

2nd **awtec** 2014

2nd Asian Wave and Tidal Energy Conference (AWTEC-2014)

Tokyo Big Sight, Japan
28 July-1 August 2014

www.awtec2014.org



ClassNK

OEA-J

FURUKAWA
ELECTRIC

α Alpha

FD/DECO

芙蓉海洋開発株式会社



WIND POWER Group

in 鹿島
KAJIMA CORPORATION

KCS

M MODEC



NMRI



PAL Corporation
Structure & Information Engineers



West JEC
West Japan Engineering Consultants, Inc.

JGC

日揮株式会社

GENERAL OVERVIEW

JUL27, Sun	
ROOM 601 (Conference Tower 6F)	
15:00-18:00	Registration

JUL28, Mon	
ROOM 605 (Conference Tower 6F)	
9:30-10:00	Session1: Opening
10:00-11:40	Plenary Session
11:40-13:00	Lunch
13:00-15:00	Session2: Recent Progress Of Ocean Renewable Energy (1)
15:00-15:20	Break
15:20-17:00	Session3: Recent Progress Of Ocean Renewable Energy (2)
ROOM 607	
17:00-17:55	Poster session(1)
HIBIYA Matsumoto (Tokyo Big Sight 1F)	
18:00-20:00	Welcome Reception (Oral/Poster Presenter Only)

JUL29, Tue			
	ROOM 701	ROOM 801	ROOM 802
9:00-10:40	Session4: Ocean Current Energy	Session5: Tidal Energy (1)	Session6: Wave Energy (1)
10:40-10:50	Break		
10:50-12:10	Session7: Ocean Thermal Energy Conversion	Session8: Tidal Energy (2)	Session9: Wave Energy (2)
12:10-13:10	Lunch		
13:10-15:10	Session10: Ocean Resource (1)	Session11: Tidal Energy (3)	Session12: Wave Energy (3)
15:10-15:20	Break		
15:20-18:00	Session13: Tidal Energy (5)	Session14: Tidal Energy (4)	Session15: Wave Energy (4)
18:00-19:00	AWTEC Organized Committee meeting		

JUL30, Wed	
ROOM 605	
9:00-10:20	Session16: Tidal Energy (6)
Reception Hall A (Tokyo Big Sight 1F)	
10:30-12:30	Grand Renewable Opening And Keynote
12:30-13:30	Lunch
ROOM 605	
13:30-15:30	Session17: Wave Energy (5)
15:30-15:40	Break
15:40-16:40	Session18: Ocean Resource (2)
ROOM 607	
16:40-17:40	Poster Session (2)
Reception Hall A (Tokyo Big Sight 1F)	
18:00-20:00	Conference Banquet

JUL31, Thu	
ROOM 610	
9:00-10:40	Session19: Wave Energy (6)
10:40-10:50	Break
10:50-12:10	Session20: Wave Energy (7) / Offshore Wind
12:10-13:10	Lunch
ROOM 701	
13:10-15:10	Session21: Offshore Wind (1)
15:10-15:30	AWTEC Closing
15:30-17:40	Young Researcher's meeting (INORE)

JUL31, Thu	
ROOM 605+605	
14:30-17:20	Session: Offshore Wind (2)

AUG1, Fri	
ROOM 605+605	
8:30-12:00	Session: Offshore Wind (3)
12:00-13:00	Lunch
13:00-15:00	Grand Renewable Closing

WELCOME

Dear AWTEC 2014 Delegates

Welcome to the 2nd Asian Wave and Tidal Energy Conference (AWTEC) at Tokyo. This is following to the first ones in Jeju Island, Korea. It is our great honor and pleasure to have all of you at the occasion of Grand Renewable Energy 2014, which is one of the world-largest conferences which cover all kinds of renewable energy such as PV and on-land wind turbines with a slogan “Advanced Technology Paths to Global Sustainability”. AWTEC has been established to be the regional conference affiliated to the European Wave and Tidal Energy Conference (EWTEC) series, which has been running since 1979. The establishment of AWTEC is to facilitate the trans-national and regional sharing of knowledge and understanding from research activities being undertaken in the development of wave and tidal renewable energy systems, their interactions with the environment and the identification of barriers to be addressed in order to establish and marine renewable energy industry. AWTEC focuses on wave and tidal energy together with other ocean energy aspects of marine renewable energy technologies and recent activities. This second conference includes not only wave and tidal but also ocean thermal and floating wind turbines as well, because their research activities are very hot in Japan now. The conference aims to facilitate and provide opportunities for researchers, engineers, policy makers and stakeholders to exchange knowledge by profound discussions and recent research presentations and promote international and multi-disciplinary collaboration.

Initially about 166 abstracts from 28 countries have been submitted and finally about 110 oral presentations and 43 poster presentations are selected for AWTEC 2014 program. This is very successful result reflecting the worldwide expectation to the huge potential of the ocean energy and their technology. Having the increased demand for the clean energy utilization in Asia and also realizing the tremendous potential of ocean energy resources in Asia, AWTEC will draw together regional activities in Asia and then interact and collaborate with the European sister conference series (EWTEC) for our mutual benefit.

We would like to take this opportunity to express our sincere gratitude to the reviewers, committee members and sponsors for their contributions and dedications to make the successful conference.

Prof. Takeshi Kinoshita
Chairman, AWTEC & OEAJ
Nihon University

Prof. Yusaku Kyojuka
Chairman, Executive Committee AWTEC
Kyushu University

Dear AWTEC 2014 Delegate

It is both an honour and with great pleasure in my capacity as Chairman of the Executive Committee of the European Wave and Tidal Energy Conference (EWTEC) I would like to extend a warm welcome to the 2nd Asian Wave and Tidal Energy Conference in Tokyo, Japan. AWTEC exemplifies the importance and value of international co-operation and the sharing of research outcomes and new understanding in the area of marine renewables. Never has there been a greater requirement for collaboration and the sharing of new knowledge and understanding in the harnessing of energies from the seas. Especially as we are about to see the first marine renewable arrays be deployed. There are a number of exciting research projects and technology development programs being undertaken in marine renewables and a number of these will be shared with delegates throughout this AWTEC.

