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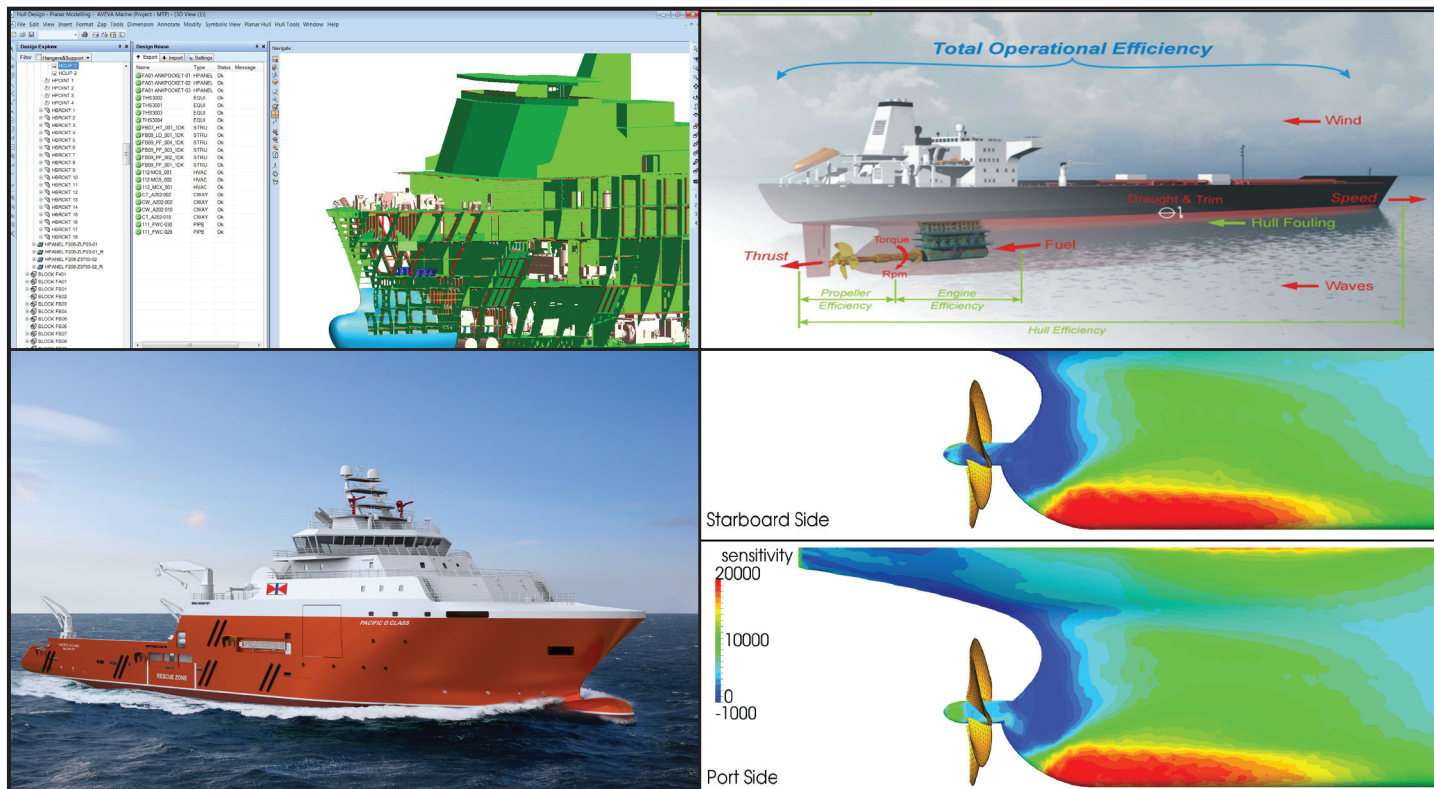
International Conference On Ship & Offshore Technology

ICSOT: Developments in Ship Design & Construction

Ambon, Indonesia, 7-8 November 2012



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day 1

08.00-08.30 COFFEE, REGISTRATION

08.30-09.00 OPENING CEREMONY

Rector of Pattimura University & Chief Executive

09.00-09.35 KEYNOTE SPEECH

Prof Alex Retraubun, Vice Minister of Industrial Affairs

09.35-10.10 NUMERICAL SIMULATION INTO DRAG CHARACTERISTIC OF SYMMETRICAL AND ASYMMETRICAL CATAMARANS WITH VARIOUS DEMIHULL SEPARATIONS
A. Jamaluddin, Indonesian Hydrodynamics Laboratory, & I. K A P Utama, ITS, Surabaya, Indonesia

This paper describes the numerical prediction of resistance for symmetrical and asymmetrical catamaran with various demihull separation. Numerical simulations have been carried out to determine the incompressible free surface flow around the demihull form for which experimental results are available. This study shows that numerical investigation appears to provide very good agreement as has been observed in the resistance curves showing that CFD methods may adequately deal with the problem of resistance interference produced by both demihulls.

