Program Book

oceans SANTANDER 2011 SPAIN IEEE/OES



SANTANDER EXHIBITION CENTER

JUNE 6TH - 9TH 2011

Oceans of Energy for a Sustainable Future

IEEE OES IEEE SECCIÓN ESPAÑA

Local Organizers:

UC UNIVERSIDAD DE CANTABRIA

CANTABRIA CAMPUS INTERNACIONAL
Agua y Energía

Sponsors:

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AEMet
Agencia Estatal de Meteorología

Media Supporters:

Ocean News & Technology

Ocean Systems

ENVIROTECH & CLEAN ENERGY INVESTOR

URSI

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Monday, June 6th	9:00 am to 1:00 pm		TUTORIAL T1: Ocean Observatories: A multichalenge to Survey Earth Environmental Process		TUTORIAL T2: AUV Technology and Application Basics		TUTORIAL T3: Signal Waveform Design for Underwater Acoustic Communications		
	11:00 am	Morning Break							
	3:00 pm to 7:00 pm		TUTORIAL T1: Ocean Observatories: A multichalenge to Survey Earth Environmental Process	TUTORIAL T6: The Stochastic Matched Filter and its Applications to Detection and Denoising			TUTORIAL T5: Technologies for Monitoring Marine Organisms and Hazards		
	5:00 pm	Afternoon Break							
	7:00 pm								
	8:00 pm	Welcome Reception, Magdalena Palace							

		Assembly Room	Room 1 (Bahía Hall)	Room 2A (Bahía Hall)	4-Room 3B (Bahía Hall)	5-Room 4B (Bahía Hall)	Room 5 (Bahía Hall)	Room 3A (Bahía Hall)	EXHIBITION & POSTERS
Tuesday, June 7th	8:00 am	Registration							
	9:00 am	Plenary Session							
	10:45am	Opening Ceremony							
	11:30 am	Morning Break (exhibit hall)							
	12:00 am to 1:30 pm	Marine Renewable Energy - 1	Automatic Control	Climate Change	Sonar and Transducers	Vehicle Design I	Sonar Signal Processing		
	1:30 pm	Lunch							
	3:00 pm to 4:30 pm	Marine Renewable Energy - 2	Pollution Monitoring and Oil Spills	Offshore Structures	Sound Propagation & Scattering	Vehicle Design II	Array Signal Processing, Array Design and Vector Sensor Processing		
	4:30 pm	Afternoon Break							
	5:00 pm to 6:30 pm	Marine Renewable Energy - 3	Buoy Technology and Cables and Connectors	Hydrography	Underwater Acoustics & Acoustical Oceanography	Vehicle Performance	Model-Based Signal Processing Techniques		
	6:30 pm	Exhibitor's Reception							

		Assembly Room	Room 1 (Bahía Hall)	Room 2A (Bahía Hall)	4-Room 3B (Bahía Hall)	5-Room 4B (Bahía Hall)	Room 5 (Bahía Hall)	Room 3A (Bahía Hall)	EXHIBITION & POSTERS
Wendsday, June 8th	9:00 am to 11:00 am	Marine Renewable Energy - 4	Ocean Dynamics: Wind, Waves, Surge and Sea Level	Ocean Data, Modeling and Information Management	Optics, Imaging, Vision and E-M Systems	Vehicle Navigation I	Sonar Imaging, Synthetic Aperture, Classificarion and Pattern Recognition I		
	11:00 am	Morning Break							
	11:30 am to 1:30 pm	Marine Renewable Energy - 5 MAREN	Coastal Hydrodynamics	Coastal Engineering and Estuarine Systems	Optical Sensors, Marine Optics Technology and Instrumentation	Vehicle Navigation II	Acoustic Telemetry and Communication I	Sonar Imaging, Synthetic Aperture, Classificarion and Pattern Recognition I	
	1:30 pm	Lunch							
	3:00 pm to 4:30 pm	Marine Renewable Energy - 6	European Projects on Underwater Networks -1	Oceanography: Physical, Chemical and Biological	3D Imaging and Holo-graphy	Autonomous Un-derwater Vehicles I	Acoustic Telemetry and Communication II		
	4:30 pm	Afternoon Break							
	5:00 pm to 6:30 pm	Marine Renewable Energy - 7	European Projects on Underwater Networks -2	Marine Law, Management and Safety	Oceanographic Instrumentation, Sensors and Current Measurement Technology I	Autonomous Underwater Vehicles II	Acoustic Telemetry and Communication III		
	21:00 pm	Gala Dinner, Gran Casino of Santander							

		Assembly Room	Room 1 (Bahía Hall)	Room 2A (Bahía Hall)	4-Room 3B (Bahía Hall)	5-Room 4B (Bahía Hall)	Room 5 (Bahía Hall)	Room 3A (Bahía Hall)	EXHIBITION & POSTERS
Thursday, June 9th	9:00 am to 11:00 am	Marine Communica-tions and Technology I	European Projects on Underwater Networks -3	Coastal Radars and Passive Observing Sensors	Oceanographic Instrumentation, Sensors and Current Measurement Technology II	Systems and Observatories I	Acoustic Telemetry and Communication IV		
	11:00 am	Morning Break							
	11:30 am to 1:30 pm	Marine Communications and Technology II		Airborne and Satellite Radar, SAR and Space Systems	Other	Systems and Observatories II	Acoustic Telemetry and Communication V	Oceanographic Instrumentation, Sensors and Current Measurement Technology III	

WELCOME LETTER FROM CO-CHAIRS

On behalf of the Local Organising Committe for the Oceans '11 IEEE/OES Conference and Exhibition, it is our pleasure to warmly welcome you to Santander and Cantabria. We are honoured to host the prestigious OCEANS series for the first time in Spain in a venue close to the ocean, the main link bringing together representatives from universities, industry and government organizations to update us on the most recent advances in ocean sciences and engineering.

Oceans'11 is also an excellent opportunity to showcase the vision of Santander and Cantabria, their historical ties to the Sea and the firm belief that a sustainable socio-economic development can be achieved through the use of renewable marine energy, guaranteeing the preservation of our world for future generations as is perfectly reflected in our conference slogan "Oceans of Energy for a Sustainable Future".

An opportunity for knowledge exchange, building of technical skills and expanding of professional networks has been planned thanks to an extensive programme including: first class tutorials, unique plenary sessions and an international and broad spectrum of technical sessions covering most of the relevant topics in the field. Moreover, you will have the opportunity to become acquainted with cutting edge products and services in our comercial exhibit.