We continue to develop strong linkages between AWTEC and EWTEC in order to provide a platform for greater Asia-European research partnership and foster opportunities to enable greater levels of interaction, development of international research relationships, and the identification of new methodologies necessary in addressing the challenges associated with the development of a marine renewables industry. With the progressive evolution of AWTEC, we hope it continues to draw insight from EWTEC and its humble beginnings.

I would like to take this opportunity to wish you a highly enjoyable conference and encourage you to take advantage of this international gathering and engage in the numerous events and discussions aiding the development of this exciting industry.

Cameron Johnstone
Chairman, Executive Committee
European Wave and Tidal Energy Conference

ABOUT AWTEC2014

The Asian Wave and Tidal Energy Conference (AWTEC) has been established as the regional conference affiliated with the European Wave and Tidal Energy Conference Series (EWTEC). AWTEC was established to facilitate the transnational and regional sharing of knowledge and understanding from research activities concerning the development of wave and tidal renewable energy systems, their interactions with the environment and the identification of barriers to be addressed to establish the marine renewable energy industry.

AWTEC will primarily focus on the wave and tidal energy aspects of marine renewable energy technologies and recent activities, but will also include other marine renewable energies, such as floating wind turbines and ocean thermal energy conversion. The conference aims to facilitate and provide opportunities for researchers, engineers, policy makers and stakeholders to exchange knowledge through profound discussions and recent research presentations and to promote international and multi-disciplinary collaboration.

AWTEC2014 is held jointly with the Grand Renewable Energy Conference (GRE2014). GRE2014 is an international conference that brings together renewable energy technologies. Since 2006, the conference has been held every four years. GRE2014 is co-organized by many societies/institutes, including the Japan Council for Renewable Energy (JCRE) and the International Solar Energy Society (ISES), and is supported by the Japanese Ministries. During the conference, two exhibitions (PV Japan and the New Energy World Exhibition) are also held.

TECHNICAL TOPICS

The conference topics listed below span the fields of wave and tidal energy research, ranging from technical issues through to cross-cutting policy, finance and environmental subjects

Wave and tidal energy resource characterization

Offshore wind and OTEC technologies

Device development and testing

Device hydrodynamics and structural mechanics

Power take-off and device control

Device and environmental modeling

Environmental impact and appraisal

Policy development and legislation

Socio-economic impact

Grid connection and system aspects

Future markets and financing

Smart grid technology

AWTEC MISSION STATEMENT

Marine energy research, technology devices and commercial systems have risen rapidly in the last 10 years. From those experiences, there is an extensive understanding of the challenges and difficulties to be addressed for the successful development of a wave and tidal current power industry.

To facilitate that development, AWTEC's key priorities will be

Information sharing:

Share and exchange information on the recent research and development and also testing protocols for the deployment of wave and tidal current power technologies leading to the acceleration of the marine energy industry and so to the development of a wider international marine power market.

Harmonization of standards:

Adopt common approaches and solutions for the generic components and systems of wave and tidal current power devices, where possible, so that related industries can benefit from these efforts and establish common solutions to aid the timely development of this international industry. This will be applied not only to the primary industries and supply chains but also to research and development parties.

Policies:

Promote the policies and supporting mechanisms of the countries/economies currently leading this development to widen the marine energy industry up-take to an international role.

GENERAL INFORMATION

The Venue

Tokyo Big Sight, also known as the Tokyo International Exhibition Center, is Japan's largest exhibition and convention center and one of the bay islands' boldest architectural creations. The venue is located within 30 minutes by train from central Tokyo. The area in which the venue is located (Odaiba) is a popular shopping and entertainment district on a man-made island in Tokyo Bay. Modern city planning provides Odaiba with some of Tokyo's boldest architectural creations.

Transportation

Tokyo Big Sight is close to major airports, only about 60 minutes from Tokyo/Narita International Airport and about 25 minutes from Tokyo/Haneda Airport by airport bus. Please check transportation information at <http://www.bigsight.jp/english/hotel/transportation/>

Registration desk (ROOM 601)

The registration desk will be open on JUL28-31 from 09:00 to 17:00. The desk also opens on JUL27 from 16:00-18:00.

AWTEC Opening (JUL28)

The AWTEC opening is held at ROOM 605 on JUL28 from 09:00-09:30

Welcome Reception (JUL28)

The welcome reception will be at Hibiya Matsumoto, Tokyo Big Sight 1st Floor, from 18:00 to 20:00. Oral/Poster presenters are welcome to join.

Organizing Committee Meeting (JUL29)

The organizing committee members are requested to join the OC meeting at the conference room from 18:00 to discuss on the various subjects of AWTEC. The conference room will be announced on JUL28. The future activities of AWTEC together with suggestions and comments to make AWTEC more successful and productive will be deliberated among the OC members from representing countries.

Grand Renewable Opening Ceremony (JUL30)

The ceremony is held at "Reception Hall A" from 10:30 to 12:30.

Banquet (JUL30)

The banquet will be held at "Reception Hall A" from 18:00. The ticket is not included for the student registration fee. The formal dress code is recommended for the banquet.

AWTEC Closing (JUL31)

The AWTEC closing is held at ROOM 701 on JUL31 around 15:10-15:30

Lunch

Lunches are not included in the registration fee.

Restaurants in Tokyo Big Sight

<http://www.bigsight.jp/english/services/shop/>

TFT Building (Two minute walk from Tokyo Big Sight)

<http://www.tokyo-bigsight.co.jp/english/tft/wanza/restaurant/>

Ariake Park Building (Two minute walk from Tokyo Big Sight)

<http://www.tokyo-bigsight.co.jp/english/park/restaurant/>

Tours

Please check <http://www.grand-re2014.org/eng-conf/events/>

Internet Access

The free Wi-Fi is accessible in conference room.

Network (SSID): Tokyo-BigSight_Wi-Fi

Assistance and Staff

Conference information and help will be available at the registration desk throughout the conference.

Authors Information

1. Please check your session room before your presentation program.
2. Please check instructions for presenters at <http://www.grand-re2014.org/eng-conf/instructions/>
3. The speaker is requested to meet the Chair at the session room before the session program.
4. Please make sure that your presentation file has been uploaded in the computer right before the session.
5. If there is any help you need, please contact the staff who will be available in the session room.
6. The time scheduled for each presentation is about 20 minutes including questions.
7. According to the decision of Chair, questions to the speaker are allowed at the end of each presentation or at the end of the session as long as the time permits.
8. Both Chair and speakers are requested to respect scheduled times.
9. Poster presenters are requested to stand in front of their poster panel during the session.

