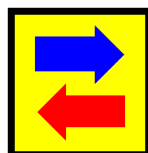




NATIONAL TECHNICAL UNIVERSITY OF ATHENS
SCHOOL OF NAVAL ARCHITECTURE AND MARINE ENGINEERING
DIVISION OF SHIP DESIGN AND MARITIME TRANSPORT

LABORATORY FOR MARITIME TRANSPORT



<http://www.martrans.org>

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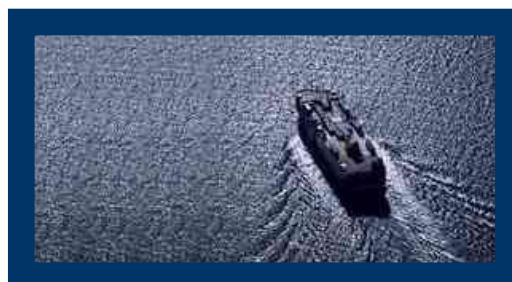
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1. INTRODUCTION

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 (Lecturer)

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You are warmly encouraged to visit our website (www.martrans.org) for further information and to contact us about your enquiries by email at ntua_lmt@naval.ntua.gr or for other contact options at <http://www.martrans.org/contact.htm>. Your feedback will be highly valued.

1.2 About this report

This report is a summary of LMT's achievements and activities during calendar year 2008. 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 2008 HIGHLIGHTS

2.1 LMT wins "Piraeus International Centre Award"

2008 ended on a high note for the Laboratory for Maritime Transport, as it won the "Piraeus International Centre Award" for 2008 at last year's Lloyd's List Greek Shipping Awards.



The fifth anniversary of one of the maritime calendar's most exciting events was celebrated on Friday December 12, 2008 at the Athenaeum Intercontinental Hotel in Athens and was attended by over 1,000 key personalities. The "Piraeus International Centre Award" is for Greek or non- Greek companies or other entities that have demonstrated outstanding service to Greek shipping clients or members, and/or have made an outstanding contribution to the development of Greece as a shipping business and service center.

Other award categories 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 Technical Innovation Award, the International Personality of the Year, the Ship of the Year, the Award for Achievement in Education or Training, the Award for Achievement in Safety or Environmental Protection, 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 Personality of the Year.

The Greek Shipping Personality of the Year award was won by IMO Secretary General Efthymios Mitropoulos and the Award for Achievement in Education or Training was won by the Union of Greek Shipowners for their efforts to recruit young people to the maritime profession.

The 10-person adjudication panel for 2008 included Spyros Polemis, President of the International Chamber of Shipping, Nicos Efthymiou, President of the Union of Greek Shipowners, George Gratsos, President of the Hellenic Chamber of Shipping, Captain John Halas, General Secretary of the Panhellenic Seamen's Federation, Nicolas Tsaviris, President of the Propeller Club of the United States – International Port of Piraeus, Dinos Caroussis, Chairman of the UK P&I Club, Anna- Maria Monogioudi, President of WISTA Hellas, Vasso Armogeni, Managing Editor of Efoplistis magazine, Dean Tseretopoulos of the IMO Advisory Group on goal based standards and recent chairman of Intertanko's Safety, Technical and Environment Committee, and Nigel Lowry, Athens correspondent of Lloyd's List.

These awards were endorsed by a number of supporting organizations, including the Union of Greek Shipowners, the Hellenic Chamber of Shipping, the Greek Shipping Cooperation Committee in London, Helmepea and others. In accepting the award, Harilaos Psaraftis thanked the adjudication panel for the honor of choosing LMT for this award, and stated that this only increases LMT's obligation for excellence in the future. He also thanked all of his associates at LMT, without whom this award would not be possible.



2.2 LMT and IMO business



2008 was rich in terms of LMT's participation in the activities of the International Maritime organization (IMO). At the 57th session of the Marine Environment Protection Committee (MEPC) that took place in London on March 31 - April 4, 2008, Harilaos Psaraftis presented the report of the correspondence group he coordinated on the subject of environmental risk evaluation criteria in Formal Safety Assessment. Prof. Psaraftis had been assigned this task at MEPC's 56th session in July 2007.

In the context of this work, Prof. Psaraftis had proposed a general framework for incorporating environmental risk evaluation criteria within IMO's guidelines for Formal Safety Assessment (FSA). Such criteria are currently absent from FSA. Said criteria are relevant for evaluating on a cost-benefit basis Risk Control Options (RCOs) for reducing oil spill pollution risk. Oil pollution may come from any ship, including bunker spills from non-tank vessels. RCOs are not necessarily ship-based, and may include vessel traffic management information systems (VTMIS) and other options. The approach can also combine environmental criteria with safety criteria already in use in FSA and can be extended to criteria other than pollution. Also relevant for this work and highly worthy of note was a study by Japan on the cost of oil spills, showing a non-linear function of spill cost versus spill volume.

