Methodologies of Recording, Monitoring and Analysis of Ship Operational Data as a Safety Improvement Measure – Presentation of Case Study" that was supervised by the member of LMT and NTUA Dr. Nikolaos P. Ventikos received an Honorary Award for its quality and contribution to the maritime science and practice. More specifically, the Thesis of Mr. Asimomitis deals with the methods of monitoring, recording, and analyzing data coming from the operation of ships (maritime transport) both in real time and through the development of extensive databases to improve all maritime related critical parameters, such as safety, efficiency, quality of service etc. So as to study these methods, the review of the respective practices already used in air transport was put into scrutiny aiming at the formulation of the best possible framework to be adopted by the shipping industry.

2.8 LMT at IAME 2010

LMT participated with 3 staff members (Kontovas, Lyridis, Psaraftis) and 4 papers (see the relevant section of this report) at the annual conference of the International Association of Maritime Economists, held on July 6-9 in Lisbon, Portugal.

2.9 LMT at AIRO conference

Harilaos Psaraftis delivered one of the 4 keynote addresses at the 41st Annual conference of the Italian Operations Research Society (AIRO), held on September 7-10, 2010 in Calabria, Italy. The talk was about Green Logistics for Surface Intermodal Transport.

2.10 LMT at Mare Forum Marseille

Harilaos Psaraftis made a presentation provocatively entitled “Will any of the emissions reduction measures work?” at the EuroMed Management Maritime Forum, Marseille, France, on Sep. 14, 2010. Among other things, he noted that some measures, including doing nothing, will reduce GHG emissions, while others, including some actively promoted, are doubtful. He also noted that globally, ruminant livestock produce about 80 million metric tons of CH₄ annually, accounting for about 28% of global CH₄ emissions from human-related activities. Note that shipping produces some 900 million metric tons of CO₂ (2007) and CH₄ is more than 20 times more effective as a GHG than CO₂. And even if it is clear what one can do to a ship to reduce GHGs, it is less clear what one can do to a cow.

3. EDUCATION



3.1 Taught courses

- ECONOMICS OF MARITIME TRANSPORT I
- ECONOMICS OF MARITIME TRANSPORT II
- ECONOMICS OF MARITIME TRANSPORT III: Environment and safety analysis
- ELEMENTS OF FINANCE. SPECIAL TOPICS IN SHIPPING
- LOGISTICS IN MARITIME TRANSPORT
- RISK THEORY, ENGINEERING AND APPLICATIONS IN MARITIME TRANSPORT
- THE HUMAN ELEMENT - INTRODUCTION TO HUMAN RELIABILITY FOR MARITIME TRANSPORT
- WATERBORNE TRANSPORT SYSTEMS (postgraduate course)

3.2 Diploma theses

- Argyrou, N. "Oil removal from shipwrecks – the theory, methodologies and application" , supervised by N.P. Ventikos
- Dartsia, O. "Optimization of Berthing and Cargo Handling in a Container Terminal" , supervised by H.N.Psaraftis
- Demiris, E. "Establishing the True Commercial Value of Secondhand Vessels" , supervised by D. Lyridis
- Genikomsidou, I. "Study of the operational level of oil spill confrontation with the usage of multi agent models – the case of the Burgas-Alexandroupolis oil pipeline", supervised by N.P. Ventikos
- Georgopoulos, A. "Optimization of Public Service Network Routes", supervised by H.N.Psaraftis
- Giannopoulos, I. "Estimation and assessment of social risk in shipping: the case study of Greece", supervised by N.P. Ventikos
- Karadimas, G. "Reliability analysis/mapping for marine vessels: results and conclusions" , supervised by N.P. Ventikos
- Koliaraki, M.-A. "Assessemnt of the Technical Analysis Methodology for Stocks of Shipping and Transport Public Companies" , supervised by D. Lyridis
- Kontaksakis, G. "Modeling the Dry Bulk Shipping Market Taking into Account Macroeconomic Factors using Artificial Neural Networks", supervised by D. Lyridis
- Levantis, A. "Towage of ships: Study, best practices and results" , supervised by N.P. Ventikos
- Logothetis, T. "Non-technical skills in maritime transport – Study for Greek officers" , supervised by N.P. Ventikos
- Mavrogiannis, V. "Optimization of Berthing Sequence and Crane Allocation in a Container Terminal", supervised by H.N.Psaraftis

- Nargou, S. “Ship recycling: best practices, decision taking model and results” , supervised by N.P. Ventikos
- Nikolaou, K. “Modeling the Shipping Market using the Chaos Theory” , supervised by D. Lyridis
- Oikonomou, K. “Statistical analysis of FX marine accidents for the global fleet” , supervised by N.P. Ventikos
- Petsiou, M. “New Mykonos Port: Status Quo and Forecast Scenarios”, supervised by H.N.Psaraftis
- Sarantis, M., “Application for the reduction of CO2 emissions from ships” , supervised by N.P. Ventikos
- Vagias, N. “A Bayesian Network application for the prediction of human fatigue in the marine industry” , supervised by N.P. Ventikos
- Varelas D. “Establishing the Demand for Maritime Transport Services using Data Mining Techniques” , supervised by D. Lyridis