10.10-10.45 DESIGN DEVELOPMENT AND CONSTRUCTION OF AIR SUPPORTED FAST CREW AND OFFSHORE SUPPORT VESSEL

Ulf Tudem, Effect Ships International AS

In response to increasing global market request for more efficient, -cost effective, -capable and - environmental friendlier fast crew boats / offshore support vessels, Effect Ships International AS (Norway) in collaboration with Orela Shipyard (Indonesia) have developed a new Air Supported Vessel (ASV) concept. A 22 m ASV Mono fast crew boat / multipurpose support vessel will be presented.

10.45-11.05 COFFEE BREAK

11.05-11.40 ALOE VERA AS NATURAL CORROSION INHIBITOR ON MILD IN SEAWATER

F. Manuhutu, Universiti Malaysia Terengganu, Malaysia

D. Pelupessy, W.M.E Wattimena, Pattimura University, Ambon, Indonesia
Mild steel is mostly used in marine environment where it corrodes very rapidly. This study reveals that aloe vera gel as natural corrosion inhibitor could decrease the corrosion rate of mild steel in seawater. Three different concentrations of aloe vera gel that mixed with 10 litre of seawater and were prepared to produce four different solutions. The result shows that high concentration of aloe vera gel as inhibitor produced high number of resistance which decrease the corrosion rate of mild steel.

11.40-12.15 OWNERSHIP COST DRIVERS IN SHIP DESIGN AND CONSTRUCTION

P. Sanders, Y. Guedj, BMT Design & Technology, Australia

There is a perception that Naval ships cost too much to buy, specify, operate, maintain, sustain and dispose of. The reality or otherwise of this perception can only be determined through a structured cost analysis approach. Only through the application of such techniques can the stakeholders begin to understand and address the key issues driving the costs. The paper considers ship design from the perspective of key through life cost driving sub systems and designing to minimize the costs associated with these systems. At the simplest level the ship is there to provide the infrastructure to support these systems. This is wrapping the ship around the systems rather than fitting the systems into the hull.

12.15-12.50 DEVELOPMENT OF CORROSION RESISTANT STEEL FOR BALLAST TANK

K. Shiotani, JFE Steel Corporation, Japan

By applying corrosion resistant steels to ballast tanks, LCC (Life Cycle Cost) of ships can be reduced due to the extended periods from initial coatings of ballast tanks to recoatings. In this study, measurement of corrosion environment at an upper deck in an actual ballast tank was carried out. The new corrosion resistant steel was developed so that it showed excellent corrosion resistance at upper decks in ballast tanks. In the cyclic corrosion test with salt spray, the coating swelling area at scratch of the coated corrosion resistant steel sample was about 70% of that of the coated conventional steel sample, suggesting possibility to extend the periods from initial coatings of ballast tanks to recoatings by applying the corrosion resistant steel.

12.50-13.50 LUNCH

13.50-14.25 THE EFFECTS OF ENVIRONMENTAL FACTORS AND VESSEL PARAMETERS ON FISHING BOAT GENERATED WAVES

F. A Adnan, D. T Suprayogi, O. Yaakob, M. P A Ghani, Universiti Teknologi Malaysia

Ship generated waves on fishing boats passing through very narrow river can cause banks erosion as well as disturbance on stationary boats. Studies have shown that the ship generated waves are dependent and influenced by environmental factors and vessel parameters. The main environmental factors involved are tidal and current direction, as well as speeds and hull forms for vessel parameters. This paper describes a comparison between a full-scale experimental work and CFD simulation to assess the effects of boat speeds, water depth and tide on ship generated waves. The field

measurement technique of wave directions in views of ship generated waves is newly proposed in this paper.

14.25-15.00 EFFICIENTLY AND LESS CARBON EMISSION HYBRID FERRY CATAMARAN FOR SHORT DISTANCE ROUTES.