Discussion on this challenging subject continued at MEPC's 58th session, held in London on October 6-10. Chaired by Prof. Psaraftis, an informal consultation group attended by delegations from Canada, China, Finland, Greece, Japan, Malaysia, New Zealand, Norway, Turkey, and the United States, and by observers from BIMCO, OCIMF and Intertanko discussed all pending issues as regards the establishment of environmental cost-effectiveness criteria in FSA. Such issues were under discussion within a correspondence group established since MEPC 56 (summer 2007). It was noted that even though divergence of opinion existed among group members on some key issues, there were also areas where agreement could be reached. And indeed, the group agreed that non-linearity between cleanup costs and oil spill volume had been documented in various studies. The group also agreed that, in spite of various documented shortcomings, in Steps 3 and 4 of the FSA one could use an "oil spill cost per unit volume" criterion to assess the cost-effectiveness of RCOs. Significant debate took place as regards the value of the cost-effectiveness threshold. The group's deliberations were presented by Prof. Psaraftis in plenary and it was agreed to extend the discussion by re-establishing a correspondence group under his coordination, with a view to reporting its deliberations at MEPC 59, scheduled for July 2009.

Last but not least, LMT made a brief appearance at the 85th session of IMO's Maritime Safety Committee (MSC). On Dec. 1, 2008, Prof. Psaraftis chaired a presentation organized by Greece on the topic of FSA. The presentation was made by Panos Zachariadis of Atlantic Bulk Carrier Management Ltd and was well received.

Updates of all these activities during 2009 can be found in LMT's newsletters. The reports of the MEPC correspondence group and related papers can be found at our web site.

2.3 LMT at OECD Round Table



The International Transport Forum of the Organisation for Economic Cooperation and Development (OECD) held a Round Table entitled "Seaport Competition and Hinterland Connections". The Round Table took place in Paris on April 10-11, 2008, and included presentations by a number of international scholars. Harilaos Psaraftis was invited by OECD as a panelist in the discussion. Papers for the Round Table made it clear that the changing business environment poses challenges for ports. Agents working in different segments of the supply chain, such as shipping companies, terminal operators, rail operators, and large retailers of consumer goods, are increasingly active in functionally (vertically) integrating parts of the supply chain, as well as in horizontal consolidation.

2.4 LMT at SNAME Greek Section



The technical meeting of the Greek Section of the Society of Naval Architects and Marine Engineers (SNAME) on May 22, 2008 was the final occasion such a meeting was chaired by Harilaos Psaraftis, elected chair of the Greek Section for the period 2006-2008. During this period, the Section held a total of 16 technical meetings on a broad variety of topics of interest to the maritime industry. This period also saw the formation of a student section, the first outside the United States. Prof. Psaraftis received a certificate of appreciation for his two-year term on behalf of the SNAME Council and he thanked his colleagues at the Greek Section Executive Committee for a fruitful cooperation. Chairman-elect of the new Executive Committee for 2008-2010 is George Anagnostou.

2.5 LMT at WMU SAR Workshop in Malmö



LMT was invited to participate in the 2nd Workshop for the Reference Group of the WMU Project on SAR Research related to Passenger Ships that was organized by the World Maritime University in Malmö, Sweden on May 27-28, 2008. LMT lecturer Dr. Nikos P. Ventikos gave a presentation that focused on SAR in Greece. More specifically, the speech covered elements of practice and research in order to draft an accurate picture of the current status of SAR in Greece and of its perspectives.

2.6 LMT event on the Greek Shipbuilding Industry



LMT organised on 28 May 2008 an event on the "Status and Outlook of the Greek Shipbuilding Industry". The event was hosted at the Piraeus Marine Club, in the frame of the Project PLOIGOS, which is funded by the European Community Initiative EQUAL.

The event was saluted by D. Kontos, from the Ministry of Employment, Professor K. Moutzouris, rector of NTUA, and E. Stavropoulos, from the Ministry of Development, and was coordinated by Ass. Professor D. Lyridis of LMT, who gave an introduction to the current problems of the Greek shipbuilding industry.

Year 2008 Highlights

The event's speakers were I. Stefanou (Managing Director of the Shipbuilding & Industrial Enterprises of Syros and advisor to the board of the Shipbuilding & Industrial Enterprises of Elefsis, among other), G. Gratsos (President of the Hellenic Chamber of Shipping), N. Varvates (President of the Union of Greek Shipowners in Short-Shipping), K. Kokkalas (Vice President of Neorion S.A. Holdings, Managing Director of the Shipbuilding & Industrial Enterprises of Elefsis and National Representative at the Community of European Shipyards' Associations - CESA), I. Kokkarakis, from Bureau Veritas, C. Frangopoulos (President of the School of Naval Architecture and Marine Engineering of NTUA), and H. Psaraftis, Head of LMT, who recapped the discussion.

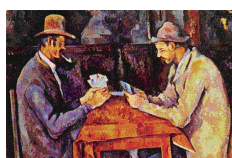
A fruitful discussion followed with the active participation of the audience. Overall, the weak points of the Greek shipbuilding industry were identified, in relation to external factors of the world economy, and interesting proposals were made for overcoming them.