3.3 Training seminars

HELMEPA - LMT cooperation



Continuing a cooperation which started in 2008, the LMT participated in the Hellenic Marine Environment Association's (HELMEPA) series of training seminars during 2010. The LMT lecture covers in brief the basic theory of risk, risk analysis and risk engineering and analyzes maritime and occupational accidents. The 2010 lecture is focused more on the occupational aspect of safety, however it also provides practical guidance for the implementation of risk oriented approaches and methods to identify causes of accidents, including starting points and escalation factors, to assess accident producing conditions and to make realistic recommendations so that the maritime industry remains safe and environmentally friendly. Speakers from LMT at the HELMEPA seminar series were Stefanos Chatzinikolaou, and Nikos Ventikos.

3.4 Dr. N.P. Ventikos elected/promoted to Assistant Professor



On April 20, 2010, LMT Lecturer Dr. Nikolaos P. Ventikos was unanimously promoted by the appointed electoral body of the School of Naval Architecture and Marine Engineering of NTUA to the rank of Assistant Professor. Congrats to Nikos for a well deserved promotion!

4. RESEARCH PROJECTS

(listed alphabetically)



4.1 ABS – NTUA



Since mid-2008, LMT has been engaged in its first US-funded research in the form of a three-year project sponsored by the ABS under the name of “Assessment of Environmental Impact In Marine Transportation and Related Activities.” The project studies the impact of environmental protection regulations, practices or measures on marine transportation, including shipbuilding, and will integrate practical industry data and information with academic research. The intent is to develop tools that can be used by designers, ship owners and other stakeholders to identify and select effective environmental policies and procedures. The research focuses on two principal areas: environmental risk evaluation criteria and ship emissions and energy savings.

Regarding the first area, current approaches focus on risk evaluation and attempt to identify solutions and methodologies that take the environmental dimension into account, in particular pollution from oil spills. During 2010, various data regarding components of the cost of oil spills were analyzed. This work may be useful in evaluating alternative tanker designs and risk control options to reduce pollution risk.

The main objective of the second area is to develop a list of problems related to ship air emissions and energy savings. The analysis includes a birth-to-grave approach in which total emissions during ship's lifecycle are assessed (i.e. shipbuilding, operation/maintenance, recycling). Comparisons of emissions generation are also made with maritime transportation scenarios (combinations of ship type, size, trip distance, fuel type, engine type, etc).

The project is scheduled to be completed in mid-2011.

4.2 Centre of Excellence in “Ship Total Energy-Emissions-Economy”

The Lloyd's Register Educational Trust (The LRET) has established a Centre of Excellence in Ship Total Energy-Emissions-Economy. The Centre is housed at the School of Naval Architecture and Marine Engineering of NTUA.

The objective of this Centre of Excellence is to develop a holistic and interdisciplinary approach to the complex goal of increasing energy efficiency and reducing emissions, while not jeopardizing the economic viability of the shipping industry. The general objectives of the Centre are the creation, consolidation and dissemination of know-how in the area of Total Energy and Emissions Economy aiming for the highest standards of achievement in this sphere of activity. It is intended that this academic Centre will maintain close links with the Shipping Industry and specifically with the Greek Shipping Community.

The Centre's approach is interdisciplinary, as two Laboratories of the School will be involved: the Laboratory of Marine Engineering (LME) and the Laboratory for Maritime Transport (LMT). LME will focus at technical aspects of the project and LMT will focus on managerial-economic aspects. The Director of the Centre will be Professor C. Frangopoulos, whereas the tracks led by LME and LMT will be supervised by Professors N. Kyrtatos and H. Psaraftis, Directors of LME and LMT respectively.

4.3 DNV – NTUA “Effective Bulk Transport”



This project was finalized at the end of 2010, following a 3-year strategic research and development collaboration agreement that was signed in late 2007 between Det Norske Veritas (DNV) and the National Technical University of Athens (NTUA).



The collaboration with NTUA focused on the maritime industry and was with the university's School of Naval Architecture and Marine Engineering. Year 2010 was the third of a 3-year phase, with NTUA's LMT and the Ship Design Laboratory having a central position in the programme. Effective bulk transportation and ship design optimization were respectively the two main topics.

In the context of “Effective Bulk Transport” and LMT's work, Sub-objective 1 was entitled “Emission/Logistics tradeoffs” and examined various tradeoffs that are at stake in the goal for reduced ship emissions and may impact the cost-effectiveness of the maritime logistics chain.