But we will also have time to enjoy thanks to our social events and our beautiful city. Warm people, wonderful food and magnificent landscapes, mountains and beaches make Santander and Cantabria a beatiful location not to forget and surely to come back.

We'll do our best to make sure that you enjoy the conference and our city!

Iñigo J. Losada
Conference Co-chair

Juan Pérez-Oria
Conference Co-chair

USEFUL INFORMATION

Conference Venue

The Convention Centre is a modern building located between the city centre and El Sardinero, a privileged spot surrounded by restaurants, hotels and beaches and with spectacular views overlooking the Cantabrian Sea. The different rooms will hold both the parallel sessions of the Conference and the commercial exhibition.

Visit www.oceans11ieeesantander.org
for additional information on the conference and Trade Center.
Palacio de Exposiciones y Congresos de Santander
Avda. del Stadium, s/n
39005 Santander - Cantabria
Phone: +34 942318180

Parking Facilities

There is a free parking available opposite the Convention Center. It belongs to the Football Stadium but you can freely park there at any time except trucks, mobile-homes or campers which are not allowed. The main entrance of the Convention Center is located in front of the parking overlooking the Stadium.

Transportation Information

Buses to the airport with the "Alsa Company" depart every half an hour from Santander bus station which is located in the heart of the city in "Plaza de las Estaciones". The same is applied for the arrivals, the buses leave the airport at quarter past and quarter to and drops you off there.
To move from the city centre to the Sardinero area where the Convention Center is and the majority of hotels are located, there are several public buses available (lines number 1, 2, 3, 4, 5, 6 and 7) in different stops in the city. There is an exception for the Hotel Real because the only bus that stops there is line number 5.

General Area Information

International Calling Code for Spain: 0034
Local Currency: Euro
Language: Spanish
Weather in June: Average temperature is 16° C
Average Precipitation: 65 mm.
Time Zone: Europe

CONFERENCE INFORMATION

On Site Registration

On Site registration for Oceans 2011 will be available in the Santander Convention Center's Lobby. Registration hours are:

Day	Time
Monday, June 6	3:00 pm – 7:00 pm
Tuesday, June 7	8:00 am – 6:30 pm
Wednesday, June 8	9:00 am – 6:30 pm
Thursday, June 9	9:00 am – 2:00 pm

Tutorials

Day	Time
Monday, June 6	9:00 am – 1:00 pm & 3:00 pm – 7:00 pm

Exhibit Hall Hours

Day	Time
Tuesday, June 7	9:00 am – 6:30 pm
Wednesday, June 8	9:00 am – 6:30 pm
Thursday, June 9	9:00 am – 2:00 pm

Technical Session Hours

Technical Sessions are scheduled for Tuesday, June 7, Wednesday, June 8 and Thursday, June 9 during the following hours:

Day	Time
Tuesday, June 7	9:00 am – 6:30 pm
Wednesday, June 8	9:00 am – 6:30 pm
Thursday, June 9	9:00 am – 2:00 pm

Student Poster Hours

Day	Time
Tuesday, June 7	9:00 am – 6:30 pm
Wednesday, June 8	9:00 am – 6:30 pm
Thursday, June 9	9:00 am – 2:00 pm

Luncheons

Tuesday, June 7, 1:30 pm -3:00 pm
Wednesday, June 8, 1:30 pm – 3:00 pm

Social Events

Welcome cocktail, Magdalena Palace
Monday, June 6, 8:00 pm – 9:00 pm

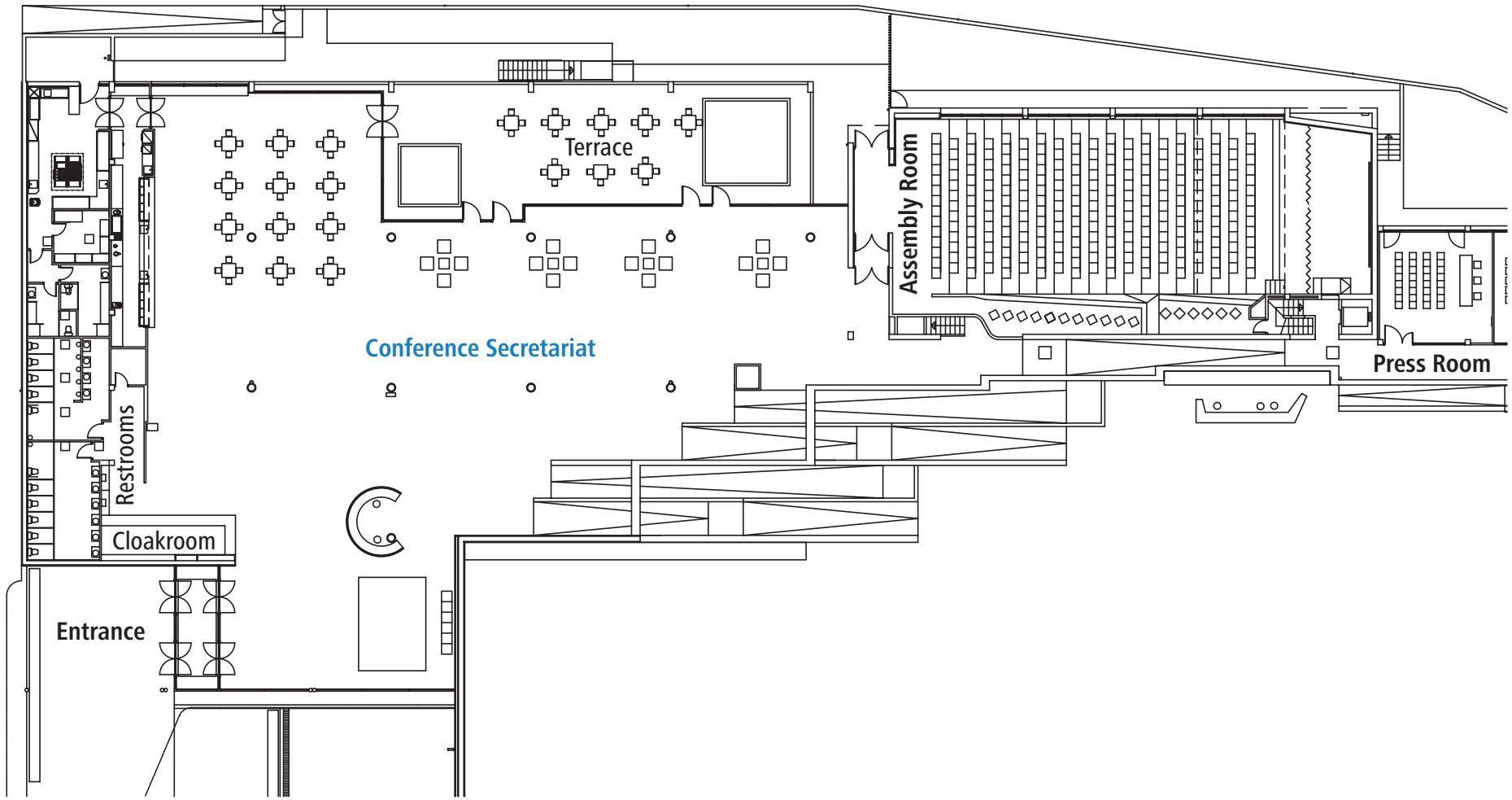
Exhibitor's Reception, Santander Convention Center, Oceans 2011 Exhibit Hall
Tuesday, June 7, 6:30 pm