2.7 LMT at 2008 IMAREST student thesis contest



In this year's contest of the Institute of Marine Science and Technology (IMAREST) among student diploma theses submitted to NTUA's School of Naval Architecture and Marine Engineering, two LMT theses won first and second place. Both theses were supervised by LMT lecturer Dr. N. P. Ventikos. The 1st prize went to Mr. Evangelos Pavlos C. Rousos with the thesis entitled: "Developing a Stochastic Model to the Aid of Flag-State Maritime Policy: The Cyprus Flag Case Study". The second place was for the thesis "Simulation of Container Traffic in Terminals" that was performed by Mr. Iosif Papageorgiou and Mr. Vasilios Vasiliou. A small award ceremony for the winners took place during the 2008 Posidonia Exhibition in the Seminar Room of the Exhibition (June 3, 2008).

2.8 LMT at GTM 2008 in St. Petersburg



The 2nd International Conference on Game Theory and Management (GTM2008) was held on 26-27 June 2008 at St. Petersburg, Russia, organized by the Graduate School of Management (GSOM), Faculty of Applied Mathematics and Control Processes of St. Petersburg University, and the International Society of Dynamic Games (Russian Chapter). The Conference was held at the premises of GSOM and LMT participated with its doctoral candidate Konstantinos G. Gkonis.

K.G. Gkonis presented "the Scenario Bundle Method and the Security of Gas Supply for Greece" in the context of his research work on a game theoretic analysis of the LNG market. The presentation proposed a novel tool for the formulation of national energy strategies and focused on gas supply and the role of LNG, giving an example on the Greek market's security of gas supply. GTM2008's highlight was the participation of Princeton University's Professor John F. Nash, Nobel Prize winner in Economic Sciences in 1994 for his pioneering contributions to Game Theory.

2.9 LMT at ENOE



At its general assembly of June 30, 2008, the Hellenic Association of Maritime Economists (ENOE) elected the following for its new Board of Directors: Alkis Corres (chairman), Costas Chlomoudis (vice-chairman and treasurer), Thanos Pallis (secretary general), and Helen Thanopoulou, Manolis Kavussanos, Harilaos Psaraftis and Gelina Harlafti (members). The Board's term is two years. Priorities of ENOE for the next two years include the organization of events for the promotion of shipping economics, the enlargement of the association with new members, and the strengthening of communication among its members and the shipping industry.

2.10 LMT at the Mediterranean Technical Working Group



Following a proposal from the Hellenic Ministry of Merchant Marine, Aegean & Island Policy, LMT Lecturer Dr Nikos Ventikos was appointed to the new Mediterranean Technical Working Group (MTWG) which is coordinated by the Regional Marine pollution Emergency Response Centre for the Mediterranean Sea (REMPEC).

The purpose of establishing MTWG is to facilitate the consideration of an issue or specific item in the context of the Meetings of REMPEC's Focal Points. In particular, Dr Ventikos will represent Greece in the following three technical issues: shoreline cleanup assessment; waste management; and sunken oil assessment and removal techniques.

2.11 LMT at Operations Research 2008



Prof. Psaraftis presented a paper entitled "Logistics - emissions tradeoffs in maritime transport" at the Operations Research 2008 international conference organized by the German Operations Research Society and held at the campus of the University of Augsburg, Germany on September 3-5, 2008.

The conference had "OR and Global Business" as its theme and was attended by some 500 delegates, who enjoyed an excellent Bavarian hospitality and a conference of a wide range of topics in OR. The topic of Prof. Psaraftis' paper is indeed a global issue, as reduction of emissions in maritime transport, both from greenhouse gases (GHG), such as CO₂, CH₄ and others, and also from SO₂ and NO_x emissions, as well as others, is a goal that is clearly stated and very pressing. The paper focused on logistics-related tradeoffs that are at stake in the goal for greener shipping and presented models that can be used to evaluate these tradeoffs.

2.12 LMT at Mare Forum Marseille



Prof. Psaraftis presented a paper entitled “Mediterranean Container Hubs of the Future”, at the Mare Forum Conference in Marseille, France, on 16 September 2008. The conference had “The Mediterranean Basin Shipping Future” as its theme. The paper went over factors that are likely to be important for the development of container hubs in the Mediterranean, and discussed the possible impact of speed reduction, vessel size increase, use of cleaner fuels and container security.

2.13 LMT at SNAME International Symposium

THE GREEK SECTION OF THE SOCIETY OF NAVAL ARCHITECTS
AND MARINE ENGINEERS (SNAME)



The 2nd International Symposium on Ship Operations, Management, and Economics was held on 17-18 September 2008 in Athens, Greece, organised by the Greek Section of the Society of Naval Architects and Marine Engineers (SNAME) and hosted at the premises of Eugenides Foundation. The keynote speech of the symposium, which was attended by some 120 people, was given by the SNAME President, Admiral Robert E. Kramek (USCG, ret.).

