2012 Oceans - Yeosu

Yeosu, South Korea
21 - 24 May 2012

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Local Organizing Committee for OCEANS'12 Conference would like to express our sincerest appreciation to Student Poster Patron:

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[1] KORDI
[2] Daeyang Electric Co. Ltd.

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Emerald 2 (#110, 1F, Hotel)

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Martin Taylor, Ocean Networks Canada
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[1] Taiwan Ocean Research Institute
[2] National Cheng Kung University

TECHNICAL PROGRAM

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Autonomous underwater vehicle 1

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[2] SAS

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JAMSTEC

TECHNICAL PROGRAM

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[1] KORDI
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Co-Chairs:
Kyoung-Ho Cho, KORDI

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Co-Chairs:

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Co-Chairs:
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[1] SOEST, University of Hawaii
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[2] Institute for Chemistry and Biology of the Marine Environment
[3] Isitec

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Geumo-do A (#105, B2F, Condo)

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Co-Chairs:
Hugh Parker, Fugro LADS Corporation Pty Ltd
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[1] KDDI R&D Laboratories Inc.
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Odong-do (#101, B2F, Condo)

Wednesday, 10:40 AM - 12:20 PM

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[3] Korea Testing & Research Institute

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[1] CSIRO
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Peter Winsor, Institute of Marine Science
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[1] Agency for Defense Development
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[2] Marine Research Institute

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Geumo-do B (#106, B2F, Condo)

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Daehoon Kang, Daewoo Shipbuilding & Marine Engineering

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[1] NTNU
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Co-Chairs:
Shojiro Ishibashi, JAMSTEC
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Mitsuo Yamamoto, University of Tokyo
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Emerald 2 (#110, 1F, Hotel)

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Co-Chairs:
Lucy Wyatt, James Cook University
Rho-Taek Jung, University of Ulsan

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[2] JAMSTEC

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[2] Inha University

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Co-Chairs:

Bayan Sharif, Newcastle University

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[1] University of Connecticut

[2] Naval Undersea Warfare Center

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[1] Uppsala University

[2] Inha University

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[1] University of Padova

[2] Consorzio Ferrara Ricerche

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[1] GEOMAR
[2] University of Toronto

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[1] UBO/IUEM
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[1] National Maritime Research Institute
[2] National Maritime Reseach Institute

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Wednesday, May 23

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Co-Chairs:

Masoud Sadrinasab, Khorramshahr University of Marine Sciences and Technology
Young-Tae Son, Seoul National University

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Kyeong Park
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Raymond Williams[1], Paulo de Souza[2], Emlyn Jones[3], **Claire D'Este[3]**
[1] Tasmanian ICT Centre, CSIRO
[2] University of Tasmania
[3] CSIRO

TECHNICAL PROGRAM

Wednesday, May 23

Automatic control

Geumo-do B (#106, B2F, Condo)

Wednesday, 3:40 PM - 5:20 PM

Co-Chairs:
Pradya Prempraneerach, Rajamangala University of Technology Thanyaburi
Youngbok Kim, Pukyong National University

Autonomous Waypoint Tracking of Kayak Boat using State-Variable Feedback Control   1228

Pradya Prempraneerach[1], Pasan Kulvanit[2], Kitchalerm Thamchaitas[1]
[1] Rajamangala University of Technology Thanyaburi
[2] Ministry of Science and Technology

A new approach for ship motion control based on experiment research   1235

Youngbok Kim, **Van Phuoc Bui**
Pukyong National University

A null space control of an underactuated underwater vehicle-manipulator system under ocean currents   1239

Santhakumar Mohan, **Jinwhan Kim,** Yonghyun Kim
KAIST

Dynamic Region Boundary-Based Control Scheme for Multiple Autonomous Underwater Vehicles   1244

Zool Ismail[1], Norazwani Sarman[1], Matthew Dunnigan[2]
[1] Universiti Teknologi Malaysia
[2] Heriot-Watt University

Tracking Control for an Autonomous Underwater Vehicle Based on Multiplicative Potential Energy Function   1250

