



SCHOOL OF NAVAL
ARCHITECTURE &
MARINE ENGINEERING

LABORATORY FOR MARITIME TRANSPORT
NEWSLETTER No 5
April – June 2008



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Dear Reader,

The electronic newsletter of the Laboratory for Maritime Transport (LMT) of NTUA is issued regularly to inform you regarding our current and forthcoming activities. You are warmly encouraged to visit our website (www.martrans.org) for further information and to contact us about your enquiries. Your feedback will be highly valued. Kind regards._

The LMT staff

Ship Emissions Study and Emissions Web Tool Completed

LMT has completed a study on ship emissions, funded by the Hellenic Chamber of Shipping. The objectives of this study have been 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 LMT emissions web tool is freely 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 (see Figure below).

To download the complete study and/or access the web tool, please go to this link:

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

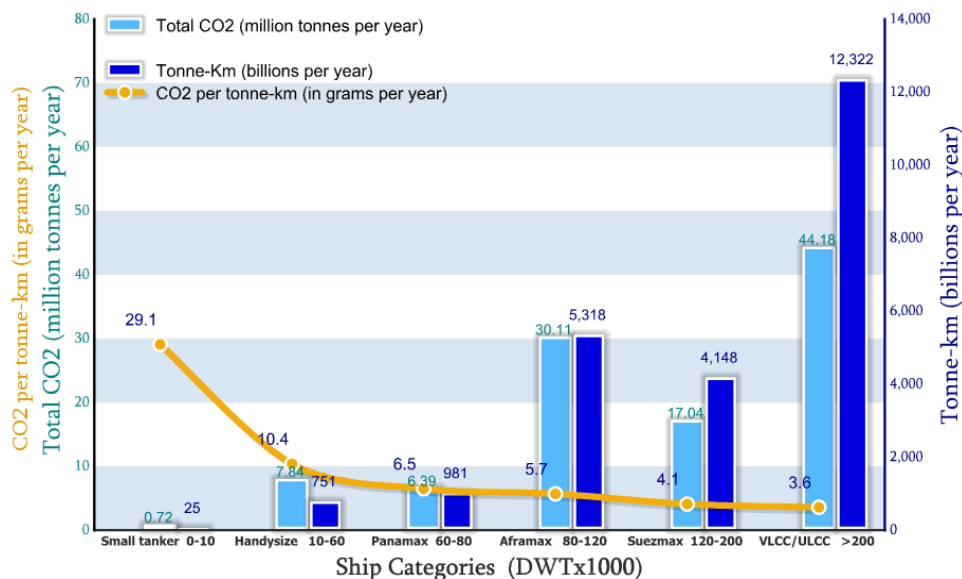
Correspondence Group Submits to MEPC 58 its Report on Environmental Risk Evaluation Criteria

Under the coordination of Prof. Psaraftis, work on Environmental Risk Evaluation Criteria continued in the period after the 57th session of the IMO's Marine Environment Protection Committee (MEPC), held March 31 - April 4 in London. MEPC 57 decided to extend the mandate of the correspondence group until MEPC 58 (October 2008, London). In the context of this work, Prof. Psaraftis 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 is 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 will continue at MEPC 58.

Crude Oil Carriers





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New project by ABS

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). The project will study the impact of environmental protection on marine transportation, including shipbuilding. 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. "With the increasing demands for greener shipping, there is a need for criteria that can capture the environmental dimensions of the risk associated with a given ship design or with the measures adopted to mitigate the risk," explained ABS Senior Vice President of Technology Peter Tang-Jensen.

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.

The study will be led by Professor Harilaos N. Psaraftis, head of LMT, under the study name "Assessment of Environmental Impact in Marine Transportation and Related Activities." The study will marry practical industry data and information with academic research. Said Psaraftis: "What is special about this project is that it will draw upon industry input as we have proposed establishing a steering committee of six individuals representing not only the University and ABS but also leading ship management companies."

LMT post-doctoral associate appointed faculty member in Hamburg

It has been officially announced by the Hamburg Chamber of Commerce and the HSBA, the Hamburg School of Business Administration, that Dr. Orestis Schinas has been elected and assigned the position of Professor of Shipping and Shipping Finance.