LMT had a strong participation with the presentation of 4 papers, under the titles “Early Commitment and Entry Deterrence in an LNG shipping market”, “Marine Environment Risk Assessment: A Survey on the Disutility Cost of Oil Spills”, “Exploring tanker market elasticity with respect to oil production using FORESIM”, and “A model-based approach for tactical decision making in oil spill response” (the last one with Oxford University). In total, 28 papers were presented in a two-day programme.

LMT’s Prof. Harilaos Psaraftis was present as the outgoing chairman of the Greek Section of SNAME, succeeded by Dr. George Anagnostou. Also, LMT’s Assist. Prof. Dimitrios Lyridis was the chairman of the Papers / Technical committee.

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
- PORTS AND INTERMODAL 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 PhD theses

The PhD title was awarded on February 28, 2008 to LMT student Apostolos Psarros, who successfully defended his thesis entitled "Greek System of Internal Maritime Services-Quality, Regulations, Ports, Services, Fleet - Proposals". The thesis supervisor was Professor H.N. Psaraftis.

The thesis presented the basic characteristics of the Greek maritime market. It described in detail the procedures for permissions of operation and for issuing fare levels, and also the transition of the regulated Greek internal maritime services to a free market system was covered. The «Wing in ground effect» (W.I.G.) concept is speculated to enter the market soon, and hydroplanes are already serving some islands and lakes. According to the analysis via questionnaires, the public is already informed about the existence and operation of the new alternatives, and under appropriate circumstances, these will earn a greater share of the traffic.

3.3 Diploma theses

- Adamantidis G. (2008), "Study of the Consequences from Accidents on LNG Vessels", supervised by N.P. Ventikos
- Bachos A. (2008), "Derivatives Trading Strategy Using Artificial Neural Networks", supervised by D.V. Lyridis
- Balaouras I. (2008), "Development of Model for Leaks from LNG Vessels", supervised by N.P. Ventikos
- Chatzikonstantinou A. (2008), "Oil Spill Weathering Model – Issue B", supervised by N.P. Ventikos
- Gavras, S. (2008), "Feasibility Study for ShortSea Shipping routes to and from Crete", supervised by D.V. Lyridis

- Kontoris P. (2008), "Sewage Management Onboard Ships", supervised by N.P. Ventikos
- Korros K. (2008), "Oil Spill Fate Model - Issue A", supervised by N.P. Ventikos
- Leni, A. (2008), "Containership terminal: from public to private. Application to the Port of Piraeus", supervised by H.N. Psaraftis
- Papamichalis G. (2008), "Study of Marine Accidents with the Use of Belief Nets - Issue B: Collision Model", supervised by N.P. Ventikos
- Policarpou, C. (2008), "The contribution of Port State Control (PSC) to international shipping: the outcome PSC ship controls", supervised by H.N. Psaraftis
- Siros C. (2008), "Study of Marine Accidents with the Use of Bayesian Networks - Issue A: Grounding Model", supervised by N.P. Ventikos
- Zagoraios G. (2008), "Study on the Cost of Oil Spill Response in Greece", supervised by N.P. Ventikos

3.4 Training seminars

HELMEPA - LMT cooperation



LMT participated in the Hellenic Marine Environment Association's (HELMEPA) series of training seminars in 2008. The lectures dealt with the study and assessment of safety as currently one of the most important developments within the framework of maritime transport. The IMO has launched to date many relative activities focusing initially on the introduction of Formal Safety Assessment (FSA) and then on its effective enhancement and amelioration, by taking onboard specific operational needs, new areas of interest etc. In this outline, the lectures covered in brief the basic theory of risk, risk analysis and risk engineering (e.g. definitions, types of risk, techniques etc). Moreover, they presented and analyzed case studies (marine accidents) from the international literature in order to provide practical and hands on guidance for the implementation and exploitation of risk-oriented approaches and methods. Hence, the main target of such efforts is to identify the causes of accidents, both as starting points and escalation factors of the event under examination, to assess the accident producing conditions and to make realistic recommendations for the strengthening of the safety and environment friendliness of the maritime industry. Speakers from LMT at the HELMEPA seminar series were Harilaos Psaraftis and Nikos Ventikos.

4. RESEARCH PROJECTS

(listed alphabetically)

4.1 ABS - NTUA



LMT is engaged in its first US-funded research in the form of a three-year project sponsored by the American Bureau of Shipping (ABS), under the study name "Assessment of Environmental Impact In Marine Transportation and Related Activities." The project studies the impact of environmental protection on marine transportation, including shipbuilding, and will marry practical industry data and information with academic research. The intent is to develop tools that can be used by designers, shipowners and other stakeholders to identify and select effective, environmentally positive policies and procedures. The research will focus on two principal areas: environmental risk evaluation criteria and ship emissions and energy savings.

The research program is expected to assess current approaches to evaluating the risks associated with a given design and will attempt to identify solutions and methodologies that take the environmental dimension into account. Already this topic is being debated within IMO's Marine Environment Protection Committee (MEPC).

The second element of the study will examine the complex challenge of reducing ship air emissions while promoting operational efficiencies. LMT has been tasked with developing rational, realistic and effective proposals that address the need to further reduce emissions. Comparisons with other modes of transport will be made and specific scenarios will be reviewed for different ship types, sizes, trading patterns and fuel type.