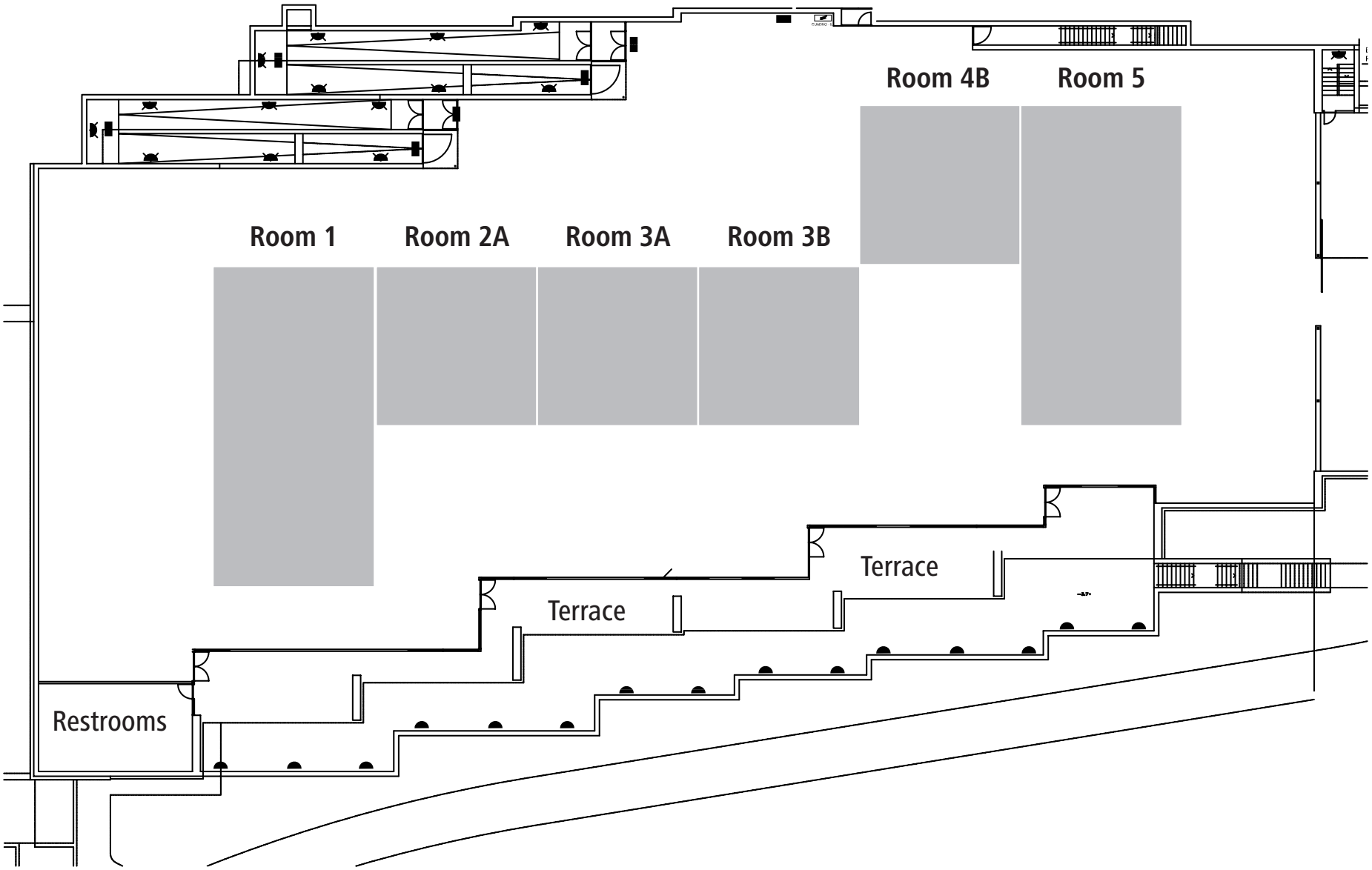
Oceans 2011 Gala Reception, Gran Casino of Santander, Plaza de Italia, s/n, Santander
Wednesday, June 8, 9:00 pm

Internet Area
There will be four computers and a printer available for all delegates at the commercial exhibition area.

Internet Access
Wireless is provided throughout the Convention Center for your convenience.
A username and a password will be provided upon registration along with the rest of documentation.

Unauthorized Audio/Video Recording
Unauthorized Audio/Video Recording of tutorials, plenary, or technical sessions is not permitted.


Terrace
Assembly Room
Conference Secretariat
Press Room
Restrooms
Cloakroom
Entrance


Room 4B
Room 5
Room 1
Room 2A
Room 3A
Room 3B
Terrace
Terrace
Restrooms

PLENARY SPEAKER PROFILES

Dr. Edoardo Bovio

Dr. Edoardo Bovio (Italy), after graduation in Electrical Engineering at the University of Genoa in 1976, joined the SHAPE Technical Centre in The Hague where he worked in communications and radar. From 1979 to 1980 he worked for Hewlett Packard specializing in engineering applications of signal processing techniques.