In 2010, Sub-objective 1 was focused on emissions in container terminals. It is obvious that the main source of emissions is the ocean-going vessels, the emissions of which was at the center stage of our work during the previous years. Besides the vessels, cargo handling equipment is a major source of port emissions that has also not been analyzed much in the literature. Therefore, during the last year of the project focus was given in modeling the carbon dioxide emissions of cargo handling equipment. Finally, our models were used to estimate the emissions from cargo handling equipment at the container terminal of the Port of Piraeus.

Sub-objective 2 was titled “Impact of security using game theory”, and placed a special focus on maritime piracy. More specifically, the importance of security was highlighted as a topic of current concern for the world maritime community, with the objectives of a) investigating the relevance to merchant shipping security of concepts and insights developed in other security settings, b) examining their application through model illustrations. The terrorism / piracy threats were identified and it was explained why game theory is suitable to address them, as there is a fundamental difference between safety and security: in the former setting the events we want to avoid are not intentional, while in the latter setting they are intentional.

In the first two years, the developed models, and relevant illustrations – numerical examples, were about “Defenders' strategies - a port security setting”, “Defenders vs. attackers - a piracy setting”, and “Container transportation as an Interdependent Security problem”. During the 3rd year, the piracy problem was further examined on a strategic and tactical level, through 2- and 3-player settings in accordance with the game theoretic methodological approach.

A number of papers and conference presentations were also the outcome of this project.

4.4 FLAGSHIP



FLAGSHIP is an EC Integrated Project under the 6th Framework which aims to reduce the risks to life, the environment and vessels from waterborne transport while enhancing the competitiveness of European maritime transport. FLAGSHIP is focusing on onboard and onshore inspection, maintenance and operation support systems, to shorten the time required to identify and prioritize equipment or elements that need maintenance or repair. The project was successfully concluded in the end of 2010.

Within the last year of the project, the LMT's involvement was in sub-project D2. In the context of this task a workshop was held in Naples on 25th June 2010. LMT has participated in this workshop which has gathered representatives from technical and crew management departments and masters of some Italian shipping companies with long experience in International navigation. Other activities concerned the interviews phase for the purposes of Deliverable D2.3. The LMT has contributed to the interviews phase by conducting a series of interviews with Greek officers. The officers were asked to fill a questionnaire first, and then plenary discussions followed in which the interviewees had the opportunity to express their personal views regarding the administrative work load on board ships and exchange ideas for potential onboard activities that could be transferred ashore. Attendants also provided their expert opinion about the most consuming tasks onboard, the existing technologies supporting these tasks and the main aspects to be considered for an eventual and feasible upgrade. The results of these interviews have been reported to the task leader and were included in the D2.3 report which has been submitted to the EC (December 2010).

Project website: www.flagship.be

4.5 KOS PROJECT



NTUA-LMT was awarded a programmatic contract with the Municipal Port Fund of the island of Kos for a prefeasibility study for the new commercial port of the island (February 2009). In particular, due to the increased traffic in the existing port of Kos, the Municipal Port Fund is considering the creation of a separate, exclusively commercial port so as to decongest the port currently in service and furthermore to upgrade the provided services at both ferry/cruise and cargo shipping. In this context, LMT has provided to the

Municipal Port Fund of Kos a realistic, practical and viable pre-feasibility study for the new commercial port in order to contribute in the best possible manner to the progress and further development of the island.

On July 22, 2010, at the island of Kos, an LMT team led by Prof H.N. Psaraftis presented the results of the study (entitled "New Commercial Port of Kos - Pre Feasibility Study") in a dedicated event hosted by the Kos Port Fund. The Mayor of Kos, Mr. G. Kyritsis in his speech illustrated the importance of modern port infrastructures for the development of the island and thanked LMT for the successful synergy. Prof. Psaraftis in his presentation illustrated the data of historical flows of Kos port, continued with a brief description of the Analytical Network Process (ANP) methodology adapted exclusively to the needs of the project and concluded with the key results of the research. The event closed with a panel discussion and questions from the audience which showed remarkable interest.

4.6 NUS - NTUA (NOL)



This has been a 2-year research project of the NOL fellowship programme of Neptune Orient Lines (NOL) of Singapore, in cooperation with the National University of Singapore (NUS), which acted as the consortium leader. The project started in mid-2008 and ended in mid-2010.

The grant concerned the project "Optimal Containership Size and its Impact on Liner Shipping Operations". NOL is a global transport company with core businesses in container shipping and supply chain management. It wholly owns U.S. shipping company American President Lines (APL), which represents 80% of NOL's revenue, and its sister logistics arm APL Logistics. NUS is Singapore's largest university with close to 2,000 faculty members and 25,000 students.