Zool Ismail[1], Bazli Mokhar[1], Matthew Dunnigan[2]
[1] Universiti Teknologi Malaysia
[2] Heriot-Watt University

TECHNICAL PROGRAM

Wednesday, May 23

Vehicle navigation 1

Odong-do (#101, B2F, Condo)

Wednesday, 3:40 PM - 5:20 PM

Co-Chairs:
Hayato Kondo, WHOI
Nak Yong Ko, Chosun University

A Study of Inverse SSBL acoustic positioning with data transmission for multiple AUV navigation   1256

Yoshitaka Watanabe, Hiroshi Ochi, Takuya Shimura
JAMSTEC

Parallelization of Path Planning Algorithms for AUVs Concepts, Opportunities, and Program-Technical Implementation   1262

Mike Eichhorn[1], Ulrich Kremer[2], Hans Woithe[2]
[1] Ilmenau University of Technology
[2] Rutgers University

Guidance and control of P-SURO II hybrid AUV   1270

Ji-Hong Li[1], Mun-Jik Lee[2], Jong-Geol Kim[2], Sung-Kook Park[2], Sang-Hyun Park[2], Jin-Ho Suh[2]
[1] Pohang Institue of Intelligent Robotics
[2] KIRO

Precise Positioning using Stand-alone GPS for Maritime Applications   1277

Sulgee Park, DeukJae Cho, SangHyun Park
KORDI

Particle Filter Approach for Localization of an Underwater Robot Using Time Difference of Arrival   1283

Nak Yong Ko[1], Tae Gyun Kim[1], Yong Seon Moon[2]
[1] Chosun University
[2] Redone Technologies Co. Ltd.

TECHNICAL PROGRAM

Thursday, May 24

Marine law, safety, management and education

Emerald 1 (#109, 1F, Hotel)

Thursday, 8:30 AM - 10:10 AM

Co-Chairs:
Dr Saharuddin Abdul hamid, University Malaysia Terengganu
Jin Hyoung Park, Wing Ship Technology Co.

Study on the safety investigation of the free-fall lifeboat during the skid - launching test   1290

John Hwang[1], Fonseca Francis[2]
[1] Hyundai Samho Heavy Industries Co.
[2] LR

A proposal of international regulations for preventing collisions between offshore platforms and ships   N/A

Pengfei Zhang[1], Jinsong Zhao[1], Jinsong Zhao[2]
[1] Shanghai Maritime University
[2] Shanghai Jiao Tong University

Safety Requirements for Wing-In-Ground (WIG) Craft   1295

Jin Hyoung Park, Deok-Ho Kim, Min-jee Kang
Wing Ship Technology Co.

Recent Development on the Management of Artificial Reefs in Malaysia   1303

Dr Saharuddin Abdul hamid[1], Ahmad Ali[2], Dr Lokman Husin[3],
Dr Wan Salihin Wong Abdullah[4]
[1] University Malaysia Terengganu
[2] SEAFDEC
[3] UMT
[4] Universiti Malaysia Terengganu

TECHNICAL PROGRAM

Thursday, May 24

Ocean energy and marine renewable energy 2

Emerald 2 (#110, 1F, Hotel)

Thursday, 8:30 AM - 10:10 AM

Co-Chairs:

Peter Haugan, Nansen Environmental and Remote Sensing Center
Seungho Shin, KORDI

Analysis of Performances of a Shrouded Horizontal Axis Tidal Turbine 1326

Huihui Sun, **Yusaku Kyozuka**
Kyushu University

A Novel Ocean Sentinel Instrumentation Buoy for Wave Energy Testing 1333

Annette von Jouanne[1], Ted Brekken[1], Ean Amon[1], Terry Lettenmaier[1], Reo Phillips[2], **Chad MacIsaac[2]**
[1] Oregon State University
[2] AXYS Technologies Inc.