Since 1980 he is with the NATO Undersea Research Centre (NURC). Until 1987 he led the development of low frequency active sonar systems. From 1987 to 1997 he has been responsible for the computer department. From 1997 to 2007 he has been in charge of the Centre's Autonomous Underwater Vehicle (AUV) program. This work evolved from basic research on vehicle technology in collaboration with many research institutions and NATO Navies, to focused studies that quantify the benefits of AUVs for military and civilian applications, with special emphasis on harbor protection. In the period 2003-2007 Dr. Bovio has organized and conducted trials in Italy, Scotland, Germany, Netherlands, Bulgaria and Estonia obtaining a comprehensive data base from the best commercially available AUVs. The analysis of this data is important for 'quantifying' system performance in a variety of scenarios. Dr. Bovio has published more than 20 papers on the applications of autonomous underwater vehicles.

Following the introduction of the Customer Work Program in 2007 and the approval of NURC hybrid funding, Dr. Bovio has been appointed NURC Business Development Manager. Since March 2011 Dr. Bovio is the acting Chief Scientist at NURC.

PLENARY SPEAKER PROFILES

Dr. Luis Valdés Santurio

Dr. Luis Valdés Santurio (Spain) is the Head of Ocean Sciences at the Intergovernmental Oceanographic Commission of UNESCO since January 2009, and formerly (2000-2008) he has been the Director of the Centro Oceanográfico de Gijón - Instituto Español de Oceanografía (CO Gijón-IEO). With more than 30 years of experience in marine research and field studies related with marine ecology and climate change, he established in 1990 the time series programme based on ocean sampling sites and marine observatories which is maintained by Spain in the North Atlantic and the Mediterranean Sea (www.seriestemporales-ieo.net). This program has been a pioneer and successful initiative in Spain; it represents a significant contribution to the understanding of our marine environment and is a good example on the importance of the basic research as an essential tool for a responsible management of natural resources. Dr. Valdés has advised various governmental, intergovernmental and international organizations as well as research funding agencies. He was appointed by the Government of Spain as the Spanish Delegate in the IOC-UNESCO as well as in the International Council for the Exploration of the Sea (ICES), where he has chaired different groups and committees including the Oceanographic Committee and the Steering Group on Climate Change. With the support of IOC, ICES and other councils he has served as convener at several International Symposia and was also the local organizer of the Symposium on the Effects of Climate Change in the World's Oceans (Gijón, 2008). In 2007 he got the ICES Services award and has also received other national and international recognitions.

KEY NOTE SPEECHES

Title: Autonomous persistent surveillance of the ocean for military and civilian applications
Date: Tuesday, June 7
Time: 09,00-09,20h
Location: Room 108

Summary: Pragmatic calculations using true time and space scales of ocean properties and the real cost and complexity of in-situ observations clearly indicate that the parameters required to take correct decisions and actions are very often insufficiently sampled both in time and in space. Yet decision makers are faced with increasing pressure by the public opinion to preserve the environment and at the same time support the economic development of coastal areas, all to be achieved in times of declining budgets. This justifies the need for cost effective systems that provide the information required to take environmentally conscious decisions and actions.

The scientific community has addressed this problem since the early nineties with the development of new tools and methodologies to address the spare sampling problem and reduce errors in ocean field estimations to enable definitive hypothesis testing. Of particular relevance in this context are the Autonomous Ocean Sampling Network (AOSN) and the Persistent Littoral Surveillance Network (PLUSNet) initiatives that studied and developed multiple mobile sensors to resolve synoptic fields and spatial gradients to a desired level of precision.

Technology has evolved and several systems and subsystems are now available that contribute to improve ocean understanding. In the past decade, the NATO Undersea Research Centre has been active in the development of autonomous systems for the persistent surveillance of the ocean. This presentation describes the work done at NURC and presents examples of military and civilian applications."

Title: Oceans in Focus: Science and Governance for Global Sustainability
Date: Tuesday, June 7
Time: 09,25-10,40h
Location: Room 108

Summary: Public awareness about environmental problems has increased considerably in the last years, so that societies are now demanding from policymakers proactive positions towards respecting the sustainable use and management of natural resources and mitigate the impacts of global change (e.g. UNCSD Rio+20). In the next 10 years, social pressure will probably encourage policymakers to reach agreements regarding limits on carbon emissions and set up planetary boundaries for other anthropogenic impacts. In some cases, these new approaches are already being implemented in common marine strategies at regional and international levels, which will demand considerable efforts towards increasing oceanographic data acquisition, and towards promoting data analysis and technological assistance. Hopefully these approaches will deepen our understanding of the role the ocean dynamics have in the functioning of the Earth System, in climate change and in the sustainability of life on earth, which will define the conditions for scientist to prepare accurate scenarios for future.

Firstly, more and new research has to be done to fully understand and evaluate the impacts of global change on the World's oceans. There is a general agreement that our understanding of the role the oceans play in modulating the climate and ecology of the planet needs to be improved. For example, the experts claim for an evaluation of the economic and social dimension of ocean acidification and warming, which are the two main effects of climate change in the oceans, but also the lost of biodiversity is now seen as a risk for the ecosystem resilience and other ecosystem services. To achieve the needed knowledge will require research at unprecedented geographic scales. Obtain data with a better spatial and temporal resolution is a crucial and necessary step to take the pulse of the oceans at a planetary scale and then keep them under permanent review.

Secondly, it has to be mentioned that the governance of oceans is fragmented (fishing, shipping, offshore oil and gas, offshore renewable energy, etc) as if we were managing separate entities. There is an urgent necessity for an international framework of cooperation

for both ocean research and governance. Uses of the ocean, as well as climate change and biodiversity are global problems, and its management cannot depend solely in the sovereignty of single states. Several international instruments have been agreed in the past as a foundation to redress these problems, including the United Nations Convention on the Law of the Sea; the London Convention on Marine Pollution; the Code of Conduct for Responsible Fisheries; the Convention on Ballast Water; the Convention on Biological Diversity, as well as several international plans of action. The success of these international instruments, which contain commitments to reduce the human impact on the ocean and marine ecosystems depends heavily on the decision of governments and states; and multilateral organizations such as the UN agencies plays a decisive role in making this governance a reality.

TUTORIALS

All Oceans 2011 Santander tutorials will take place on Monday June 6. Full day and morning sessions begin at 09,00h. Half-day sessions that are scheduled for the afternoon begin at 15,00h. For description of these tutorials, please visit: *http://www.oceans11ieeesantander.org/main.cfm/EID/22/Tutorials/*

T1. Ocean observatories:
A multichallenge to survey earth environmental process.