The project considered the optimal containership size problem applicable to the Transpacific and the Asia-Europe trade routes. This problem has been a topic of keen industry interest because of its wide ranging impacts that affect all stack players. It has been addressed in the following aspects: (a) Containership operational and cost considerations; (b) Fleet size and mix optimization; (c) Fleet deployment and routing optimisation; (d) Evaluation of impacts of containership size on hub-and-spoke operations, container-port operations and port infrastructure needs; and (e) a "holistic" approach to develop a decision support system consisting of an integrated framework of models and algorithms of distinct sub-problems.

The project was finalized according to plan. In Feb. 2010 a meeting between the research teams of NUS and NTUA-LMT took place in Singapore, with the LMT team also visiting with NOL/APL. A paper describing part of the work of the LMT team is in press with "Maritime Economics and Logistics", and other related LMT work can be found at the LMT web site.

4.7 ENVISHIPPING: sneak preview

NTUA – LMT led the effort in a proposal for a new research project (name: ENVISHIPPING), submitted to the General Secretariat for Research and Technology of the Greek Ministry of Development. The consortium of the project brings together leading domestic companies and institutions with the aim to explore the total environmental footprint of ships from a life cycle perspective. More specifically, the target of the project will be the ship's life cycle assessment through which the identification and classification of all factors contributing to the environmental footprint of a ship during its life (building, operation, recycling/dismantling) can take place. The implementation process will facilitate the creation of a database for all ship pollution drivers (i.e. air emissions, solid and liquid wastes and garbage) which will include the effect of pollution factors and pollutants per ship type and per each phase of the vessel's lifecycle. The final assessment will be made by focusing on the conditions of the Greek broader sea transportation framework.

In late 2010, the research proposal successfully passed the acceptance and negotiations phases and the project is now expected to start in June 2011. Except for LMT that will coordinate the research effort, other partners of the project are: POLYECO SA (leader company in integrated ship waste management services in Greece), the Hellenic Sea Ways, HSW (major Greek Ro-Ro shipping company), the Greek branch of Det Norske Veritas, the Hellenic Marine Environment Protection Association, HELMEPA (environmental NGO), the Naftotrade Shipping and Commercial SA, (Greek owned cement carriers company), and the Company for Shipping Development Support and Cooperation, NAFS (a non profit subsidiary of the Hellenic Chamber of Shipping).

4.8 SuperGreen



A variety of meetings of project SuperGreen took place during 2010.

Project kick-off

First, the kick-off meeting took place in Athens on February 2nd and

3rd, 2010. During this meeting, the topic of Green Corridors was addressed presenting the perspective of the European Commission (Project Officer Mr Rein Jüriado, EC DG-TREN), logistics service providers represented by DB Schenker (Ms Andrea Schön) and industrial partners represented by Procter & Gamble (Mr Sergio Barbarino); furthermore, the Port Authority of Gijon (Mr Humberto Moyano)

introduced the activities launched for greening the Madrid-Paris corridor.

Kuopio meeting in March paves the way to Helsinki workshop in June

On March 30, several SuperGreen partners met at the premises of partner Sito in snow-infested Kuopio, Finland, for a critical discussion on the pre-selection of some 15 European corridors with good greening potential. Such pre-selection was based partly on the current TEN-T and was made according to the criteria such as transport volumes, average length of transport chains (share of long distance transports), existing transport infrastructure, types of transported goods, multimodality, effects on environment, human habitat and land use planning, geographical preconditions (cases covering different preconditions), used transport and information technology, supply chain management strategies and procedures of main transport clients and other relevant criteria. Modal-wise, the mix of corridors that were pre-selected included:

- Land-based corridors
- Corridors (short sea-road-rail-intermodal) that are alternatives to road
- Corridors (deep sea- road- rail-intermodal) with non-European trade partners

Geographical coverage of corridors includes:

- The Iberian and/or Italian peninsula
- Scandinavia
- Inter-Mediterranean
- Corridors linking Scandinavia with the Baltic countries, Poland and Germany
- Hamburg- Le Havre range
- Corridors between UK and continent
- Corridors between the Balkans and Central Europe
- Corridors between EU and Russia
- Deep sea corridors (Far East and North America to Europe)

1st SuperGreen plenary Workshop in Helsinki

Some 90 participants attended the first workshop of the SuperGreen project, held in Helsinki, Finland, on June 28, 2010.

The Helsinki workshop was the first among a number of workshops associated with the project. The audience of the workshop consisted of logistics service providers, shippers, carriers in all surface modes, intermodal transport companies, policy makers, researchers and analysts, environmental organizations, and other stakeholders interested in green logistics.

Starting from an initial list of some 60 corridors, a pre-selection of 15 European corridors was first presented, based partly on the current TEN-T and the market and logistics needs of the project's industrial partners. Two alternative sets of 9 corridors (among the 15 pre-selected ones), ensuring sufficient geographical and modal balance, were presented to the audience for final selection.

In addition to corridor selection, the Helsinki workshop also covered the work performed under the project on the Key Performance Indicators to be used for benchmarking the selected corridors. Presentations were also given on the related EU-funded e-Freight project, and a tool developed by the Swedish company Conlogic on the evaluation of transport's environmental performance.