PROGRAM

JUL28	ROOM 605	ID
9:30-10:00	Session 1: Opening Chair: Y. Kyojuka, Kyushu University, Japan	
	T. Kinoshita (Chairman of AWTEC & OEAJ) C. Johnston (Chairman of EWTEC) Scottish Development International METI	
10:00-10:40	Invited Talk (1) Research And Development Activities In Offshore Renewable Energy In The UK A. Incecik, University of Strathclyde, UK	I1
10:40-11:20	Invited Talk (2) Global Marine Energy Technologies - Status And Future Prospects A. Bahaj, University of Southampton, UK	I2
11:20-11:40	International Standardization for Offshore Renewable Energy H. Takano, ClassNK, JAPAN	I3
11:40-13:00	Lunch	
13:00-15:00	Session 2: Recent Progress Of Ocean Renewable Energy (1) Chair: T. Kinoshita, Nihon University, Japan	
	EMEC - Current Status - Future Direction A. Davidson, The European Marine Energy Center	S1
	The Engineering Challenges In Delivering Robust, Cost Effective Technology For An International Tidal Energy Industry C. Johnstone, University of Strathclyde, UK	S2 (1010)
	Recent Development Of Wave And Tidal Powers In Japan Y. Kyojuka, Kyushu University, Japan	S3
	Recent Development Of Otec In Asia And Pacific Ocean Y. Ikegami, Saga University, Japan	S4
	The Latest Progress Of Wave Energy In China And The Analysis Of Conversion Efficiency Considering PTO Damping H. Shi, Ocean University of China, China	S5 (449)
	Recent Development Of Marine Renewable Energy In Korea Y.-H. LEE, Korea Maritime & Ocean University, Korea	S6
15:00-15:20	Break	
15:20-17:00	Session 3: Recent Progress Of Ocean Renewable Energy (2) Chair: Y.-H. Lee, Korea Maritime And Ocean University, Korea	
	Status of Ocean Renewable Energy in Southeast Asia M. Abundo, Nanyang Technological University, Singapore	S7
	Projection Of Future Wave Climate For Marine Renewable Energy N. Mori, Kyoto University, Japan	682
	Technical Development And Field Testing Of The Seaweed Micro-Wave Energy Converter For Development Application T. Nguyen, Tan Tao University, Vietnam	1012
	Overcoming The Marine Energy Pre-Profit Phase: What Classifies The Game-Changing "Array-Scale Success" R. Bucher, University of Edinburgh, UK	53
	Internal Waves And Associated Cooling Effect In Taiwan Coast G.-Y. Chen, National Sun Yat-sen University, Taiwan	420

17:00-17:55	Poster session (1) ROOM 607 <i>Presenters are requested to stand in front of their poster panel during the session.</i>	
18:00-20:00	Welcome Reception HIBIYA Matsumoto (Tokyo Big Sight 1F) (Oral/Poster Presenter Only)	

JUL29	ROOM 701	ID
9:00-10:40	Session 4: Ocean Current Energy Chair: S. Nagaya, IHI Corporation, Japan	
	Design And Optimization Of A Marine Current Turbine M. Ahmed, The University of the South Pacific, Fiji	363
	Submerged Hydraulic Turbine For Deep Marine Current As A Electric Power Generator K. Shirasawa, Okinawa institute of science and technology, Japan	381
	Ocean Current Power Generating Apparatus Using Dual Duct As Boundary Effect Y.-Z. Kehr, National Taiwan Ocean University, Taiwan	470
	Development Of Floating Type Ocean Current Turbine For Kuroshio Current S. Nagaya, IHI Corporation, Japan	638
	Performance Prediction Of A Tilted Vertical Axis Marine Current Turbine A. Chowdhury, Korea Advanced Institute of Science and Technology, Korea	661
10:40-10:50	Break	
10:50-12:10	Session 7: Ocean Thermal Energy Conversion Chair: Y. Ikegami, Saga University, Japan	
	Effect Of Phase Shift Of A Sinusoidal Plate Heat Exchanger On The Heat Transfer Characteristics M. R. Ahmed, The University of the South Pacific, Fiji	346
	Comparison Between The Conventional Method And A New Developed Method For Calculating A Multi-Stage Rankine Cycle T. Morisaki, Saga University, Japan	458
	Experimental Otec Study Using A Double-Stage Rankine Cycle E. Kusuda, Saga University, Japan	536
	Heat Transfer Enhancement Using Microfabricated Surface On Plate Heat Exchanger Y. Kawabata, Saga University, Japan	572
12:10-13:10	Lunch	
13:10-15:10	Session 10: Ocean Resource (1) Chair: D. Kitazawa, The University Of Tokyo, Japan	
	Characterization Of The Tidal Current Resource In Tasmania R. Rahimi, University of Tasmania, Australia	44
	Feasibility Study On The Application Of Ocean Energy K. Inoue, The Society of Ocean Romantics, Japan	466
	Evaluations Of Ocean Renewable Energy Potential By The Theoretical Capacity Factor Around Japan T. Taniguchi, National Maritime Research Institute Japan	502
	Assessments Of Wave Energy Resource From The Deep Sea to The Coastal Area Of Gulf Of Thailand W. Wannawong, Hydro and Agro Informatics Institute Thailand	645
	Supporting The Development Of A Marine Energy Industry In Japan Y. Uchida, Garrad Hassan Japan Ltd., Japan	279
15:10-15:20	Break	
15:20-18:00	Session 13: Tidal Energy (5) Chair: C.-K. Rheem, The University Of Tokyo, Japan S. Narasimalu, Nanyang Technological University, Singapore	
	Effect Of The Velocity Profile Of Incoming Flow On The Performance Of A Horizontal Axis Tidal Stream Turbine C. Fung, University of Sheffield, UK	73
	Dynamic Testing Of A 1/20Th Scale Tidal Turbine K. Gracie, Dalhousie University, Canada	1011
	Experiments And Numerical Analysis Of A Marine Current Turbine I.-C. Kim, Korea Maritime and Ocean University, Korea	361
	Conceptual Designs Of A Novel Type Of Folding Tidal Turbine A. Bhatia, University of Malaya, Malaysia	428
	Tidal In-Stream Turbine For Slow Moving Water: Potential Of Superhydrophobic Coating K.-W. Ng, University of Malaya, Malaysia	429
	Blockage-Enhanced Performance Of Tidal Turbine Arrays J. Schluntz, University of Oxford, UK	506
	On The Interaction Of Tidal Power Extraction And Natural Energy Dissipation In An Estuary M. Kawase, University of Washington, USA	585
	Performance Characteristics Of A Counter-Rotating Tidal Current Turbine By The Variation Of Blade Angle N.-J. Lee, Korea Maritime and Ocean University, Korea	333