Instructor: Juanjo Dañobeitia (Profesor in Marine Geophysics. Spanish Research Council (CSIC). Director of Marine Technological Unit (UTM) Barcelona, Spain) and Jordi Sorribas (Marine Geologist. Spanish Research Council (CSIC). Head of Telematics Group of Marine Technological Unit (UTM) Barcelona, Spain).
Session Time: 9:00 am to 1:00 pm & 3:00 pm to 7:00 pm
Location: Room 1

T2. AUV technology and application basics.

Instructor: William J. Kirkwood (Senior Research and Development Engineer at the Monterey Bay Aquarium Research Institute (MBARI) Monterey Bay, California). USA.
Session Time: 9:00 am to 1:00 pm
Location: Room 3B

T3. Signal waveform design for underwater acoustic communications.

Instructor: Charalampos C. Tsimenidis (Senior Lecturer in Signal Processing for Communications in the School of Electrical, Electronic, and Computer Engineering) and Bayan S. Sharif (Professor of Digital Communications and Head of the School of Electrical, Electronic and Computer Engineering). Newcastle University. UK.
Session Time: 9:00 am to 1:00 pm
Location: Room 5

T5. Technologies for monitoring marine organisms and hazards.

Instructor: Jaume Piera (B.S. in Telecommunications Engineering, Technical University of Catalonia,1991).
Session Time: 3:00 pm to 7:00 pm
Location: Room 5

T6. The stochastic matched filter and its applications to detection and denoising.

Instructor: Philippe Courmontagne (Professor in the Institut Supérieur de l'Électronique et du Numérique, ISEN Toulon, France).

Session Time: 3:00 pm to 7:00 pm

Location: Room 2A

STUDENT POSTERS

Exhibit Hall

High performance underwater UHF radio antenna development.
Hector Fabian Guarnizo Mendez (France).

A comparison between the classical pulse compression and the improved WV-SMF-PC on ifremer sea trials signals.
Gregory Julien (France).

Tuning the performance of the superdirective frequency-invariant beamforming applied to end-fire arrays.
Federico Traverso (Italy).

Passive acoustic detection of a small remotely operated vehicle.
Meng Cai (USA).

Unnamed localization of sperm whales in realistic scenarios.
Pablo Caro (Spain).

A heterogeneous rapid-turnaround visualization package for AUV Data.
Mark VanMiddlesworth (USA).

Near sea surface target tracking by extended Kalman filtering of the GPS reflected signals.
Sarab Tay (France).

Doppler effect on bathymetry using frequency modulated multibeam echo sounders.
Pauline Vincent (France).

Design and development of a distributed wave energy converter.
Pierre Garambois (France).

Dynamics of the turbidity plume in the Guadalquivir estuary (SW Spain): A remote sensing approach.
Isabel Caballero (Spain).

Using slocum gliders for coordinated spatial sampling.
Hans Christian Woithe (USA).

A multivariate approach to estimate design loads for offshore wind turbines.
Yanira Guanche (Spain).

Optimal trajectory generation for draped AUV gravity surveys.
Jacob Izraelevitz (USA).

Ocean wave observation by GPS signal.
Jian Cui (Japan).

Implementation of embedded system for autonomous buoy.
Kyung Woon Lee (Korea).

Blind source separation of non-linearly mixed ocean acoustic signals using slow feature analysis.
Suraj Kamal (India).

JUNIOR WORKSHOP

A workshop and competition in the design of autonomous devices will be held the week before the Conference. Several High School teams will attend this workshop. A competition showing the works they have developed will take place last Saturday of May in the School of Nautical Studies and the CEAR (Specialized Centre of High Performance) for sailing (RFEV, Royal Spanish Sailing Federation). In a small water storage pond each team will have to complete a mission rescuing a boat with a personalized and programmed autonomous device. Awards for the best performances and originality of works will be given in the Conference.

JUNIOR WORKSHOP SPONSORS

Ayuntamiento de Camargo
Ayuntamiento de Astillero
Caja Cantabria
Taller Cobo Hermanos S.L

STUDENT POSTER COMPETITION

Exhibition & Posters

Optimal trajectory generation for draped auv gravity surveys
Jacob Izraelevitz, *Franklin W. Olin College of Engineering*

A multivariate approach to estimate design loads for offshore wind turbines
Yanira Guanche, *"IH Cantabria", Universidad de Cantabria*
Raúl Guanche, *"IH Cantabria", Universidad de Cantabria*
Paula Camus, *"IH Cantabria", Universidad de Cantabria*
Fernando Mendez, *"IH Cantabria", Universidad de Cantabria*
Raúl Medina, *"IH Cantabria", Universidad de Cantabria*

Using slocum gliders for coordinated spatial sampling
Hans Woithe, *Rutgers University*
Ulrich Kremer, *Rutgers University*

A comparison between the classical pulse compression and the improved WV-SMF-PC on Ifremer sea trials signals
Gregory Julien, *IFREMER*
Philippe Courmontagne, *IM2NP/ISEN-Toulon*
Marie-Edith Bouhier, *IFREMER*

Dynamics of the turbidity plume in the Guadalquivir estuary (SW Spain): a remote sensing approach
Isabel Caballero, *Instituto de Ciencias Marinas Andalucía, CSIC*
Javier Ruiz, *ICMAN-CSIC*
Gabriel Navarro, *Instituto de Ciencias Marinas Andalucía, CSIC*

Implementation of embedded system for autonomous buoy
Kyung Woon Lee, *Korea University*
Jung Ho Park, *Korea University*
Dong-ho Lee, *Korea University*
Ui-seok Jeong, *Korea University*
Ho Kyung Jun, *Shinyang Technology*
Joon Young Yang, *Korea University*

Design and development of a distributed wave energy converter
Jacob Foster, *U of Hawaii*
Pierre Garambois, *University of Hawaii (Mechanical Engineering)*
Reza Ghorbani, *U of Hawaii*

Monitoring species using acoustic communications
David Gandul, *UPC-SARTI*
Erik Molino-Minero-Re, *Universidad Politecnica Catalunya*
Antoni Manuel, *Universidad Politécnica de Cataluña*
Joaquín del Río, *Universidad Politécnica de Cataluña*
Francesc Sarda, *Institut de Ciencies del Mar*
Jacopo Aguzzi, *Institut de Ciencies del Mar*
Guiomar Rollant, *Institut de Recerca i Tecnologia Agroalimentaries*