Dr. Orestis Schinas is an LMT post doctoral associate, who has worked in many LMT projects in the past. He has completed his Diploma and Doctoral theses with Professor Psaraftis in the field of maritime economics and logistics. He has been awarded a scholarship for his Doctoral Research from NTUA (2002), a full scholarship for pursuing his studies at the World Maritime University in Sweden by the European Commission (1998), a prize by the Technical Chamber of Greece for his academic performance (1994) and his diploma thesis received the best thesis award by the Hellenic Institute of Marine Technology (1994).

The HSBA Hamburg School of Business Administration is the first private and officially recognized business university in Germany, teaching currently three-year dual courses leading to the Bachelor of Arts (B.A.). It offers future specialists and executives a scientifically oriented and internationally aligned study with a strong practical element. All courses of study have been accredited by the FIBAA (Foundation for International Business Administration Accreditation). The international course in Shipping and Ship Finance begins in the academic year 2008, as well as an M.A. programme for those already in employment, is being planned commencing in short time.

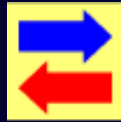
LMT present at GTM 2008 in St. Petersburg

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.



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Professor J.F. Nash (right) with K.G. Gkonis.

GTM2008's highlight was the presence of Princeton University's Professor John F. Nash, Nobel Prize winner in Economic Sciences in 1994 for his pioneering contributions to Game Theory. Professor Nash is an emblematic figure in Game Theory, mostly known to the wider public for his breakthrough equilibrium concept developed back in 1950 and named after him *Nash equilibrium*. Professor Nash gave a plenary talk on his ongoing research on the Problem of Evaluating Cooperative Games. A tireless 80-year old Nash attended almost all sessions of the 2-day conference.

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. The presentation attracted the interest of members of the audience and more will be reported in a future issue of LMT's newsletter.

LMT one-two in 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 (2) LMT theses managed to win 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 3rd, 2008).



Mr. E.-P. C. Rousos (right) receiving his prize.

OECD Holds Round Table on Seaport Competition and Hinterland Connections



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.

WMU hosts 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 27th and 28th, 2008. In this outline LMT lecturer Dr. Nikos P. Ventikos gave a



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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.

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 PLOGOS, 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.



Ass. Professor D. Lyridis addressing the audience.

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.

Psaraftis Completes his Tenure as Chairman of the 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.

In the meeting of May 22, Mr Egbert Ypma, Project Manager for Seakeeping at MARIN, The Netherlands, presented the topic "Application of Numerical Simulation Tools for Assessing the Ultimate (damage) Stability of Ships".

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.



Prof. Harilaos Psaraftis receives certificate of appreciation (right: Prof. Gregory Grigoropoulos, International Regional Vice President of SNAME).



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New Board of Directors at the Hellenic Association of Maritime Economists

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 Psaraffis 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.

Meetings and Events attended by LMT staff

- OECD research round table on Seaport Competition and Hinterland 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.

Papers, presentations and speeches published / presented by LMT staff

- 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.
- Gkonis K.G., H.N. Psaraffis, "A Game Theory analysis of the LNG market : The scenario bundle method and the security of gas supply for Greece", volume of Abstracts and presentation at 2nd International Conference on Game Theory and Management (GTM 2008), St. Petersburg, Russia, 26-27 June 2008.
- Lyridis D., "Mastering Shipping Market Uncertainty", Key Note Speech in the 2008 Shipping Industry Forum, Athens, Greece, 28 May 2008.
- Lyridis D., "Outlook for the wet and dry bulk markets", presentation at 5th Lloyd's Shipping Economist, Greek Ship Finance Conference and Seminar, Athens, Greece, 8 May 2008.
- Lyridis D., Key Note speech at Atlas Maritime Posidonia 2008 event, Piraeus, Greece, 5 June 2008.
- Nitsopoulos S.C., H.N. Psaraffis (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.
- Psaraffis, H.N., "Environmental Risk Evaluation Criteria", presented at the SAFEDOR Workshop on Risk-Based Approaches in the Maritime Industry, Glasgow, UK, 5-6 May 2008.
- Psaraffis, H.N., "The Piraeus Container Terminal Concession and the Debate Among Political Parties," *Naftika Chronika*, May 2008 (in Greek).
- Tsilingiris, P, H.N. Psaraffis, "Applications of RFID Technology in Container Transportation", *Naftika Chronika*, April 2008 (in Greek).
- 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.
- Ventikos, N.P, H.N.Psaraffis, "EU-MOP: Autonomous Small Vessels for Oil Spill Confrontation," *Naftika Chronika*, April 2008 (in Greek).