JUL29	ROOM 801	ID
9:00-10:40	Session 5: Tidal Energy (1) Chair: C. Jo, Inha University Korea	
	Performance Variation Of The Horizontal Axis Tidal Turbine By Blade Deformation K.-H. Lee, Inha University, Korea	636
	Energy Harvesting By Flow-Induced Vibration Of Hydro-Venus Converter S. Hiejima, Okayama University, Japan	22
	Turbulence And Its Effects On The Thrust And Wake Of A Porous Disc Rotor Simulator T. Blackmore, University of Southampton, UK	52
	Marine Current Turbine Performance And Wake Evolution With Changes In Channel Geometry B. Keogh, University of Southampton, UK	86
	Numerical Simulation Of Straight-Bladed Vertical Axis Tidal And Current Turbines P. Marsh, University of Tasmania, Australia	241
10:40-10:50	Break	
10:50-12:10	Session 8: Tidal Energy (2) Chair: C. H. Tsai, National Taiwan Ocean University, Taiwan	
	Scale Experimental Modelling Of A Multiple Row Tidal Array K. Shah, University of Southampton UK	272
	2 Dimensional Depth Averaged Numerical Modeling Of Large Marine Current Turbine Arrays C. Daniel, University of Southampton UK	290
	Tidal Current Power Potential In Goto Islands By Observations And Simulations H. Sun, Kyushu University, Japan	421
	Tidal Energy Research In The Straits Of Malacca W.H. Lam, University of Malaya Malaysia	426
12:10-13:10	Lunch	
13:10-15:10	Session 11: Tidal Energy (3) Chair: C. Johnstone, University Of Strathclyde, UK	
	Development And Deployment Of Ocean Renewable Energies: An Integrated Strategic Framework H.-Y. Chong, Universiti Tunku Abdul Rahman, Malaysia	427
	Tidal Stream Power Potential Off Cape Fuguei In Northwestern Taiwan C.-H. Tsai, National Taiwan Ocean University, Taiwan	435
	Study On The Influence On The Wake Of Horizontal Axis Tidal Turbines In Tidal Power Farm Considering Different Factors J. Tan, Ocean University of China, China	546
	Effects Of The Number Of Blades On Performances Of A Variable-Pitch Type Vat T. Ikoma, Nihon University, Japan	595
	Physical And Numerical Model Test For VAT (Vertical Axis Turbine) And Pile-Supported Breakwater K. Ko, Hyundai Engineering and Construction Co., LTD., Korea	608
	A Study Of Tidal Current Energy Capture System: Penghu Case B.-F. Chen, National Sun Yat-sen University Taiwan	797
15:10-15:20	Break	
15:20-18:00	Session 14: Tidal Energy (4) Chair: A. Bahaj, University Of Southampton, UK, W. H. Lam, University Of Malaya, Malaysia	
	Numerical Simulation Of A Pilot Tidal Farm Using Actuator Disks, Influence Of A Time-Varying Current Direction V. Nguyen. Normandy University. France	784
	Diffuser Shape Optimization For Gem, A Tethered System Based On Two Horizontal Axis Hydro Turbines D. Coiro, University of Naples "Federico II", Italy	720
	Experimental And Numerical Analysis Of Horizontal Axis Tidal Power Turbine With Fixed Yaw And Pitch T. Hirobe, The University of Tokyo, Japan	947
	Hydrodynamic Analysis And Design Of Marine Current Turbine Blades C.-Y. Hsin, National Taiwan Ocean University Taiwan	948
	Simulating The Flow Field Around The Marine Current Turbine By The Body Force Method C.-. Hsin, National Taiwan Ocean University Taiwan	949
	Experimental Study On Optimal Shape Of Ellipsoidal Cross Section Cylinder Of Translational Vortex Induced Vibration Energy Extraction Device J.-S. Choi, Korea Research Insitute of Ships and Ocean Engineering, Korea	970
	Computational Investigation Using Simple RANS Model on the Performance of a Novel Marine Turbine: Hydro Spinna R. Rosli, Newcastle University, UK	985
	Cyclic Loading Analysis Of Tidal Current Turbine As Per Variable Gabs Between Turbine And Tower S.-J. Hwang, Inha University, Korea	532