4.2 CHINOS



CHINOS (Container Handling in Intermodal Nodes—Optimal and Secure!) is a 3-year EC funded research project that addresses RFID enabled innovative container handling procedures. CHINOS results are ready-to-the-market IT tools (Automatic Container Identification Unit, Damage Documentation System, Communication Controller(s), Chain Event Manager) as well as technical and organisational recommendations of how to efficiently exploit these new technologies to be prepared for the actual and upcoming challenges.

In the December meeting with the representatives of the European Commission in Brussels, the EU approved the progress of the work conducted in the validation phase and the EC officials were informed about the background of CHINOS, its main concepts and aims. The main conclusions that can be drawn from the CHINOS system validation phase are summarised below: CHINOS has been a technological success, its real power being the fact that it provides tailor-made solutions to existing needs of the logistics supply chains. Its impact, however, could be much higher, if seen as an integral part of business processes, also contributing to process improvements.

The evolution of the waterborne transport industry and the responsiveness of the shipping companies to market needs due to their relatively small size are factors supporting the sustainability of the project, given that container transport gains further momentum from the

constantly increasing international trade and that CHINOS remains at the frontline of business not being used as a mere tool for only specific handling activities. IT will change business patterns at an enormous speed. CHINOS can serve as a starting point with large potential.

CHINOS software components are practically fully developed. It is worth stressing that CHINOS software applications and hardware components are already available to enter commercial use, as long as users other than CHINOS members are willing to pay in order to acquire the appropriate hardware, software and the right to use it. The reliability of the system is considered very high, as none of the parties involved has recorded any technical failure beyond the testing phase of the applications.

Project website: www.chinos-rfid.eu

4.3 DNV - NTUA



A strategic research and development collaboration agreement has been signed between Det Norske Veritas (DNV) and the National Technical University of Athens (NTUA). DNV has for years cooperated with the Norwegian University of Science and Technology in Trondheim (Norway), M.I.T and Stanford University (USA), and others.



The collaboration with NTUA focuses on the maritime industry and is with the university's School of Naval Architecture and Marine Engineering. At this stage and for the first three years, NTUA's LMT and Ship Design Laboratory will have a central position in the programme, while effective bulk transportation and ship design optimisation are respectively the two main topics initially selected.

In the context of "Effective Bulk Transport" and LMT's work, Sub-objective 1 is titled "Emission/Logistics tradeoffs" and examines various tradeoffs that are at stake in the goal for reduced ship emissions and may impact the cost-effectiveness of the maritime logistics chain. Sub-objective 2 is titled "Impact of security using game theory", and its purpose is to address maritime security problems with the use of game theory.

4.4 Emissions study (HCS)



ΝΑΥΤΙΚΟ ΕΠΙΜΕΛΗΤΗΡΙΟ ΤΗΣ ΕΛΛΑΔΟΣ
HELLENIC CHAMBER OF SHIPPING

The Hellenic Chamber of Shipping (HCS) awarded to LMT a study to develop a web-based tool to calculate CO₂, SO₂ and NO_x emissions for a variety of ships and transport scenarios. The objectives of this study were twofold: (a) develop a web-based tool for calculating the exhaust gas emissions (CO₂, SO₂ and NO_x) of selected types of ships under a variety of operational scenarios, and (b) produce various statistics of CO₂ emissions, based on data from the world fleet database.

The web tool is an online calculator and is the analog of what some airlines have available on their web sites (tool available on-line) and of what some container lines have available for their customers (tool not available on-line). The analysis of CO₂ emissions of the world fleet database has produced various statistics of CO₂ emissions for major ship types and size brackets under a variety of scenarios.

The LMT emissions web tool and study are available at: <http://www.martrans.org/emis/emis.htm>

4.5 EU-MOP



After three productive years, project EU-MOP (Elimination Units for Marine Oil Pollution) held its final meeting in Madrid in January 2008, together with an industry workshop. LMT was the coordinator of this European Commission (DG-RTD) research project, whose purpose was to design a robotized system to respond to oil spills. The EU-MOP consortium included 13 partners from 6 European countries, and the work conducted included design of 5 different variants, analyses of propulsion, oil processing, robotics, logistics, cost-benefit and validation.

Project website: www.eumop.org

4.6 FLAGSHIP

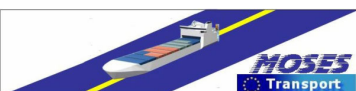


FLAGSHIP is an EC Integrated Project under the 6th Framework which aims to reduce the risks to life, the environment and vessels from waterborne transport while enhancing the competitiveness of European maritime transport. FLAGSHIP is focusing on onboard and onshore inspection, maintenance and operation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

Within 2008, the LMT's involvement was in sub-project D2, Task D2.2 whose overall target is to analyse and address how new technology is impacting upon selected work processes onboard ship. LMT has conducted and submitted a survey on the manning legislation and best practices applied in the countries of Greece Cyprus, Turkey and Malta. LMT has then been assigned the central role in the second part of work within Task D2.2 which concerned the analysis of technologies supporting various work processes involved in the operation and management of certain ship types. For this second part of work, LMT developed a novel work process analysis framework based on a dedicated questionnaire (drafted specifically for the needs of the project) and conducted a set of interviews/case studies with officers so as to obtain the necessary data for the analysis. The implemented analysis framework (including its part based on the Analytical Hierarchy Process method and the determination of the criteria of the study) managed to provide useful results, e.g. regarding the way the interviewees assessed onboard technology within the framework of the selected work processes and for the margin of potential strengthening of the selected work processes in terms of efficiency. The adopted analysis also enabled the performance of installed technology to be measured against artificially developed best case scenarios.