A lively discussion took place among the stakeholders and the members of the project's Advisory Committee who were also invited to the event. Based on the valuable input received, the Project's Management Committee concluded at a selection of 9 corridors to be used for benchmarking and further analysis in the project.

All presentations of the Helsinki workshop and the 9 selected corridors have been uploaded at the project's web site at www.supergreenproject.eu.

First regional workshop held in Naples

The first regional SuperGreen project workshop took place at Interporto Campano in Nola, just outside Naples, Italy on October 19, 2010. The workshop was the first in a series of regional workshops associated with the project benchmarking task and it attracted around 100 participants. The workshop entailed an overview of the project progress, including the selection of pilot corridors and the initial set of Key Performance Indicators (KPIs) that will be used for benchmarking the selected corridors and a consultation session with the stakeholders present. Despite its complexity, the concept of green corridors was welcomed and the potential of the SuperGreen project was recognized by stakeholders.

The audience of the workshop consisted of logistics service providers, shippers, carriers in all surface modes, intermodal terminals and transport companies, policy makers, researchers, environmental organizations and other stakeholders interested in green logistics.

As one of the most important events at the workshop, the consultation session with stakeholders was carried out in two groups: in Italian and English-speaking groups. The discussion was focused on the benchmarking methodology and selection of the Key Performance Indicators. The outcome of discussions in the consultation sessions can be summarized as follows:

- The overall concept was warmly welcomed and there was a feeling that pilot cases can probably help to better understand the scope of the project. In fact, this will be accomplished in subsequent phases of the project and presented in future events.
- The proposed methodology for benchmarking was in principle accepted as complete. However, it was recommended to leave the weighting task of the KPIs out of the benchmarking exercise. This was justified with the fact that different stakeholders have different approaches and criteria towards the proposed KPIs (for instance, some participants said that only two KPIs count, cost and service).
- One of the groups highlighted the need for identifying the specific end-users of the KPIs and the benchmarking methodology as it was not clear for whom the project aims to develop the benchmarking methodology.

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- The general impression was that the presented KPIs are thoroughly studied but a further selection of the KPIs should be carried out in order to ensure full operability. Many participants said that an operational example of how the KPIs will be used should be developed as a matter of priority.
- Stakeholders expressed their opinion on the evaluation of the free access to the infrastructure and found that the project should not look at it at this stage. The general opinion was that it is a precondition which is already regulated at the EU level and must be applied by the Member States.

In addition to the input from the discussion, stakeholders made their contribution in writing by filling in questionnaires on the selection of the KPIs and the development of the methodology for benchmarking.

The event closed with a panel discussion where experts from the logistics industry gave their opinion on the project and the concept of green corridors. During the panel discussion several problems in Italian logistics emerged which were first considered to be regional but, as concluded at the end, are likely common to the whole of the European Union.

Advisory Committee meeting held in Brussels

The Advisory Committee (AC) of the SuperGreen project met with the Project Coordinator and some other partners of the project on October 26, 2010 at the premises of partner Procter and Gamble in Brussels.

Much of the discussion focused on feedback received on the document on KPIs previously distributed to the AC. A document compiling the responses of the AC was prepared and distributed to the AC before the meeting.

The general consensus from the AC was that the KPI methodology was in broad terms acceptable and that the KPIs proposed by the project cover all basic facets of the problem. However, there was also a general sense that KPIs as proposed are too ambitious and there is a need to simplify so that the set be useful. In that sense, reducing the set of KPIs to a more manageable set was considered as a desirable outcome.

The general sense of the majority of the group was that choosing which KPIs to keep will be determined on a case by case basis, depending on what data is available for each corridor under consideration. Most agreed that by the end of the project we should have a balanced set of KPIs, to the extent possible.

Last but not least, possible links with the policy-making process in Brussels as regards the Freight Transport Logistics Action plan, the TEN-T's (core network) and the transport white paper should be explored, even though the project's timetable is not necessarily compatible with that of the Commission.

Other related meetings

Mr George Panagakos of LMT participated in the East West Transport Corridor II workshop in Malmö, Sweden on May 19. The objective of the workshop was to obtain feedback from stakeholders on a manual on green corridors that is being prepared under this project. Mr Panagakos also participated in the SuperGreen technical meeting organized by IHS Fairplay in Gothenburg, Sweden on May 20-21 to select the Key Performance Indicators which will be used to benchmark the project's transport corridors. Finally, he participated in the TEN-T Days 2010 Conference in Zaragoza, Spain on June 8-9, where DG MOVE presented the proposed policy

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initiatives in relation to the Trans-European Transport Network, in preparation of the new White Paper on transport scheduled for next year.