JUL29	ROOM 802	ID
9:00-10:40	Session 6: Wave Energy (1) Chair: S. Nagata, Saga University, Japan	
	Hybrid Seawave And Solar Energy Converter N. Andres, Bataan Peninsula State University, Philippines	46
	Phase Averaging Of PIV Flow Fields Of An Oscillating Water Column In Polychromatic Waves T. Ferguson, University of Tasmania, Australia	49
	Numerical Simulation Of A Scaled Down Oscillating Water Column Wave Energy Converter J. Wata, Korea Maritime and Ocean University, Korea	298
	Numerical Analysis Of Full Scale Floating Wave Energy Converter And Comparison With Its SmallScale Model B. Kim, Korea Maritime and Ocean University, Korea	324
	Advance In The Study Of Wave Energy Dissipation Of Floating Bodies W.-C. Chen, University of Tsinghua, China	515
	10:40-10:50	Break
10:50-12:10	Session 9: Wave Energy (2) Chair: H. Shi., Ocean University China, China	
	In-Situ Orifice Calibration For Oscillating w And Improved Performance Prediction In Oscillating Water Column Model Test Experiments A. Fleming, University of Tasmania, Australia	81
	Wave Energy Converter As An Anti-Motion Device For Floating Offshore Wind Turbine K. Liao, Kyushu University, Japan	442
	Project Of The Blow Hole Wave Power Generator System On The Echizen Shore T. Miyazaki, The University of Tokyo Japan	476
	FSI Analysis On Buoy For A 30Kw Wave Energy Converter Y.-D. Choi, Mokpo National University, Korea	522
12:10-13:10	Break	
13:10-15:10	Session 12: Wave Energy (3) Chair: A. Incecik, University Of Strathclyde, UK	
	Cape-Verde Offshore Wave Energy Resources Characterization W. Monteiro, University of Cape-Verde, Republic of Cape Verde	725
	Numerical And Experimental Tests On A Scaled Model Of A Point Pivoted Absorber For Wave Energy Conversion D. Coiro, University of Naples "Federico II", Italy	726
	Design Load Cases For Wave Energy Converters J. Cruz, DNV GL-Energy, Portugal	885
	Optimization Of A Magnetostrictive Wave Energy Harvester T. Mundon, Oscilla Power, USA	956
	Frequency Domain Study On Multi-Chamber Oscillating Water Columns P. Koirala, Saga University, Japan	533
	Experimental Study On Energy Conversion Efficiency Of PW-OWC Type Wave Power Extracting Breakwater K. Shimosako, Port and Airport Research Institute, Japan	554
	15:10-15:20	Break
15:20-18:00	Session 15: Wave Energy (4) Chair: I. Penesis, University Of Tasmania, Australia T. Miyazaki, The University Of Tokyo, Japan	
	Optimal Control Of The Oscillating Body Type Wave Energy Converter Under Limited Mechanical And Conversion Capacity D. Matsuda, The University of Tokyo, Japan	540
	Assessment Of Wave Energy Potential At The Shores Of Sinop, Black Sea, Turkey M. Akgul, Istanbul Technical University, Turkey	674
	Model Test Of SPA-OWC Wave Energy Converter S. Song, Yonsei University, Korea	925
	A Time-Domain Analysis Algorithm For Multibody WEC Systems D. Padeletti, NUI Maynooth, Ireland	987
	Global Structural Response Of Floating Pendulum Wave Energy Converter J.-M. Sohn, Korea Research Institute of Ships & Ocean Engineering, Korea	950
	Effect Of Load On Primary Conversion Efficiency Of A Floating Type Pendulum Wave Energy Converter T. Murakami, Saga University, Japan	986
	Wave Energy Converter Experience: The Deployment Of The Drakoo-B0016 Pilot Project H. Han, Hann-Ocean Energy Pte Ltd., Singapore	766
	Numerical Simulation On Hydrodynamic Motion Response For Floating Hybrid Power Generation System In Waves S.-W. Park, Korea Research Institute of Ships & Ocean Engineering, Korea	962

JUL30	ROOM 605	ID
9:00-10:20	Session 16: Tidal Energy (6) Chair: CH. Hu, Kyushu University, Japan	
	Tidal Current Energy Map Around Kyushu-Okinawa Region Japan S. Yamaguchi, Kyushu University, Japan	474
	Channel Scale Optimisation Of Large Tidal Turbine Arrays In Packed Rows Using Large Eddy Simulations With Adaptive Mesh T. Divett, University of Otago, New Zealand	939
	Three Dimensional Simulation Of Horizontal Axis Tidal Turbine - Comparison With Experimental Results D. Groulx, Dalhousie University Canada	512
	Causes Of Tidal Turbine Main Bearing Failure K. Karikari-Boateng, Industrial Doctorate Centre in Offshore Renewable Energy, UK	630
10:20-10:30	Break	
10:30-12:30	Grand Renewable Opening And Keynote Reception Hall A (Tokyo Big Sight 1F)	
12:30-13:30	Lunch	
13:30-15:30	Session 17: Wave Energy (5) Chair: K. Shimosako, Port And Airport Research Institute, Japan	
	Numerical Assessment Of Three Flexibly Mounted Rotary Wave Energy Converters With A Two Degree Of Freedom Constraint E. Odhiambo, National Taiwan University of Science and Technology, Taiwan	617
	Risk Based Estimation Of Failure In A Steel Wire Used For The Wave Energy Converter Connection Line I. Dolguntseva, Uppsala University, Sweden	933
	Flexibles Articulations For WEC And TEC - Lessons From Oil & Gas And Other Marine Installation A. Skraber, Hutchinson - Techlam, France	652
	Impulse Turbines: A Review And Assessment Of Their Utilization In Overtopping Wave Energy Converters M. Akaul, University of Strathclyde, UK	1015
	Structural Analysis Of Pendulum Mounting Unit For Floating Pendulum Wave Energy Converter H. Cheon, Korea Research Institute of Ships & Ocean Engineering, Korea	977
	Experimental Study Of Wave-Induced Motion And Performance For Floating Pendulum Wave Energy Converter J. Park, Korea Research Institute of Ships & Ocean Engineering, Korea	975
15:30-15:40	Break	
15:40-16:40	Session 18: Ocean Resource (2) Chair: B.-F. Chen, National Sun Yat-Sen University, Taiwan	
	A Study On The Propriety Of Commercial Tidal Current Power Plant At The Southwest Coast Of Korea S. Han, Korea Institute of Ocean Science and Technology, Korea	934
	Shelf Sea Modelling Of Renewable Energy Arrays H. Buckland, National Oceanography Centre, UK	957
	Unsinkable-Stable Unaffected From Waves Floating Truss Platforms (Unflop) T. Andrikopoulos, Advanced Technical Innovations Organization-ATIO Group, Greece	900
16:40-17:40	Poster Session (2) ROOM 607 <i>Presenters are requested to stand in front of their poster panel during the session.</i>	
18:00-20:00	Conference Banquet Reception Hall A (Tokyo Big Sight 1F)	