Project website: www.flagship.be

4.7 MOSES



MOSES' main goal was to develop a blue print establishing the detailed criteria and conditions for developing an innovative European network of Motorways of the Sea (MoS) as part of the

Trans-European Transport Network (TEN-T). Today short sea shipping and intermodal transport have a market share of European transport of 43% and 9% respectively. There is still ample spare capacity for these more environment-friendly transport modes and the issue is how to increase their market share significantly so that the objectives of the Commission's reviewed Transport White Paper can be reached.

The main project targets included:

- Improving company culture and working behaviors of workers through seeking means of changing obstacles
- Upgrading worker knowledge, competences and skills in order to allow them to better adapt to changing work demands
- Improvement of internal company communication mechanisms
- Managing and recording formal and tacit knowledge in a transferable way suggesting new roles for aged workforce
- Improving quality and performance of productive procedures, organization and workforce
- Supporting workforce by promoting work mobility, active participation and intervention of social partners

4.8 NUS - NTUA (NOL)



This is a 2-year research project of the NOL fellowship programme of Neptune Orient Lines of Singapore, in cooperation with the National University of Singapore (NUS), which acts as the consortium leader.



The grant concerns 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 Neptune'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 considers the optimal containership size problem applicable to the Transpacific and the Asia-Europe trade routes. The ocean container carriers industry experiences explosive growth of sector as well as increased competition within the sector. Mergers, collaborations and considerable new investments have led to more elaborate fleets and to complex service networks with mega hubs and mega carriers. Among the many issues, the issue of optimal containership size has been a topic of keen industry interest because of its wide ranging impacts that affect all stack players. The problem of optimal containership size will be 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.

4.9 PLOI-GOS



The shipbuilding sector in Greece has been through a severe crisis for years due to pressure from the external environment on one hand (competition from Eastern countries mainly) and due to difficulties in adapting its internal environment to the increasingly changing labor demands on the other. Developing new productive activities as well as upgrading services and products provided, assume changing a number of critical operational parameters of a shipbuilding company most of which are related to human resources. Thus the main target of this project was management of change through training of workers and companies, that is introduction of new attitudes and perceptions for the development of the sector enabling workforce to adapt to imposed or expected changes, improve skills and participate in the production procedure and achievement of company goals creatively.

The main project targets included:

- Improving company culture and working behaviors of workers through seeking means of changing obstacles
- Upgrading worker knowledge, competences and skills in order to allow them to better adapt to changing work demands
- Improvement of internal company communication mechanisms
- Managing and recording formal and tacit knowledge in a transferable way suggesting new roles for aged workforce
- Improving quality and performance of productive procedures, organization and workforce
- Supporting workforce by promoting work mobility, active participation and intervention of social partners

The project was successfully completed in the first trimester of 2008 with the final delivery of the last deliverable on behalf of LMT and the concluding meetings in the ship yards of Syros and Elefsis as well as an important dissemination event in Piraeus.

Project website: <http://www.ploigos-equal.net/>

4.10 SEA DIAMOND



LMT signed in November 2008 a programmatic contract with the Municipal Port Fund of Thira; the agreement has two major objectives, namely the management of the shipwreck of SEA DIAMOND, and the development of the strategic plan of Port of Thira. In particular, as far as the first of the two aforementioned objectives is concerned, NTUA-LMT will evaluate proposed plans regarding the removal of polluting substances from the shipwreck and assess potential studies for the removal of the wreck itself. In the context of the second of the objectives, NTUA-LMT will provide the necessary know-how to the Municipal Port Fund of Thira in order to contribute into the conceptual and subsequently actual development of a viable and functional strategic plan of its services and operations. The overall duration of the contract is two years.

Prior to this development, the Municipality of Thira (Santorini) had invited LMT (September 2008) to act on its behalf as an observer at the sub-sea surveys conducted by the Hellenic Centre for Marine Research (HCMR) for the updating of the status and situation of the wreck of the cruise vessel SEA DIAMOND. Hence, the Lecturer of LMT Dr. Nikolaos P. Ventikos got onboard the research vessel PHILIA and followed the whole operation; it is noted that the specific operation was carried out with the usage of two ROVs.

Towards the end of the year 2008 NTUA-LMT started the assessment of a paper/plan focusing upon the pumping of oil from the wreck of SEA DIAMOND. The plan was submitted by DRONIK Maritime Consultants Ltd.