Simulation of storm surge with wave-current coupled model on unstructured grids system 1339

Jong-Joo Yoon, Ki-Chun Jun, Kwang-Soon Park, Jae-Seol Shim
KORDI

Norwegian Centre for Offshore Wind Energy 1343

Peter Haugan[1], Kristin Frøysa[2], Finn Nielsen[3]
[1] Geophysical Institute
[2] Christian Michelsen Research AS
[3] Statoil ASA

Current Power Generator Using an Oscillating Hydroplane 1348

Jong Hun Lee, Hyun Joe Kim, Se Eun Kim, Jong Soo Seo
Samsung Heavy Industry

TECHNICAL PROGRAM

Thursday, May 24

Acoustic telemetry and communication 5

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Thursday, 8:30 AM - 10:10 AM

Co-Chairs:
Chan-Ying Lien, Tamkang University

Long-Baseline Hydro-Acoustic Positioning Using D-MAC Communication Protocol 1356

Oleksiy Kebkal, Konstantin Kebkal, Rudolf Bannasch
EvoLogics GmbH

Random Linear Packet Coding For High Speed Acoustic Communication: An Experimental Analysis. 1363

Rameez Ahmed Rasheed Ahmed, **Milica Stojanovic**
Northeastern University

Channel-aware Routing for Underwater Wireless Networks 1370

Roberto Petroccia[1], Stefano Basagni[2], Chiara Petrioli[1],
Daniele Spaccini[1]
[1] University of Rome
[2] Northeastern University

Time Reversal Acoustic Communication with Concatenated Reed-Solomon Code 1379

Xingyang Nie[1], Wen Xu[1], Jiachun Zheng[2]
[1] Zhejiang University
[2] Jimei University

Smart Modems - Underwater Capabilities Beyond Communications 1383

Dale Green, Steven McManus
Teledyne Benthos

TECHNICAL PROGRAM

Thursday, May 24

Current measurement technology

Geomun-do C (#104, B2F, Condo)

Thursday, 8:30 AM - 10:10 AM

Co-Chairs:
Albert Williams, WHOI
Sung Yong Kim, Scripps Institution of Oceanography

Sensor Fouling Prevention in an Acoustic Current Meter, MAVS   1388

Albert Williams
WHOI

Operational Ocean Monitoring Technologies around Taiwan   1396

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Yen-Bin Lin[1], Chia Chuen Kao[1]
[1] National Cheng Kung University
[2] Huafan University

Sustained observations of mesoscale and submesoscale surface circulation off the U.S. West Coast   1400

Sung Yong Kim[1], Eric Terrill[1], Bruce Cornuelle[1], Burt Jones[2],
Libe Washburn[3], Mark Moline[4], Jeffrey Paduan[5], Newell Garfield[6],
John Largier[3], Greg Crawford[7], P. Michael Kosro[8]
[1] Scripps Institution of Oceanography
[2] University of Southern California
[3] University of California
[4] California Polytechnic State University
[5] Naval Postgraduate School
[6] San Francisco State University
[7] Vancouver Island University
[8] Oregon State University

Obtaining Absolute Water Velocity Profiles from Glider-mounted Acoustic Doppler Current Profilers   1406

Christopher Ordonez, R. Shearman, John Barth, Patrick Welch,
Anatoli Erofeev, Zen Kurokawa
Oregon State University

A Low-Cost, Long-Life, Drifting Sensor for Environmental Monitoring of Rivers and Estuaries   1413

Claire D'Este, Michael Barnes, Chris Sharman, John McCulloch
Tasmanian ICT Centre, CSIRO

TECHNICAL PROGRAM

Thursday, May 24

Marine GIS and information management

Geumo-do A (#105, B2F, Condo)

Thursday, 8:30 AM - 10:10 AM

Co-Chairs:
Zdenka Willis, U.S. IOOS
Vandecasteele Arnaud, Mines ParisTech

Using Spatial Ontologies for Detecting Abnormal Maritime Behaviour   1419

Vandecasteele Arnaud, Napoli Aldo
Mines ParisTech

Study on Visualization of FVCOM Model Data Based on the Integration of GIS and FVCOM   1426

Bolun Yuan[1], Rufu Qin[1], Zengdi Pan[2], Liangzhao Lin[1]
[1] Tongji University
[2] East China Sea Branch of State Ocean Administration