JUL31	ROOM 610	ID
9:00-10:40	Session 19: Wave Energy (6) Chair: Y. Yasuzawa, Kyushu University, Japan	
	Engineering On The Cost Saving For Energy Of The Ocean Waves T. Watabe, T-Wave Consultant, Japan	701
	Multiple Resonance Oscillating Water Column System For Wave Power Conversion --- R/D Towerd The Practical Application K. Kihara, Mitsubishi Heavey Industries Bridge & Steel Structures Engineering, Japan	758
	Validation Of CFD Simulation Of The Drakoo Wave Energy Converter Power Take-Off DE-RIJK Leendert, Hann-Ocean Energy Pte Ltd., Singapore	767
	Benchmarking Of The New Design Tool Inwave On A Selection Of Wave Energy Converters From Numwec Project H. Mouslim, INNOSEA, France	941
	Phase-Averaged Analysis Of An Oscillating Water Column In Polychromatic Waves I. Penesis, University of Tasmania, Australia	1038
	Break	
10:40-10:50 10:50-12:10	Session 20: Wave Energy (7) / Offshore Wind Chair: M. Murai, Yokohama National University, Japan	
	A Study On Oscillating Foil Energy Harvester With A Passive Flexible Foil Q. Xiao, University of Strathclyde, UK	657
	Study Of Energy Storage And Stabilization Technology Based On Wave Energy Hydraulic Pump H. Yu, University of Tsinghua, China	514
	Development Of Offshore Wind Power Forecasting System To Evaluate Wind Resources Around Japan Y. Morinishi, Nagoya Institute of Technology, Japan	114
	Factors Promoting Agreement Of The Offshore Wind Project Among Fishermen In Japan M. Motosu, Nagoya University Japan	197

JUL31	ROOM 701	ID
13:10-15:10	Session 21: Offshore Wind (1) Chair: T. Chujo, National Maritime Research Institute, Japan	
	Effect On The Offshore Wind Turbine Loads In Winter High Turbulence Conditions Y. Tsugawa, The University of Tokyo, Japan	367
	Experimental Study On Distribution Of Internal Forces In Supporting Structure Of Floating Offshore Wind Turbine C. Hirao, National Maritime Research Institute, Japan	504
	Water Jetting Application To Jackup Barge Spudcan Extraction In Clayey Soils D.-Y. Kim, Inha University, Korea	547
	Development Of New Floating Platform For Multiple Ocean Renewable Energy C. Hu, Kyushu University, Japan	792
	Spatial Distribution Of Hydrodynamic Response Of Floating Offshore Wind Farm In Waves M. Murai, Yokohama National University, Japan	641
	A Fundamental Study On Responses Of "Underwater Plaform" In Waves K. Haneda, National Maritime Research Institute Japan	642

15:10-15:30	AWTEC Closing	
15:30-17:40	Young Researcher's Meeting (INORE)	

JUL31	ROOM 605+606	ID
14:30-17:20	Session: Offshore Wind (2)	
	Acceptance And Social Impact Of Offshore Wind Power - Results From A Longitudinal Study H. Gundula, Martin-Luther-University Halle-Wittenberg, Germany	1021
	Characteristics Of The Observed Data Off The Kita-Kyusyu City Ocean Observation Tower System H. Tsukiji, Electric Power Development Co.,Ltd Japan	203
	A Robust Concrete Floating Wind Turbine Foundation For Worldwide Applications T. Choynet, Ideal, France	371
	Development Of The World's Largest Dynamic Cable System For Offshore Floating Wind Power S. Fujii, Furukawa Electric Co.,Ltd, Japan	483
	(4 papers will be added)	

AUG1	ROOM 605+606	ID
8:30-9:30	Session: Offshore Wind (3)	
	Experimental Study On The Negative Damping In The Dynamic Responses Of Blade-Pitch-Controlled Floating Offshore Wind Turbine T. Chujo, National Maritime Research Institute Japan	658
	Sampled-Data Control For Avoiding Tower Pitching Motion And Wave Power Generation In Offshore Wind Turbine By Rotation Manipulation Function S. Kotake, Mie University, Japan	927
	Demonstration Experiment Of Offshore Wind Power Generation By A Hexagonal Floating Platform In Hakata Bay Y. Kyojuka, Faculty of Engineering Sciences, Kyushu University	418

POSTER SESSION

POSTER SESSION (1) JUL28, 17:00-18:00, ROOM 607	ID
Design And Research Of The Resonance Based Oscillation Buoy Wave Power Device J. Chen, Wuhan University, China	267
Air Comprssibility Effects On OWC Type Wave Power Generation M. Suzuki, University of the Ryukyu, Japan	350
Evaluation Of Damping Strategies For Maximum Power Extraction From A Wave Energy Converter With A Linear Generator S. Apelfroejd, Uppsala University, Sweden	392
Water Tank Testing On Hold Angle Of Cylindrical Oscillating Water Column In Wave Energy Converter M. Iino, The University of Tokyo, Japan	479
Improved Control Method Of Wells Turbine For Wave Energy Power Generators T. Kikuchi, Fuji Electric Co.,Ltd., Japan	485
Numerical Analysis Of Stall-Delay Turbine For Wave Energy Conversion System J. Nakamura, Fuji Electric Co.,Ltd., Japan	497
Control System For Mean Sea Level Variation Compensator At The Lysekil Research Site V. Castellucci, Uppsala University, Sweden	543
Configuration Of The Single-Bucket Wave Turbine For The Direct Utilization Of Orbital Fluid Motion H. Akimoto, Korea Advanced Institute of Science and Technology, Korea	600
Scour Prediction Of Tidal-Current Turbine: Inclusion Of Flow Field Generated By Rotor L. Chen, University of Malaya, Malaysia	430
A Survey On Public Acceptance Of Marine Renewable Energy In Malaysia X. Lim, University of Malaysia, Malaysia	431
Statistical Analysis In The Wake Of A Tidal Stream Turbine S. Walker, University of Sheffield UK	453
Design Optimization Of Leading-Edge Tubercles As Applied On A Tidal Turbine Blade W. Shi, Newcastle University, UK	465
Analytic Approach To Opzimization Of Tidal Turbine Fields D. Volk, Technische Universitaet Darmstadt, Germany	510
Resource Assessment Of Tidal Energy Of The Tsugaru Strait R. Wada, The University of Tokyo, Japan	550
Sustainability Of Tidal Energy M. Kawase, University of Washington USA	584
The Power Potential Of A Tidal Turbine Array With Turbine Power Capping C. Vogel, University of Oxford, UK	599
Heat Exchanger Performance And Its Effect At Okinawa OTEC Facility S. Okamura, Xenosys Inc., Japan	625
Long Term Load Forecasting For Ocean Thermal Energy Conversion Using Neural Networks M. Ibraheem, University Malaysia Terengganu, Malaysia	689
Tidal Turbine Control System For Hybrid Integration And Automatic Fluctuation Compensation Of Offshore-Wind Turbine Generation System M. Rahman, Kyoto University, Japan	322
A Basic Study Of Attitude Stabilization Of A Floating Wind Turbine By Wave Energy Conversion Control T. Kamio, The University of Tokyo, Japan	335
Pt-Coated Woven Mesh Spacer With Improved Mass Transport In Reverse Electrodialysis D. Kim, Korea Institute of Energy Research Korea	879
Verification And Validation Of Tidal Resource Assessment Model For A Strait Between An Island And A Landmass A. Ortiz, Industrial Doctral Centre for Offshore Renewable Energy, UK	390