M. Ferry, W. B Wan Nik, Universiti Malaysia Terengganu, Malaysia

D. Pelupessy, W. M E Wattimena, Pattimura University, Ambon, Indonesia

The increasing of fossil's fuel prices and environmental awareness urges engineers try to hybrid diesel with green energy such as solar energy. An hybrid system is efficiently to be used for catamaran as ferry on rivers, between ports at coastal area and between closed islands due to decreasing of the operational cost about 20%, maintenance cost 5% and has less carbon emission compare with fully diesel system, hence this is a more environmental friendly system.

15.00-15.35 THE POWERING OF FUTURE SHIPS TAKING INTO CONSIDERATION ECONOMIC VIABILITY AND ENVIRONMENTAL ISSUES

I. K A P Utama, ITS Surabaya, Indonesia

A.F. Molland, University of Southampton, UK.

Economic issues such as changing fuel costs and environmental issues such as emissions, pollution, wash and noise all ultimately lead to the need to minimise ship propulsive power. The paper describes the various requirements and needs that impact upon the current and future design and operation of ships. Studies are carried out on small cargo vessels, ferries and trawlers in order to identify and illustrate potential levels of savings in propulsive power at the design stage and during operation. Appropriate design methodologies and procedures, taking into account economic and environmental factors, are proposed for the design of future ships.

15.35-15.55 COFFEE BREAK

15.55-16.30 PRELIMINARY STUDY INTO THE SELECTION OF

PASSENGER AND CARGO VESSES FOR EASTERN INDONESIA

R. Luhulima, Pattimura University, Ambon, Indonesia

I. K A P Utama, ITS Surabaya, Indonesia

J-H Chen, National Cheng-Kung University, Tainan

The review and evaluation on the use of mono- and multi-hull vessels for transporting passengers and cargoes for Maluku seawaters of Eastern Indonesia is carried out. The current study is unique because Maluku islands is typical archipelagic province of Indonesia where several islands are close together and some other islands are separated by oceans. The investigation is focused on the review and evaluation of resistance and powering, the choice of hull's material, seakeeping analysis, and the economic viability. The results are very useful in order to provide suitable, efficient, and environmentally friendly vessels for that region.

16.30-17.05 DESIGN ASPECTS OF OFFSHORE PLATFORM FOR COMBINING OF MARINE CURRENT AND OFFSHORE WIND ENERGY CONVERSION PLANT IN INDONESIA

A. Suroso, M. Murdjito, ITS Surabaya Indonesia

The waters consists of huge ocean energy which can be converted into others useful energy. The authors selected the offshore wind and marine current as the alternatives energy from the ocean. The paper reviews of the development of marine energy conversion system. Selecting the type of offshore platform and the marine turbine is given to choose the type which is applicable in the potential site. Having selected the type, the paper is trying to discuss for combining of two types of energies (marine current and offshore wind) on one unit of platform. The design of the platform supporting of two energies is presented to end the paper.

17.05-17.40 THE EFFECTS ON MODIFICATION OF HULL DIMENSIONS ON DESIGN PARAMETERS OF MEDIUM-SPEED MONOHULL PASSENGER FERRIES

W.R Hetharia, A. Hage & P. Rigo, Université de Liège, Belgium

The development of medium-speed monohull passenger ferries has shown their better performance in some maritime countries recently. With the operational speeds up to 23 knots, those ships are classified as semi-displacement ships. Since the database was not available and provided for the optimization process of those ships then a base ship of 250 passengers was designed in this study. The modifications of the base ship were executed due to the ship layouts. The effects of changes in resistance, stability and other design parameters were analysed in this study.

17.40-18.25 SEAKEEPING ANALYSIS OF THE TRIMARAN FERRY SHIP IN SHORT CRESTED SEA FOR A CASE OF EAST JAVA WATER CONDITION

Aries Sulisetyono, ITS Surabaya, Indonesia

Seakeeping analysis is an important aspect in the assessing of ship performance in wave corresponding to the safety and comfort of ship's crews or passengers. This paper consider to the six degree of freedom (6 DOF) motions of the trimaran ferry ship that was operated in short crested wave of East Java sea, Indonesia.