Assist. Prof. Dimitrios V. Lyridis participated in the European Maritime Day held in Gijon, Spain on May 17-21, where he presented the SUPERGREEN project which caused a lot of interest from various stakeholders. He also presented the project in the EIRAC Workshop held in Wiesbaden, Germany on June 23-24 hosted by the European Business School and followed by a visit to the Frankfurt Airport Terminal.

Mr George Panagakos of LMT attended the seminar "Impact of the EU transport policy on sustainable transport development in the Baltic Sea Region", organized by the Gdansk Maritime Institute in Gdansk, Poland on September 16 in the framework of the TransBaltic project. He presented the SuperGreen project and the results achieved so far. He had the opportunity to exchange views on "green corridor" issues with representatives of all projects of the Swedish Green Corridor Initiative (East West Transport Corridor II, Scandria and TransBaltic) and discuss potential cooperation in the future.

SuperGreen was very well received. All speakers made reference to this project. Project results are expected with great interest, as all projects in the Baltic region plan to use the SuperGreen KPIs in their assessments. This places SuperGreen at the center of the scene, which although positive, increases the project's responsibility for valuable output.

On October 5, the 1st EcoTransIT Stakeholder Workshop took place in Paris. More than 100 participants representing the whole transport sector - logistics companies, shippers, forwarders, air, ocean and land carriers, scientific and non-governmental organisations - attended the meeting. They actively shared the discussion on needs and benefits of a reliable and easy-to-use carbon calculator for global supply chains.

George Panagakos had the opportunity to present the SuperGreen project and discuss synergies with the EcoTransIT World tool. All key performance indicators of the 'Environmental sustainability' group of SuperGreen indicators (CO₂-eq, NO_x, SO_x, PM₁₀) concerning a specific transport chain are calculated by EcoTransIT World. The three basic determinants of transport emissions (fuel emission factor, specific energy consumption and load factor) are followed by the model, and are entered in the calculations either directly by the user or as default values based on real life experiences. Of particular importance to SuperGreen are the default values of EcoTransIT World, as it is expected that for some of the transport chains examined under the project, the necessary data for emission calculations will not become available.

Library section of SuperGreen web site

Many corridor-related documents and links can be found at the library section of the project. For more details please go to <http://www.supergreenproject.eu/library.html>.

Info in library is by no means complete, so if you want to bring a document or a link to our attention, please let us know.

Public deliverables of project available for download

Deliverable D2.1, Selection of Corridors, describing the methodology of pre-selecting 15 corridors and among them selecting 9 corridors for further analysis, and Deliverable D2.2, on KPIs, are available for download at this link: <http://www.supergreenproject.eu/info.html> More deliverables are expected to be released to the public in the future.

More material available

SuperGreen activities, including three successful regional workshops (Antwerp, Malmoe and Sines) continued at a frantic pace during 2011. Whereas these activities are outside the scope of the 2010 annual report, please check out the SuperGreen web site and our newsletter for related material.

Green corridors group on LinkedIn

For those interested in green corridors, we have created a Green Corridors group at LinkedIn. The link is http://www.linkedin.com/groups/GREEN-CORRIDORS-GROUP-3831171?trk=myg_ugrp_ovr

Those interested in SuperGreen, please send us an email at supergreen@martrans.org.

5. PUBLICATIONS

5.1 Book chapters

- Psaraftis, H.N. (2010) "Green maritime logistics: some simple models", in Maritime Wirtschaft-Theorie, Empirie und Politik, ISL publication to honor Prof. M. Zachcial, Peter Lang GmbH.
- Psaraftis, H.N., D.V. Lyridis, C. A. Kontovas (2010) "The Economics of ships", chapter 19 of Blackwell Companion to Maritime Economics (in press)



5.2 Papers in refereed journals

- Gkonis, K.G. and H.N. Psaraftis (2010), "Container transportation as an Interdependent Security problem", Journal of Transportation Security, 3:197-211
- Gratsos, G.A., H.N. Psaraftis, P. Zachariadis, "Life-cycle CO2 emissions of bulk carriers: A Comparative Study", Trans RINA, Vol 152, Part A3, International Journal of Maritime Engineering, Jul-Sep 2010, pp. A 119-A 134
- Kontovas, C.A., Psaraftis, H.N., Ventikos N. (2010), "An Empirical Analysis of IOPCF Oil Spill Cost Data", Marine Pollution Bulletin, 60:9, pp.1455-1466
- Psaraftis, H.N., Kontovas, C.A. (2010), "Balancing the economic and environmental performance of maritime transportation", Transportation Research D 15, 458-462.