POSTER SESSION (2) JUL30, 16:40-17:40, ROOM 607	ID
Using Artificial Neural Networks For Prompt And Accurate Wave Prediction At Northwest National Marine Renewable Energy Center's North Energy Test Site: A Feasibility Analysis B. Boren, Oregon State University, USA	621
Hydrodynamic Optimization On The Three Kind Of Buoy For A Point Absorber Wave Energy Converter By Boundary Element Method M. Berenjkoo, Amirkabir University of Technology, Iran	683
A Demonstration Project Of Wave-Power Generation Systems S. Watanabe, Mitsui Engineering & Shipbuilding Co., Ltd, Japan	750
Active Magnetic Bearings Using Air-Cored Coils Halbach Array In A Linear Wave Energy Converter J. Barajas-Solano, University of Edinburgh UK	779
Suppression Of Galloping And Direct Electric Generation From Overhead Transmission Line Oscillations By Using Vibration Manipulation Function S. Kotake, Mie University, Japan	926
Optimization Of Linear Generator For Point Absorber Using Response Surface Method J. Kim, Yonsei University, Korea	932
Floating Pendulum Wave Energy Converter (FPWEC) Combined Monitoring System Plan C.-H. Lim, Korea Research Institute of Ships & Ocean Engineering, Korea	969
Studies On Small-Sized Efficient Rotating Machine For Tidal Power Generation M. Izumi, Tokyo University of Marine Science and Technology, Japan	835
Feasibility Study In Order To Build Test Bed Of Tidal Current Power At Korea T.-G. Hwang, Korea Marine Equipment Research Institute, Korea	851
Demonstration Of A Condition Monitoring System For Tidal Energy Converters. Challenges, Solutions And Results Of First Demo P. Mayorga, EnerOcean S.L., Spain	951
Design Points And Current Situation Of Horizontal Axis Tidal Current Energy Turbine Blade Z. Dai, Shenyang Windpower Equipment Development LLC, China	967
A Full Rotor Simulation And Performance Analysis Of 10Kw Scale Tidal Turbine C.J. Yang, Mokpo Maritime University, Korea	992
Study On Active/Passive Hybrid Type Yaw Control Device Using Rudder At Tidal Current Power System T.-G. Hwang, Korea Marine Equipment Research Institute Korea	851
New Design Power Generation System Installed In Artificial Fish Reef H. Nanjo, Hirosaki University, Japan	529
How To Further An Ocean Current Generation Development In Aomori Prefecture M. Shimada, Hirosaki University, Japan	601
Lure-Type Ocean And Tidal Current Power Generation Apparatus M. Yasukagawa, Senryo Corp., Japan	1004
Advancement Of A Distributed Adaptive Mobile Ocean Energy Recovery System A. Gizara, Integrated Power Technology Corporation, USA	336
A Suggestion Of Pitch Control To Avoid Negative Damping Of Floating Offshore Wind Turbine By Dynamic Analysis Y. Tamagawa, The University of Tokyo, Japan	489
Offshore Wind Power Generation (Offshore From Kitakyushu City) S. Nakashima, Electric Power Development Co., Ltd., Japan	722
Power Supply Of Perspective Complexes Mariculture V. Knyazhev, Institute of Marine Technology Problems FEB RAS, Russia	253
On The Climatology Of Wave Energy Resources Around Japan W. Sasaki, Japan Agency for Marine-Earth Science and Technology, Japan	88
Conversion Of Internal Energy Of Natural Solutions In The Ocean V. Knyazhev, Institute of Marine Technology Problems FEB RAS, Russia	252

AWTEC COMMITTEE

Organizing Committee

Dr. Irene Penesis – University of Tasmania, Australian Maritime College (Australia)
Dr. Chee Ming Lim – Universiti Brunei Darussalam (Brunei Darussalam)
Prof. Hongda Shi – Ocean University China (China)
Dr. Weimin Liu – The First Institute of Oceanography (China)
Dr. Rafiuddin Ahmed – University of South Pacific (Fiji)
Prof. Johnny C.L. Chan – City University of Hong Kong (Hong Kong)
Prof. K.W. Chow – The University of Hong Kong (Hong Kong)
Dr. Mukhtasor – Indonesian Ocean Energy Association (Indonesia)
Prof. Yusaku Kyojuka – Kyushu University (Japan)
Prof. Shuichi Nagata – Saga University (Japan)
Prof. Takeshi Kinoshita – Nihon University (Japan) – *Chair*
Prof. Young-Ho Lee – Korea Maritime and Ocean University (Korea)
Prof. Chul H. Jo – Inha University (Korea)
Dr. Seung Ho Shin – Korea Institute of Ocean Science and Technology (Korea)
Dr. Omar Yaakob – Universiti Teknologi Malaysia (Malaysia)
Dr. Lim Yun Seng – Universiti Tunku Abdul Rahman (Malaysia)
Dr. Myat Lwin – Myanmar Maritime University (Myanmar)
Mr. Htun Naing Aung – Union of Myanmar Federation of Chambers of Commerce and Industries, Energy and Environment Cluster Group (Myanmar)
Dr. Laura David – University of the Philippines (Philippines)
Dr. Sutthiphong Srigrarom – University of Glasgow Singapore (Singapore)
Dr. Michael Lochinvar Abundo – Nanyang Technology University (Singapore)
Prof. Cheng Han Tsai – National Taiwan Ocean University (Taiwan)
Dr. Kehr Young-Zehr – Ship and Ocean Industries R&D Center, National Taiwan Ocean University (Taiwan)
Prof. Chen Bang-Fuh – National Sun Yat-San University (Taiwan)
Dr. Chaiwat Ekkawatpanit – King Mongkut University of Technology Thonburi (Thailand)
Dr. Pham Hoang Luong – Hanoi University of Science and Technology (Vietnam)
Mr. Nguyen Binh Khanh – Vietnam Academy of Science and Technology (Vietnam)