5. PUBLICATIONS



5.1 Papers in refereed journals

- Gemelos I.C., N.P. Ventikos (2008), "Safety in Greek Coastal Shipping: The Role and Risk of Human Factor Revisited", WMU Journal of Maritime Affairs, vol.7, pp.31-49
- Nitsopoulos S.C., H.N. Psaraftis (2008), "The Role of Mediterranean Short Sea Shipping in the EU Transport Chain: The case of Greece", WMU Journal of Maritime Affairs, vol.7, pp.17-30
- Psaraftis, H.N. (2008), "Environmental Risk Evaluation Criteria", WMU Journal of Maritime Affairs, Vol. 7, pp. 411-430
- Rousos E.P.C, Ventikos N.P. (2008), "Maritime Policy Making for Flag States: Forecasting Safety/Detention Performance with the Use of Time Series Analysis", WMU Journal of Maritime Affairs, Vol. 7, pp. 385-407

5.2 Proceedings of refereed conferences

- Genikomsidou I., Ventikos N.P. (2008), "The New Oil Pipeline from Bourgas to Alexandroupolis: Critical Analysis of Simulation Methods for the Protection of the Aegean Sea", Proceedings of the 1st World Summit on Knowledge Society, Athens, Greece, Springer, CCIS vol. 19, pp.: 720-726, ISSN: 1865-0929
- Gkonis K.G., H.N. Psaraftis (2008), "A Game Theory analysis of the LNG market : The scenario bundle method and the security of gas supply for Greece", Proceedings of 2nd International Conference on Game Theory and Management (GTM 2008), St. Petersburg, Russia, June 26-27
- Gkonis, K.G., Kakalis, N.M.P., Ventikos, N.P., Ventikos, Y., Psaraftis, H.N. (2008), "A model-based approach for tactical decision making in oil spill response", SNAME Greek Section's 2nd International Symposium on Ship Operations, Management and Economics, Athens, Greece, September 17-18
- Gkonis, K.G., Psaraftis, H.N. (2008), "Early Commitment and Entry Deterrence in an LNG shipping market", SNAME Greek Section's 2nd International Symposium on Ship Operations, Management, and Economics, Athens, Greece, September 17-18
- Kontovas, C.A., Psaraftis, H.N. (2008), "Marine Environment Risk Assessment: A Survey on the Disutility Cost of Oil Spills", SNAME Greek Section's 2nd International Symposium on Ship Operations, Management and Economics, Athens, Greece, September 17-18
- Ventikos N.P., Chatzinikolaou S.D. (2008), "Hazardous Waste Management and Ship Recycling: Friends or FOEs?", Proceedings of the 1st International Conference on Hazardous Wastes Management, Chania, Greece, Oct. 1-3
- Ventikos N.P., Gemelos I.C., Samuelides E.S., Paik J.K., (2008), "Survey on Navigational and Non-Navigational Accidents: Statistical Analysis and Risk Assessment", Proceedings of the 4th International ASRANet Colloquium Integrating Structural Analysis, Risk & Reliability, CD-ROM
- Zacharioudakis, P., Lyridis, D. (2008), "Exploring tanker market elasticity with respect to oil production using FORESIM", SNAME Greek Section's 2nd International Symposium on Ship Operations, Management and Economics, Athens, Greece, September 17-18

5.3 Other conferences

- Lyridis D. (2008), “Mastering Shipping Market Uncertainty”, Key Note Speech in the 2008 Shipping Industry Forum, Athens, Greece, May 28
- Lyridis D. (2008), “Outlook for the wet and dry bulk markets”, presentation at 5th Lloyd's Shipping Economist, Greek Ship Finance Conference and Seminar, Athens, Greece, May 8
- Lyridis D. (2008), Key Note speech at Atlas Maritime Posidonia 2008 event, Piraeus, Greece, June 5
- Psaraftis, H.N. (2008), “Educational Curricula for Naval Architects and Marine Engineers: the Case of Greece”, 2nd International Maritime Conference, “Human Resources in the Shipping Industry: New Trends and Challenges in the 21st Century,” Frederick University, Limassol, Cyprus, November
- Psaraftis, H.N. (2008), “Logistics-emissions tradeoffs in maritime transport”, German Operations Research Society conference, Augsburg, Germany, September 2-5
- Psaraftis, H.N. (2008), “Mediterranean Container Hubs of the Future”, Mare Forum Conference “The Mediterranean Basin Shipping Future”, Marseille, France, September
- Psaraftis, H.N. (2008), “Environmental Risk Evaluation Criteria”, presented at the SAFEDOR Workshop on Risk-Based Approaches in the Maritime Industry, Glasgow, UK, May 5-6
- Psaraftis, H.N., C.A. Kontovas (2008), “CO2 Emissions Statistics for the World Commercial Fleet,” Symposium of the Hellenic Institute of Marine Technology (ELINT), November