5.3 Proceedings of refereed conferences

- Gkonis, K.G., H.N.Psaraftis, and N.P.Ventikos (2010), "Modelling Security Aspects of Merchant Shipping: a Piracy setting", IAME 2010 Conference Proceedings, July 7-9, Lisbon, Portugal
- Hatzinikolaou, S., N. Ventikos, H. N. Psaraftis, D. Lyridis, "Multi-criteria methodology for port infrastructure location: application to the new commercial port of Kos" (in Greek), 5th Panhellenic Conference of Harbor Works, Athens, Greece, 22-25 Nov. 2010
- Kontovas, C.A. and H.N. Psaraftis, (2010), "Reduction of Emissions Along the Intermodal Container Chain", IAME 2010 Conference Proceedings, July 7-9, Lisbon, Portugal
- Kontovas, C.A., H. N. Psaraftis, "Carbon Dioxide Emissions Valuation and its Uses", 3rd International Symposium on Ship Operations, Management and Economics (SOME), SNAME Greek Section, Athens, Greece, 7-8 Oct. 2010
- Lindstad, H., O. T. Morkve, H. N. Psaraftis, "Establishment of a system to compare Energy Usage and Emissions for all transport modes", 3rd International Symposium on Ship Operations, Management and Economics (SOME), SNAME Greek Section, Athens, Greece, 7-8 Oct. 2010
- Oikonomou K., Ventikos N.P. (2010), "Study of F/X Accidents in the Global Fleet: Analysis, Results and Risk Elements", Proceedings of the Annual Meeting of the Hellenic Institute of Marine Technology, Piraeus, Greece, pp. 151-161
- Psaraftis, H.N. and A. Pallis (2010), "Concession of the Piraeus Container Terminal: Turbulent times and the quest for competitiveness", IAME 2010 Conference Proceedings, July 7-9, Lisbon, Portugal

- Solomonidis, C., H. N. Psaraftis, G. Papageorgiou, A. Rogan, A. Toumazis, A. Boutatis, "The Cypriot port of Vassiliko Master Plan" (in Greek), 5th Panhellenic Conference of Harbor Works, Athens, Greece, 22-25 Nov. 2010
- Ventikos N.P., Louzis K., Koimtzoglou A. (2010), "Ship Wreckage in Greece: A Fairytale or a Nightmare to Be?", Proceedings of the 19th SRA-Europe meeting: Risk, governance & accountability, London, UK, pp. 102-103
- Ventikos N.P., Louzis K., Koimtzoglou A. (2010), "Shipwrecks vs. Environment in Greek Waters: Code Red or Fuzzy Alarm?", Proceedings of the SRA 2010 Annual Meeting, Salt Lake City, Utah.
- Ventikos N.P., Lyridis D.V., Lykos G.V., Logothetis T. (2010), "Identifying and Assessing Non-Technical Skills on Greek Maritime Officers: the Story under the Spotlight", Proceedings of the "International Conference on Human Performance at Sea", Glasgow, UK, ISBN: 978-0-947649-73-9, pp. 433-442.
- Zagkas, V.K. and D.V. Lyridis (2010), "Maritime Clusters: A temporary trend or a sustainable tool for the development of the maritime industry?", IAME 2010 Conference Proceedings, July 7-9, Lisbon, Portugal

5.4 Other conferences

- Gkonis, K.G. (2010), "Liquefied Natural Gas as an energy source for the Greek and international markets", presentation at the "Energy Conference" organised by the Technical Chamber of Greece, Athens, Greece, March 8 (in Greek)
- Psaraftis, H.N. (2010), "Green Logistics for Surface Intermodal Transport", invited keynote address, 41st Annual conference of the Italian Operations Research Society (AIRO), September 7-10, Villa San Giovanni, Italy
- Psaraftis, H.N. (2010), "Will any of the emissions reduction measure work?" invited presentation, EuroMed Management Maritime Forum, September 14, Marseille, France
- Psaraftis, H.N. (2010), "Can any of the emissions reduction measures work?" 2nd Mare Forum *Iron Ore and Coal* World Shipping Summit, Athens, Greece, 4 Oct. 2010
- Psaraftis, H.N. (2010), "Market Based Measures for Greenhouse Gases: The IMO Debate", SNAME Greek section technical meeting, 16 Dec. 2010.

5.5 Other publications

- Ventikos N.P. (2010), "Risk Analysis in Maritime Transport: the Framework, the Problems and the Perspectives", Naftika Chronika, Vol. 129, pp. 34-36 (in Greek)
- Psaraftis, H.N. (2010), Autumn topics (in Greek), Naftika Chronika, Oct. 2010.