Monitoring of Vessel Traffic Using AIS Data and ALOS Satellite Image   1431

Masanori Watagawa, Eiichi Kobayashi, Nobukazu Wakabayashi
Kobe University

Developing Business Intelligent Tools for Coral Database System in Thailand   1435

Premrudee Noonsang, Mullica Jaroensutasinee, Uthai Kuhapong, Sirilak Chumkiew, Krisanadej Jaroensutasinee
Walalilak University

US Integrated Ocean Observing System (IOOS®): Delivering Benefits to Science and Society   1439

Zdenka Willis
U.S. IOOS

TECHNICAL PROGRAM

Thursday, May 24

Marine optics, imaging and vision 1

Geumo-do B (#106, B2F, Condo)

Thursday, 8:30 AM - 10:10 AM

Co-Chairs:
Hong Song, Zhejiang University
Hye-On Yoon, Korea Basic Science Institute

Image enhancement of underwater target detection by inhomogeneous illumination   1444

Haiyong Zheng[1], Bing Zheng[1], Guangrong Ji[1], Zhongwen Guo[1], Yuting Sun[2]
[1] Ocean University of China
[2] Shandong Academy of Sciences

Underwater image quality degradation by scattering   1448

Weilin Hou, Andrey Kanaev, Wesley Goode
U.S. Naval Research Laboratory

Phenomenological marine snow model for optical underwater image simulation: Applications to color restoration   1453

Matthieu Boffety, Frédéric Galland
Ecole Centrale Marseille

Application of CLSM and SEM Analyses for Biofouling Study   1459

Mihye Kong[1], **Hye-On Yoon[1],** Joo-Ae Kim[1], Jo-Ri Bae[1], Kang-Sup Chung[2]
[1] Korea Basic Science Institute
[2] Korea Institute Geoscience & Mineral Resources

Indexing and Selection of Well-Lit Details in Underwater Video Mosaics Using Vignetting Estimation   1472

Ken Sooknanan, David Corrigan, Anil Kokaram, Gary Baugh, Naomi Harte, James Wilson
Trinity College

TECHNICAL PROGRAM

Thursday, May 24

Vehicle navigation 2

Odong-do (#101, B2F, Condo)

Thursday, 8:30 AM - 10:10 AM

Co-Chairs:
Mike Eichhorn, Ilmenau University of Technology
Jinwhan Kim, KAIST

Alternant Landmark Positioning: Towards Wide Area Observation by Multiple AUVs   1479

Takumi Matsuda, Toshihiro Maki, Takashi Sakamaki, Tamaki Ura
University of Tokyo

Survey on suitable 3D features for sonar-based underwater navigation   1489

Philipp Woock
Fraunhofer Institute of Optronics

Robust and Efficient Singular-Value Decomposition based Algorithm for AUV Localization and Synchronization   1495

Saman Abeysekera
Nanyang Technological University

Passive Acoustic and Optical Guidance for Underwater Vehicles   1501

Hayato Kondo[1], Kenji Okayma[2], Jin-Kyu Choi[3], Takeo Hotta[4],
Masaki Kondo[5], Tadatsugi Okazaki[5], Hanumant Singh[1], Zizhen Zhao[6],
Kazuhiko Nitadori[6], Masao Igarashi[6], Tetsuo Fukuchi[6]
[1] WHOI
[2] TOA CORPORATION
[3] JAMSTEC
[4] MHI Plant Engineering Co., Ltd
[5] Tokyo University of Marine Science and Technology
[6] SGK System Giken Co., Ltd.