Blind source separation of non-linearly mixed ocean acoustic signals using slow feature analysis
Suraj Kamal, Cochin *University of Science And Technology*
Supriya H, Cochin *University of Science And Technology*
P R SASEENDRAN PILLAI, *Cochin University of Science And Technology*

Doppler effect on bathymetry using frequency modulated multibeam echo sounders
Pauline Vincent, *Telecom Bretagne*
Frédéric maussang, *Telecom Bretagne*
Xavier Lurton, *IFREMER*
René Garello, *Telecom Bretagne*
Christophe Sintes, *Telecom-Bretagne*

A Heterogeneous Rapid-Turnaround Visualization Package for AUV Data
Mark VanMiddlesworth, *Harvard University*

Ocean wave observation by GPS signal
Jian Cui, Kobe University, *Graduate School of Maritime Sciences*
Nobuyoshi Kouguchi, *Kobe University, Faculty of Maritime Sciences*

Unmanned localization of sperm whales in realistic scenarios
Pablo Caro, *Universidad Politecnica de Madrid*
Antonio Silva, *ISR - Universidade do Algarve*

Passive acoustic detection of a small remotely operated vehicle
Meng Cai, *University of Hawaii at Manoa*
Brian Bingham, *University of Hawaii at Manoa*

Near sea surface target tracking by extended kalman filtering of the GPS reflected signals
Sarab Tay, *Télécom Bretagne*
Frederic Maussang, *Telecom Bretagne*

Arnaud Coatanhay, *ENSTA Bretagne*
Thierry Chonavel, *Télécom Bretagne*
Rene Garello, *Telecom Bretagne*

Tuning the performance of the superdirective frequency-invariant beamforming applied to end-fire arrays

Federico Traverso, *Department of Biophysical and Electronic Engineering, University of Genoa*
Marco Crocco, *Italian Institute of Technology (IIT), Genoa, Italy*
Andrea Trucco, *Department of Biophysical and Electronic Engineering, University of Genoa*
Gianni Vernazza, *Department of Biophysical and Electronic Engineering, University of Genoa*

High performance underwater UHF radio antenna development

Hector Fabian Mendez, *Telecom - Bretagne / Ifremer / Lab-STICC*
François Le Pennec, *Telecom Bretagne / Lab-STICC*
Christian GAC, *IFREMER*
Christian Person, *Telecom Bretagne / lab-STICC*

TECHNICAL PROGRAM

Monday, June 6

TUTORIAL T1: Ocean Observatories: A multichalenge to survey earth environmental process
2-Room 1 (Bahía Hall)
Monday, June 6 (9:00AM - 1:00PM) (3:00PM - 7:00PM)
Juanjo Dañobeitia and Jordi Sorribas

TUTORIAL T2: AUV technology and application basics
4-Room 3B (Bahía Hall)
Monday, June 6 (9:00AM - 1:00PM)
William J. Kirkwood

TUTORIAL T3: Signal waveform design for underwater acoustic communications
6-Room 5 (Bahía Hall)
Monday, June 6 (9:00AM - 1:00PM)
Charalampos C. Tsimenidis and Bayan S. Sharif

TUTORIAL T5: Technologies for monitoring marine organisms and hazards
6-Room 5 (Bahía Hall)
Monday, June 6 (3:00PM - 7:00PM)
Jaume Piera

TUTORIAL T6: The Stochastic Matched Filter and its applications to detection and denoising
3-Room 2A (Bahía Hall)
Monday, June 6 (3:00PM - 7:00PM)
Philippe Courmontagne

TECHNICAL PROGRAM

Tuesday, June 7

Marine Renewable Energy - 1

1-Assembly Room
Tuesday, June 7 (12:00AM - 1:30PM)
Chair: *Cesar Vidal, IH Cantabria, Universidad de Cantabria*

Ocean radar for the planning and operational phase of off-shore renewable energy systems
Thomas Helzel, *Helzel Messtechnik GmbH*
Oswaldo López, *Innova Ocanografia Litoral*
Lucy Wyatt, *Seaview Sensing Ltd.*

Estimation of the electric power potential using pressure retarded osmosis in the Leon River's mouth: a first step for the harnessing of saline gradients in Colombia
Oscar Alvarez, *Universidad Nacional de Colombia*
Andrés Osorio, *Universidad Nacional de Colombia*
Santiago Ortega, *Universidad Nacional de Colombia*
Pablo Agudelo, *Universidad Nacional de Colombia*

Methodology for estimating wave power potential in places with scarce instrumentation in the Caribbean Sea
Santiago Ortega, *Universidad Nacional de Colombia - Sede Medellín*
Andres Osorio, *Universidad Nacional de Colombia - Sede Medellín*
Pablo Agudelo-Restrepo, *I Consult S.A.*
Jaime Velez, *Universidad Nacional de Colombia - Sede Medellín*

Model-based global assessment of OTEC resource with data validation in south florida
Lindy Rauchenstein, *Florida Atlantic University*
James VanZwieten, *Florida Atlantic University*
Howard Hanson, *Florida Atlantic University*

Evaluation of global wave energy resources
Borja Reguero, *IH Cantabria, Univ. de Cantabria*
Melisa Garcia, *IH Cantabria, Univ. de Cantabria*
Fernando Incera, *IH Cantabria, Univ. de Cantabria*
Roberto Solana, *IH Cantabria, Univ. de Cantabria*
Iñigo Rodriguez, *IH Cantabria, Univ. de Cantabria*
Cesar Vidal, *IH Cantabria, Univ. de Cantabria*

Automatic Control

2-Room 1 (Bahía Hall)
Tuesday, June 7 (12:00AM - 1:30PM)
Co-Chairs: Fredrik Dukan, *Norwegian University of Science and Technology*
Juan Perez-Oria, *University of Cantabria*

Dynamic positioning system for a small size ROV with experimental results
Fredrik Dukan, *Norwegian University of Science and Technology*
Martin Ludvigsen, *Norwegian University of Science and Technology*
Asgeir Sørensen, *Norwegian University of Science and Technology*

Long term power management in sailing robots
Colin Sauze, *Department of Computer Science, Aberystwyth University*
Mark Neal, *Department of Computer Science, Aberystwyth University*