EWTEC Advisory Committee

Dr. Cameron Johnstone – University of Strathclyde (UK)
Dr. Gareth Thomas – University College Cork (Ireland)
Prof. AbuBakr Bahaj – University of Southampton (UK)
Dr. Peter Frigaard – Aalborg University (DK)
Dr. Alain Clement – Ecole Central de Nantes (France)

Local Committee

Prof. Chang-Kyu Reem – University of Tokyo (Japan)
Prof. Daisuke Kitazawa – University of Tokyo (Japan)
Dr. Hiroyuki Ohsawa – Japan Agency for Marine-Earth Science and Technology (Japan)
Prof. Ken Takagi – University of Tokyo (Japan)
Dr. Kenichiro Shimosako – Port & Airport Research Institute (Japan)
Prof. Motohiko Murai – Yokohama National University (Japan)
Dr. Shogo Miyajima – Akishima Laboratories, Mitsui Zosen Inc. (Japan)
Prof. Shuichi Nagata – Saga University (Japan)
Prof. Takeshi Kinoshita – Nihon University (Japan)
Prof. Takeaki Miyazaki -University of Tokyo (Japan)
Prof. Tomoki Ikoma – Nihon University (Japan)
Prof. Yukitaka Yasuzawa – Kyushu University (Japan)
Prof. Yasutaka Imai – Saga University (Japan) – *Secretariat*
Prof. Yasuyuki Ikegami – Saga University (Japan)
Prof. Yusaku Kyojuka – Kyushu University (Japan) – *Chairman of Executive Committee*

SPONSORS

Alpha Hydraulic Engineering Consultants Co.,Ltd

ClassNK

Furukawa Electric Co., Ltd.

Fuyo Ocean Development & Engineering Co., Ltd.

JGC Corporation

Kajima Corporation

Kokusai Cable Ship Co., Ltd.

MODEC, Inc.

National Maritime Research Institute

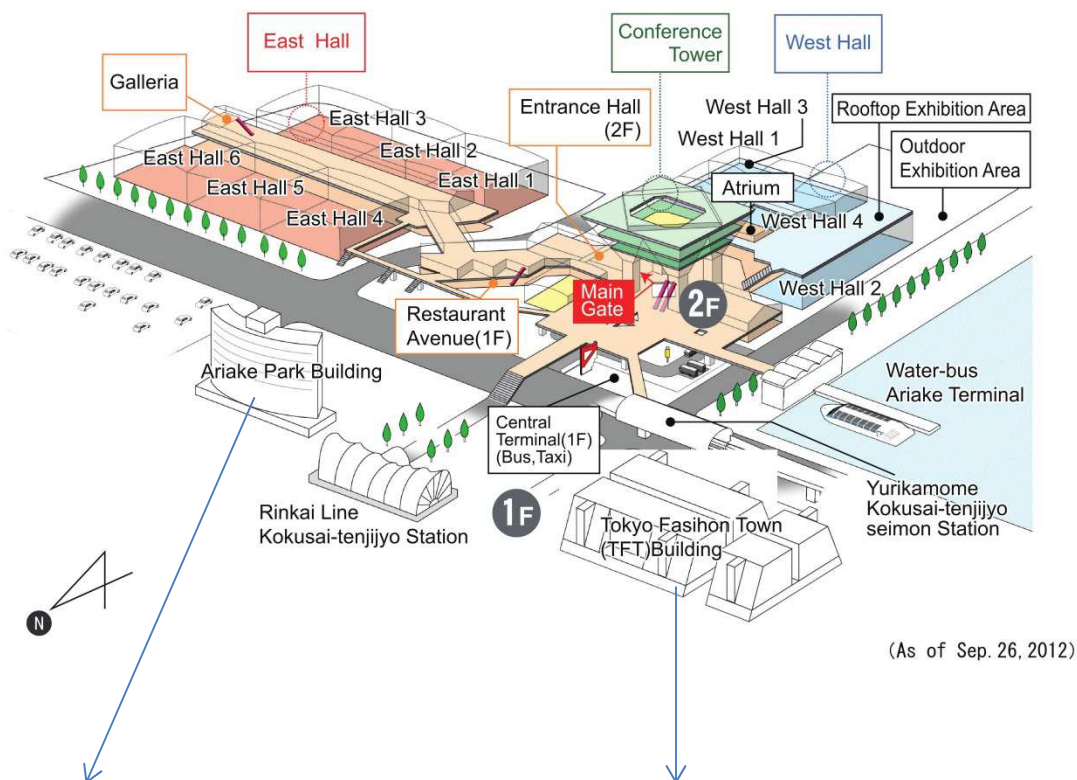
Ocean Energy Association - Japan

PAL Corporation

West Japan Engineering Consultants, Inc.

Wind Power Group

Restaurants



Ariake Park Building

Mcdonald's	Hamburger
Al Porto	Italian
Coco's	Western/Japanese
Gazen	Japanese
Grace De Mer	Western
Mexico	Seafood
Murata	Japanese
Maharani	Western
Rakuen	Chinese
Tagui	Japanese
Udagawa	Sushi

TFT Building

Sousai Nomokuo	pub
Ble	bakery
Grace De Mer	curry & cafe
Suien	Chinese dim sum
Pronto	bakery cafe
Kaminari Usagi	Monja & okonomiyaki
Funachu	bar
Ramen Gochi	Japanese ramen noodle
Akitsu	Italian dining & sake
Mos Burger	hamburger
Subway	sandwiches
Mugimaru	Japanese udon noodle
Sukiya	beef bowl & curry
Ciao	Italian
Gen-Chan	seafood
Tyujukan	Korean food
Sojibo	Japanese soba noodle
Hozukiya	bar
Wako	pork cutlets
Kagaya	Japanese