TECHNICAL PROGRAM

Thursday, May 24

Acoustic telemetry and communication 6

Geomun-do A (#103, B2F, Condo)

Thursday, 10:40 AM - 12:20 PM

Co-Chairs:
Dale Green, Teledyne Benthos
Wen Xu, Zhejiang University

Concept of a Tsunami Warning Buoy System and an Acoustic Telemetry System for High Current Area   1507

Hiroshi Ochi, Yasuhisa Ishihara, Tomohiko Sugiyama
JAMSTEC

Low Power Environmentally Friendly Underwater Acousitc Communication Using Pseudo-noise Spreading Codes   1510

Bayan Sharif, Jeffrey Neasham, Charalampos Tsimenidis, Kalin Dimitrov, Geraint Goodfellow
Newcastle University

Short-range Optical OFDM   1515

Bayan Sharif, Charalampos Tsimenidis, Petar Minev
Newcastle University

An Improved Direct Adaptive Multichannel Turbo Equalization Scheme for Underwater Communications   1520

Qingwei Meng[1], **Jianguo Huang[1],** Jing Han[1], Chengbing He[1], Chuang Ma[2]
[1] Northwestern Polytechnical University
[2] Air Force Engineering University

Impact of Real Modem Characteristics on Practical Underwater MAC Design   1525

Lina Pu[1], Yu Luo[1], Yibo Zhu[1], Zheng Peng[1], Shruti Khare[1], **Jun-Hong Cui[1],** Benyuan Liu[2], Lei Wang[1]
[1] University of Connecticut
[2] University of Massachusetts Lowell

TECHNICAL PROGRAM

Thursday, May 24

Array and model-based signal processing techniques

Geomun-do C (#104, B2F, Condo)

Thursday, 10:40 AM - 12:20 PM

Co-Chairs:
James Zhang, Western Carolina University
Fengzhong Qu, Zhejiang University

Implementation of a high reliable chirp underwater acoustic modem   1531

Wangwei Lei, **Deqing Wang,** Yongjun Xie, Bingbing Chen, Xiaoyi Hu, Huabin chen
Xiamen University

Pattern Extraction of Sonar Images Using an LPC Edge Detector with Entropy Thresholding   1536

James Zhang[1], Andrew Punch[2]
[1] Western Carolina University
[2] Trident Micro Systems

Light-Sync: a Low Overhead Synchronization Algorithm for Underwater Acoustic Networks   1544

Davide Zennaro, Beatrice Tomasi, Lorenzo Vangelista, **Michele Zorzi**
University of Padova

Experimental Results on OFDM-IDMA Communications with Carrier Frequency Offsets   1551

Jian Dang[1], **Fengzhong Qu[2],** Zaichen Zhang[1], Liuqing Yang[3]
[1] Southeast University
[2] Zhejiang University
[3] Colorado State University

TECHNICAL PROGRAM

Thursday, May 24

Marine optics, imaging and vision 2

Geumo-do B (#106, B2F, Condo)

Thursday, 10:40 AM - 12:20 PM

Co-Chairs:

Weilin Hou, U.S. Naval Research Laboratory
Francis James Corpuz, University of the Philippines Diliman

Wavefront Aberration Correction for Laser Propagating Over Water with a Closed-loop Adaptive Optical System 1556

Hong Song[1], Haocai Huang[1], Ping Yang[2], Lei Chen[1], Ruihong Lan[1], Jiawang Chen[1], Fengzhong Qu[1], Yingjun Xie[1], Jianxing Leng[1], Ying Chen[1]
[1] Zhejiang University
[2] Hangzhou Dianzi University

Underwater 3D target positioning by inhomogeneous illumination based on binocular stereo vision 1560

Bing Zheng[1], **Haiyong Zheng[1],** Lifeng Zhao[1], Yongjian Gu[1], Lijun Sun[1], Yuting Sun[2]
[1] Ocean University of China
[2] Shandong Academy of Sciences

On Detecting and Predicting Harmful Algal Blooms in Coastal Information Systems 1564

Md Shahriar, **Claire D'Este,** Ashfaqur Rahman
CSIRO

Coral Reef Mosaicking using Teardrop and Fast Image Labeling 1567

Francis James Corpuz[1], Prospero Naval[1], Eusebio Capili[2], Jaylord Jauod[2], Roel John Judilla[2], Maricor Soriano[1]
[1] University of the Philippines Diliman
[2] Mapua Institute of Technology

Aditional Paper

A New Generation Power-Data Hybrid Transmission System Based-on G.SHDSL and Power Filter 1573

Chunhu Liu, Bin Fu, Lian Lian