19.00-21.00 DINNER & ENTERTAINMENT

This represents a preliminary program

Ship Design & Construction

2, Ambon, Indonesia

amme and may be subject to change

day 2

08.00-08.30 COFFEE AND REGISTRATION

08.30-09.05 KEYNOTE SPEECH: NEW OFFSHORE TECHNOLOGIES AND THEIR POTENTIAL FOR USE IN INDONESIA
Mr Ueda, Class NK, Japan

09.05-09.40 A STUDY ON MEDIUM-SPEED MONOHULL PASSENGER FERRIES WITH DIFFERENT HULL MATERIALS
J. Nanlohy, W. R. Hetharia, E. J. de Lima, F. Gaspersz, Pattimura University Ambon, Indonesia
Recently, the medium-speed monohull passenger ferries have shown their contributions in some maritime countries. The speed range of those ships is in the transition region between conventional ferries and HSC crafts. Since the ship speeds are beyond the hump speed then those ships need a great engine power. The study was conducted in order to collect, analyze and presented the data in this paper. A parent ship of 250 passengers with the hull material of Aluminium was designed and presented in this study. The design parameters of those ships with different hull materials were compared. Some comments and recommendations were presented for the future works on ship optimization.

09.40-10.15 AN EMPIRICAL MODEL TO PREDICT TIME-DEPENDENT PIT DEPTH OF SUBSEA PIPELINE
M. Hairil, Pusan National University, South Korea
Accurately assessing the reliability of aging structures is essential, especially in the oil and gas industry where inaccurate predictions of structural performance may have hazardous consequences. As a result, the corrosion behavior of subsea pipeline used for the production of oil in deep waters is an important issue. This study develops a time-dependent corrosion wastage model for subsea pipeline structures by applying the effect of exposure time to probability density distribution parameters. The results and outcomes from the present study will be useful for predicting the corrosion wastage of subsea pipeline structures and can be used in the design stage of new oil well tube structures.

10.15-10.50 A STUDY OF THE EFFECT OF SHIP SPEED ON COMPONENTS SELECTION FOR AN LNG CARRIER
Md Redzuan ZOOLFAKAR, Universiti Kuala Lumpur, Malaysia
In order to increase the profit, capital and operational costs should be reduced. The main strategy for achieving this is to select the optimal combination of the main components of the vessel based on a given objective at the preliminary stage. Interestingly, there is no a straight formula to be applied; however there are several methods have been developed over the years to assist the process of ship design, such as the ship design spiral. Since each of the criterions might conflict with each other, thus they required compromising. In order to compromise, each effect of the components needs to be studied and understood fully. Hence, this paper focuses on the effect of ship speed on the selection of components for LNG carrier.

10.50-11.10 COFFEE BREAK

11.10-11.45 DEVELOPING A LOW COST VEHICLE/PASSENGER FERRY IN RESPONSE TO THE INCREASED COMPETITION FROM AIR TRAVEL IN SOUTH-EAST ASIA
J. Knox, C. Evans, Lightning Naval Architecture, Australia
Lightning Naval Architecture (LNA), a Sydney based Ship Design Consultancy believe that a different approach to ferry operations in the region is required. With the increase in air travel and falling passenger revenues, a natural response is to look for vehicle carrying capacity to increase revenues. LNA therefore presents a conceptual day ferry design to respond to the changing travel market in South-East Asia. The design utilises a simple Hullform and Arrangement to reduce construction and operating costs, whilst eliminating design elements which have provided safety concerns in existing vessels.

11.45-12.20 STABILITY OF SHIP WITH LARGE BREADTH-DRAFT RATIO IN FOLLOWING QUARTERING SEAS
D. Paroka, Hasanuddin University, Indonesia
This paper discusses the effects of wave direction, significant wave height and ship speed on roll motion characteristics of ships with large ratio of breadth and draft in irregular following and quartering seas. The results show that these parameters have significant effects on the roll motion of the ships. Effect of the significant wave height and the wave direction has a significant effect on the roll motion in following and quartering waves.

12.20-12.55 ON THE SEAKEEPING OF SURVEY VESSELS
B. Abeil, Marin, The Netherlands
The aim of the present paper is to provide a thorough overview of the most important seakeeping aspects related to survey vessels, in such a way that they can be integrated in future designs. The content of the paper will be largely supported by recent model test campaigns performed at MARIN.

12.55-13.55 LUNCH

13.55-14.30 RUDDER AREA EFFECT ON HEELING MANEUVER OF FERRY
N. Yuniarsih, A.H. Muhammad, M.A. Djabbar, Hasanuddin University, Makassar, Indonesia
Ferry boat operation, particularly in Indonesia was increasing lately. The aim of the study was to determine the effect of rudder on ship heeling maneuver. Matrix Laboratory (MATLAB) simulation was used to predict the heeling angles. The simulation utilized model based on the concept of Mathematical Modeling Group (MMG). The model includes theory / separating components of hull equations, propeller and rudder as well as their interaction (hull, propeller, and rudder). The results indicate that the greater the rudder area the greater the heel angle during the maneuver.