Coordinated sea rescue system based on unmanned air vehicles and surface vessels
Francisco Fernández Ramírez, *Universidad Complutense de Madrid*
David Sánchez Benitez, *Universidad Complutense de Madrid*
Eva Besada Portas, *Universidad Complutense de Madrid*
Jose Antonio López Orozco, *Universidad Complutense de Madrid*

Parameter estimation of ship linear manoeuvring models
Elías Revestido, *Univ. Cantabria*
Francisco J Velasco, *Univ. Cantabria*
Eloy López, *Univ. Pais Vasco*
Emiliano Moyano, *Univ. Cantabria*
Isabel Zamanillo, *Univ. Cantabria*

Climate Change

3-Room 2A (Bahía Hall)
Tuesday, June 7 (12:00AM - 1:30PM)
Chair: Alicia Lavín, *Instituto Español de Oceanografía*

Impacts of land use and climate change on hydrologic processes in shallow aquatic ecosystems
Clarisse Betancourt, *University of Puerto Rico- Rio Piedras Campus*
Maury Estes, *Universities Space Research Association*
Mohammad Alhamdan, *Universities Space Research Association*

Does concern for global warming explain support for wave energy development? A case study from Oregon, U.S.A
Maria Stefanovich, *OSU*

The Spanish Institute Of Oceanography (IEO) Santander observing system
Alicia Lavín, *Instituto Español de Oceanografía*
Carmen Rodriguez, *IEO*
César González-Pola, *Instituto Español de Oceanografía*
Raquel Somavilla, *Instituto Español de Oceanografía*
Maria Jesús García, *Instituto Español de Oceanografía*
Elena Tel, *Instituto Español de Oceanografía*
Daniel Cano, *Instituto Español de Oceanografía*
Jesús Carranza, *Instituto Español de Oceanografía*
Angel Merino, *Instituto Español de Oceanografía*
Amaia Villoria, *Instituto Español de Oceanografía*
Elena Marcos, *Instituto Español de Oceanografía*
Joaquín Molinero, *Instituto Español de Oceanografía*
Carlos Barrera, *Plataforma Oceánica de Canarias (PLOCAN)*

Data, knowledge, and innovation
James Marsh, *Shidler College of Business*

Sonar and Transducers

4-Room 3B (Bahía Hall)
Tuesday, June 7 (12:00AM - 1:30PM)
Chais: Rajapan Dhilsha, *National Institute of Ocean Technology*

A wide angle shallow water observing sonar
John Atkins, *University of Auckland*
Jeremie Barrel, *Industrial Research Limited*
Neil Scott, *Industrial Research Limited*
Eugene Stytsenko, *Industrial Research Limited*

Effect of manufacturing procedure on the miniaturized flextensional transducers (Cymbals) and hydrophone array performance
Chandrabose Kannan, *National Institute of Ocean Technology*
Madava Rao Rajeshwari, *National Institute of Ocean Technology*
Jacob Shibu, *National Institute of Ocean Technology*
Amrithalingam Malarkkodi, *National Institute of Ocean Technology*
Rajapan Dhilsha, *National Institute of Ocean Technology*
M. Aravindakshan Atmanand, *National Institute of Ocean Technology*

Estimated flow noise levels due to a thin line digital towed array
Unnikrishnan Kuttan Chandrika, *Acoustic Research Laboratory, Tropical Marine Science Institute, National University of Singapore*
Venugopalan Pallayil, *Acoustic Research Laboratory, Tropical Marine Science Institute, National University of Singapore*
Mandar Chitre, *Acoustic Research Laboratory, Tropical Marine Science Institute, National University of Singapore*
Subash Kuselan, *Acoustic Research Laboratory, Tropical Marine Science Institute, National University of Singapore*

Underwater multi-frequency transmitter for seabed characterization
Lucilla Di Marcoberardino, *Institut Jean Le Rond d'Alembert*
Jacques MarchaL, *Institut Jean Le Rond d'Alembert*
Pierre Cervenka, *Institut Jean Le Rond d'Alembert*

Vehicle Design I

5-Room 4B (Bahía Hall)
Tuesday, June 7 (12:00AM - 1:30PM)
Co-Chairs: David Ribas, *Universitat de Girona*
Vincenzo Calabro , *University of Pisa*

Design of a CMG for underwater robots
Eugenio Yime, *Universidad Tecnologica de Bolivar*
Héctor Moreno, *Centre for Automation and Robotics, UPM-CSIC*
Roque Saltaren, *Center for Automation and Robotics, UPM-CSIC.*
Rafael Aracil, *Center for Automation and Robotics, UPM-CSIC.*

Kinematic analysis of an underwater parallel robot
Héctor Moreno, *Centre for Automation and Robotics, UPM-CSIC*
Lisandro Puglisi, *Center for Automation and Robotics, UPM-CSIC.*
Roque Saltaren, *Center for Automation and Robotics, UPM-CSIC.*
Isela Carrera, *Center for Automation and Robotics, UPM-CSIC.*

Design and construction of the GUANAY-II autonomous underwater vehicle
Julián González, *Universidad Politécnica de Cataluña*
Spartacus Gomáriz, *Universidad Politécnica de Cataluña*
Jordi Prat, *Universidad Politécnica de Cataluña*
Gerard Masmitja, *Universidad Politécnica de Cataluña*
Iván Masmitja, *Universidad Politécnica de Cataluña*
Alejandro Arbos, *Universidad Politécnica de Cataluña*

Lagrangian modeling of the Underwater Wave Glider
Andrea Caiti, *Dep. of Energy and Systems Engineering*
Vincenzo Calabrò, *Dep. of Energy and Systems Engineering*
Andrea Munafò, *Integrated Systems for Marine Environment*
Sergio Grammatico, *Dep. of Energy and Systems Engineering*
Mirko Stifani, *Italian Navy (CSSN) Department*

The Girona 500, a multipurpose autonomous underwater vehicle
David Ribas, *Universitat de Girona*
Pere Ridao, *Universitat de Girona*
Lluís Magí, *Universitat de Girona*
Narcis Palomeras, *Universitat de Girona*
Marc Carreras, *Universitat de Girona*

Sonar Signal Processing

6-Room 5 (Bahía Hall)
Tuesday, June 7 (12:00AM - 1:30PM)
Chair: Jean-Pierre Hermand, *Environmental Hydroacoustics Lab*

Interferometric angle estimation for bathymetry performance analysis
Gerard Llort-Pujol, *Télécom Bretagne*
Christophe Sintes, *Télécom Bretagne*