6. EVENTS CALENDAR

Meetings and Events attended by LMT staff

- SuperGreen project kickoff meeting, Athens, Greece, Feb. 2-3
- NTUA-ABS project meeting, Athens, Greece, Feb. 5
- Port of Venice peer review meeting, Venice, Italy, Feb. 9
- NTUA-DNV project meeting, Athens, Greece, Feb. 11
- "Developments in the Energy Sector in Greece and South East Europe" Conference, Institute of Energy for South East Europe, Athens, Greece, Feb. 23
- IMO MEPC 60 meeting, London, UK, March 22-26
- "Energy: present situation, planning and prospects" Conference, Technical Chamber of Greece, Athens, Greece, March 8-10
- SuperGreen project WP2 meeting, Kuopio, Finland, March 30
- "Piracy in the Gulf of Aden" Public Discussion at Eugenides Foundation organised by the Hellenic Chamber of Shipping, Athens, Greece, March 30
- European Maritime Day in Gijon, Spain, May 17-21
- East West Transport Corridor II workshop, Malmoe, Sweden, May 19
- SuperGreen technical meeting organized by IHS Fairplay, Gothenburg, Sweden, May 20-21
- "1st International Mermaid Congress of Maritime Cadets/Students", Piri Reis University, Istanbul, Turkey, May 21-25
- "4th South East Europe Energy Dialogue" Conference, Institute of Energy for South East Europe, Thessaloniki, Greece, June 3-4
- TEN-T Days 2010 Conference, Zaragoza, Spain, June 8-9
- "International Conference on Human Performance at Sea", University of Strathclyde, Glasgow, Scotland, UK June 16-18
- "The 19th SRA-Europe Meeting: Risk, governance & accountability", King's College, London, UK, June 21-23
- EIRAC workshop, Wiesbaden, Germany, June 23-24
- FIREPROOF project meeting, Paris, France, June 29-30
- 2010 Annual Conference of the International Association of Maritime Economists (IAME), Lisbon, Portugal, July 7-9
- "New Commercial Port of Kos - Pre Feasibility Study" organised by the Kos Port Fund, Kos Island, Greece, July 22
- 41st Annual conference of the Italian Operations Research Society (AIRO), Villa San Giovanni, Italy, September 7-10
- EuroMed Management Maritime Forum, Marseille, France, September 14



Events calendar

- “Impact of the EU transport policy on sustainable transport development in the Baltic Sea Region” seminar in the framework of the TransBaltic project, organized by the Gdansk Maritime Institute, Gdansk, Poland, September 16
- 61th session of the Marine Environment Protection Committee (MEPC 61), International Maritime Organization, London, UK, September 27 - October 1
- 2nd Mare Forum “Iron Ore and Coal” World Shipping Summit, Athens, Greece, Oct. 4
- 1st EcoTransIT Stakeholder Workshop, Paris, France, Oct. 5
- 3rd International Symposium on Ship Operations, Management and Economics (SOME), SNAME Greek Section, Athens, Greece, Oct. 7-8
- SuperGreen 1st regional workshop, Naples, Italy, Oct. 18
- SuperGreen 3rd PMC meeting, Naples, Italy, Oct. 20
- SuperGreen Advisory Committee meeting, Brussels, Belgium, Oct. 26
- “The Historical Evolution of Greek Shipping” seminar, University of Piraeus, Greece, Nov. 2
- SNAME Annual Meeting 2010, Bellevue/Seattle, Washington, USA, Nov. 3-5
- Intelligent ICT and Green Logistics (ECITL) Conference, Bremen, Germany, Nov. 4-5
- 5th Panhellenic Conference of Harbor Works, Athens, Greece, Nov. 22-25
- International Meeting on Port Integration, IV C programme, Civitas-Catalyst initiative, Ancona, Italy, Nov. 23-24
- Lloyds List Greek Shipping Awards, Athens, Greece, Dec. 10
- SNAME Greek section technical meeting, Dec. 16

7. 2010 IN PICTURES



Professor Harilaos Psaraftis receiving the Lloyd's List Award for Achievement in Safety / Environmental Protection from David Moorhouse, CBE, chairman of the board of directors and chairman of sponsor, Lloyd's Register Group (Dec. 2010)



SuperGreen project meeting:
walking to work in Kuopio, Finland (March 2010)



SuperGreen project: visit to the port of Helsinki, Finland (June 2010)



From left to right: Haakon Lindstad, Harilaos Psaraftis, Vangelis Magirou, and Dimitris Lyridis at IAME 2010 in Lisbon, Portugal (July 2010)



the LMT team with Kos officials, Kos island, Greece (July 2010)
Back row: N. Ventikos (LMT), H. Psaraftis (LMT), G. Kyritsis (Kos Mayor),
S. Billis (Heraklion-Kos Mayor & member of the Kos Port Fund Board)
Front row: D. Lyridis (LMT), S. Chatziniolaou (LMT), D. Gerasklis (Kos vice Mayor)



AIRO 2010, in Calabria, Italy (Sept. 2010)
Luigi Moccia (University of Calabria), his wife Sandra, Gilbert Laporte (University of Montreal), and Harilaos Psaraftis



The Advisory Committee of the SuperGreen project with the Project Coordinator and some other partners of the project in Brussels (Oct. 2010)



H. Psaraftis receiving a silver & bronze remembrance gift from P. Lalangas, Chair, with the SNAME/Greek Section logo & name engraved on it (Dec. 2010)