14.30-15.05 THE STABILITY CASUALTIES: COMPARISONS BETWEEN THE EUROPEAN AND INDONESIAN EXPERIENCES
R. W. Birmingham & H. Enshaei, Newcastle University, UK
I. K A P Utama, ITS, Surabaya, Indonesia
M. Zaki, Indonesian Bureau of Classification (BKI), Indonesia
Stability casualties around European waters in the last decades of the 20th century led to extensive research and significant developments in the regulatory framework. In archipelagic and developing countries such as Indonesia where the transport infrastructure and regulatory regime is still being developed, stability related accidents continue to cause concern. The current work examines to what extent the European experience can inform and enhance developments in regulatory seaborne transport in Indonesia. Comparison between Europe as a continent and Indonesia as archipelagic country are made and discussed in detail.

15.05-15.40 BIOPOLYMER OF MONEPTERUS ALBUS SLIME ON CATAMARAN MODEL WALL FOR TURBULENT DRAG REDUCTION
M. Talahatu, University of Indonesia
The surface viscous liquid is one of fish's resistance reduction elements. The fish surface is covered with viscous liquid, which is considered to reduce the resistance. As compared with a solvent, a certain polymer solution of several ppm to several hundred ppm offers substantially reduced turbulent frictional resistance. The purpose of this research is to study the drag reduction in resistance of catamaran model by slime monepterusalbus solution in wall. The difference of friction coefficient is expressed as a reduction in friction drag. The results shows the drag reduction about 4 -7%.

15.40-16.15 STUDY ON THE POSSIBLITY OF ESTABLISHING SHIPBUILDING CLUSTER IN LAMPUNG PROVINCE SUMATRA INDONESIA
S. Sunaryo, University of Indonesia
In anticipation of the Indonesian growing market the research is aimed to identify the possibility of establishing a shipbuilding cluster in Lampung Province. The study is started by gathering primary and secondary information regarding the geographical location, the potential market, the available resources and infra structure, and supporting and related industries, simulating the information, draw conclusions, and propose a conceptual design for the shipbuilding cluster.

16.15-16.35 COFFEE BREAK

16.35-17.10 RUDER CONTROLLED DESIGN USING MODEL REFERENCE MODEL ADAPTIVE CONTROL (MRAC) BY OPTIMALIZED REFERENCE MODEL
J. M Herman, Pattimura University, Indonesia
This paper talk about rudder controlled to minimized error because of waves and streams. That error is done to minimized fuel consumption. That things is done by using MRAC (Model Reference Adaptive Control). Adaptive law is done by using Liapunov Method to ensure the system stability. Mode Parameter controller, Kpm and Kdm are found by using Linear Quadratic Optimal Control to minimise the energy consumption. To damped high frequency, a low pass filter is used so rudder position still fixed although control signal is oscilating.

17.10-17.45 EFFECT OF SPEED CHANGES VESSEL ON THE WATER LEVELS IN THE LIVE FISH HOLD SYSTEM WITH NATURAL SYSTEMS FOR THE TRADITIONAL FISHING VESSEL IN REMBANG DISTRICTS CENTRAL JAVA
E. S Hadi, Diponegoro University
Development of conventional fishing vessel hold design a vessel with a cargo hold fish for live fish may provide an alternative solution to reduce vessel operating costs. The research was carried out in the several models and variations of the circulation hole diameter of the hole. Water in the hold on the condition of vessel will still have the same height with a draft vessel, but the ship's speed changes along the height of water in the hold will decrease.

17.45-18.20 CONCEPT SELECTION OF INTER-ISLAND TRANSPORT SYSTEM at THE SUNDA STRAIT
D. M Rosyid, ITS Surabaya, Indonesia
This paper attempts to develop a concept selection approach to inter-island transport system using a topology approach. A techno-economic cost-benefit analysis is also presented. We concluded that an advanced ferry system is clearly more superior than a bridge system.

18.20- GENERAL DISCUSSIONS

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International Conference
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7-8 November 2012
Ambon, Indonesia

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VENUE

The Venue for the conference is the Pattimura University Campus at Ambon, Indonesia. Dinner and entertainment will be at Aston Hotel.

CONFERENCE PAPERS

Delegates will receive a copy of the conference CD-ROM which will include the presentations, this will be posted out around 10-12 weeks after the conference.

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