5.4 Other publications

- Psaraftis, H.N. (2008), “Container Terminal Concession: Economics 101”, Naftika Chronika, July (in Greek)
- Psaraftis, H.N. (2008), “OLP-Cosco: Welcome to the Casino”, Naftika Chronika, November (in Greek)
- Psaraftis, H.N. (2008), “The Hermaphrodite Physiognomy of Greek Coastal Shipping”, Naftika Chronika, December (in Greek)
- Psaraftis, H.N. (2008), “The Piraeus Container Terminal Concession and the Debate Among Political Parties”, Naftika Chronika, May (in Greek)
- Psaraftis, H.N., C.A. Kontovas (2008), “Carbon Dioxide Emissions from the World Fleet: A Problem Seeking Solutions”, Naftika Chronika, October (in Greek)
- Tsilingiris, P., H.N. Psaraftis (2008), “Applications of RFID Technology in Container Transportation”, Naftika Chronika, April (in Greek)
- Ventikos, N.P., H.N. Psaraftis (2008), “EU-MOP: Autonomous Small Vessels for Oil Spill Confrontation”, Naftika Chronika, April (in Greek)

6. EVENTS CALENDAR

Meetings and Events attended by LMT staff



- MOSES project meeting, Dortmund, Germany, Jan. 7-9
- EU-MOP project 11th (FINAL) PMC meeting, Madrid, Spain, Jan. 23-24
- DNV-NTUA collaboration kick-off meeting, Oslo, Norway, Jan. 28-29
- MOSES project WP2.1, 2.2, 2.4 meeting, Brussels, Belgium, Feb. 5-6
- FP7 information day "Surface Transport", Brussels, Belgium, Feb. 6-7
- Hellenic Association of Maritime Economists open discussion on "Greek Ports", Piraeus, Greece, March 6
- IMO/MEPC 57 meeting, London, UK, March 31 - April 4
- OECD research round table on Seaport Competition and Hinterl and Connections, Paris, France, April 10-11
- Chinos project meeting of the Greek Mirror Group, Athens, Greece, April 18
- SAFEDOR workshop on risk based approaches in the maritime industry, Glasgow, Scotland, May 5-6
- 5th Lloyd's Shipping Economist, Greek Ship Finance Conference and Seminar, Ledra Mariott Hotel, Athens, Greece, May 8
- FLAGSHIP, D2.2 Technical Meeting, Teddington, UK, May 9
- 2nd Workshop for the Reference Group of the WMU Project on SAR Research related to Passenger Ships, Malmo, Sweden, May 27-28
- 2008 Shipping Industry Forum, Grande Bretagne Hotel, Athens, Greece, May 28
- "Status and Outlook of the Greek Shipbuilding Industry" Event, in the frame of the Project PLOIGOS, Piraeus Marine Club, Piraeus, Greece, May 28
- NOL-NUS-NTUA project "Analysis of Optimal Containership Size and its Impact on Liner Shipping Operations", 1st project meeting, Athens, Greece, May 28
- Atlas Maritime Posidonia 2008 event on the battleship "G. Averof", Piraeus, Greece, June 5
- MOSES WP2 meeting, Brussels, Belgium, June 10
- DNV-NTUA project workshop, Athens, Greece, June 17
- Roundtable discussion on Greek Coastal Shipping, organised by the Centre for Research and Progressive Policy, Athens, Greece, June 18
- SINTEF strategic project on maritime transport and logistics, Trondheim, Norway, June 25
- GTM 2008 - 2nd International Conference on Game Theory and Management, St. Petersburg, Russia, June 26-27
- German Operations Research Society conference, Augsburg, Germany, Sep. 2-5
- Chinos project meeting, Bremerhaven, Germany, Sep. 9-10
- Mare Forum Conference "The Mediterranean Basin Shipping Future", Marseille, France, Sep. 16
- SNAME Greek Section's 2nd International Symposium on Ship Operations, Management and Economics, Athens, Greece, Sep. 17-18
- MOSES project meeting, Brussels, Belgium, Sep. 22
- ABS project meeting, Athens, Greece, Sep. 26

Events calendar

- MOSES project meeting, Athens, Greece, Sep. 29-30
- 1st International Conference on Hazardous Wastes Management, Chania, Greece, Oct. 1-3
- IMO MEPC 58 meeting, London, UK, Oct. 6-10
- Chinos on-site test meeting, Pruszkow, Poland, Oct. 15-16
- General Secretariat Review Meeting of Wind Power Generator, Naxos/Schinousa, Greece, Oct. 17
- MOSES Workpackage meeting, Milano, Italy, Oct. 21
- Chinos PMC meeting, Bremerhaven, Germany, Oct. 30
- Chinos on-site test meeting, Thessaloniki, Greece, November 3-5
- 2nd International Maritime Conference, "Human Resources in the Shipping Industry: New Trends and Challenges in the 21st Century," Frederick University, Limassol, Cyprus, Nov. 21-22
- Symposium of the Hellenic Institute of Marine Technology (ELINT), Piraeus, Greece, Nov. 27-28
- IMO MSC 85 meeting, London, UK, Nov. 26 – Dec. 5
- Chinos EC review meeting, Brussels, Belgium, Dec. 11