A new method for 3D localization using a hybrid array in shallow ocean with non-Gaussian noise
Zahra Madadi Ardekani, *Nanyang Technological University*
Gargewari Anand, *Indian Institue of Science*
Benjamin Premkumar, *Nanyang Technological University*

Multistatic adaptive active sonar signal processing
Jun Ling, *University of Florida*
Jian Li, *University of Florida*

Doppler domain decomposition of the underwater acoustic channel response
Salman Ijaz, *Institute of Systems and Robotics*
António Silva, *Institute of Systems and Robotics*
Orlando Rodríguez, *Institute of Systems and Robotics*
Sérgio Jesus, *Institute of Systems and Robotics*

Time and angle of arrival uncertainties in echo-sounding
Christian de Moustier, *HLS Research, Inc.*

Acoustic striation processing for ocean bottom characterization
Jean-Pierre Hermand, *Environmental Hydroacoustics Lab*
Qunyan REN, *Environmental Hydroacoustics Lab*

Marine Renewable Energy - 2

1-Assembly Room
Tuesday, June 7 (3:00PM - 4:30PM)
Chair: Raúl Guanche, *IH Cantabria, Univ. de Cantabria*

Anchoring systems for marine renewable energies offshore platforms
Raul Arias, *Fundacion Centro Tecnologico de Componentes*
Iñaki Sanchez, *Fundación Centro Tecnológico de Componentes*
Cesar Pascual ,*IH Cantabria, Univ. de Cantabria*
Jorge Berini, *Universidad de Cantabria. E.T.S. Ingenieros de Caminos. Dpto. Ciencia e Ingenieria del terreno y de los Materiales*
Jose Angel Formoso, *Universidade da Coruña.*
Vicente Casas, *Universidade da Coruña*

Differences in fundamental design drivers for wind and tidal turbines
Alexei Winter, *University of Bristol*

Component failure simulation tool for optimal electrical configuration and repair strategy of off-shore wind farms
Roberto Minguez, *IH Cantabria, Univ. de Cantabria*
José Martínez, *IH Cantabria, Univ. de Cantabria*
Omar Castellanos, *IH Cantabria, Univ. de Cantabria*
Raul Guanche, *IH Cantabria, Univ. de Cantabria*

IDERMAR METEO. Offshore wind assessment at high and very high water depths
Raúl Guanche, *IH Cantabria, Univ. de Cantabria*
César Vidal, *IH Cantabria, Univ. de Cantabria*
Ángel Piedra, *APIA XXI*
Íñigo Losada, *IH Cantabria, Univ. de Cantabria*

Autonomous instrumentation system for offshore marine applications: met-mast wind resource measurement implementation
Juan Echevarría, *ACORDE Technologies S.A.*

Álvaro Álvarez, *ACORDE Technologies S.A.*
Joaquin Sañudo, *ACORDE Technologies S.A.*
Jacobo Domínguez, *ACORDE Technologies S.A.*
David Blanco, *ACORDE Technologies S.A.*

Pollution Monitoring and Oil Spills

2-Room 1 (Bahía Hall)
Tuesday, June 7 (3:00PM - 4:30PM)
Co-Chairs: Maria J San Jose, *Universidad del Pais Vasco*
Daura Vega Moreno, *Instituto Canario de Ciencias Marinas*

Towards automatic oil spill confinement with autonomous marine surface vehicles
Fernando Pereda, *Dept ACYA. Universidad Complutense de Madrid*
Hector Garcia de Marina, *Dept ACYA. Universidad Complutense de Madrid*
Jose Giron-Sierra, *Dept ACYA. Universidad Complutense de Madrid*
Juan Jimenez, *Dept ACYA. Universidad Complutense de Madrid*

Early detection of hydrocarbons in the marine environment
Carolina Garcia, *ICCM*
Carlos Barrera, *PLOCAN*
Laura Cardona, *ICCM*
Maria Guadalupe Villagarcía, *ICCM*
Maria Jose Rueda, *ICCM*
Dolores Gelado, *ULPGC*
Octavio Llinás, *PLOCAN*
Daura Vega, *ULPGC*

Environmental impact assessment of Foz do Arelho sewage plume using MARES AUV
Patrícia Ramos, *INESC Porto*
Nuno Abreu, *INESC Porto*

Chemical treatments against biofouling on industrial equipments associated to marine related power generation technologies, a new approaching to an old problem
Alfredo Ruiz, *Universidad de Cantabria*
Emilio López, *Universidad de Cantabria*
José Alberto Célis, *Universidad de Cantabria*
Sergio Gómez, *Universidad de Cantabria*
Andrés Abelleira, *Universidad de Cantabria*

Applicability of clean technology of conical spouted bed for thermal remediation of sand polluted by oil spill
Maria J San Jose, *Universidad del Pais Vasco*
Sonia Alvarez, *Universidad del Pais Vasco*
Luis B López, *Universidad del Pais Vasco*
Iris García, *Universidad del Pais Vasco*

On the applications of a compact autonomous acoustic recorder
Cristiano Soares, MarSensing - Marine Sensing & Acoustic Technologies, Lda.
Friedrich Zabel, MarSensing - Marine Sensing & Acoustic Technologies, Lda.
Celestino Martins, MarSensing - Marine Sensing & Acoustic Technologies, Lda.
António Silva, Universidade do Algarve

Offshore structures

3-Room 2A (Bahía Hall)
Tuesday, June 7 (3:00PM - 4:30PM)
Chair: Shinichi Takagawa, *University of Tokyo*

A study on high frequency hammering system and its impact loads? Second report
Shinichi Takagawa, *University of Tokyo*

Experimental study for wave induced hydraulic pressure subjected to bottom of floating structure
Youn-Ju Jeong, *Korea Institute of Construction Technology*
Young-Jun You, *Korea Institute of Construction Technology*

Experimental study on hydrodynamic motion of hybrid type of pontoon
Youngjun You, *Korea Institute of Construction Technology*
Youn-ju Jeong, *Korea Institute of Construction Technology*

Sound Propagation & Scattering

4-Room 3B (Bahía Hall)
Tuesday, June 7 (3:00PM - 4:30PM)
Chair: Ole Grøn, *University of Southern Denmark*

Iso-TL curve in multistatic configuration
Hisashi Shiba, *NEC Corporation*

A simulation analysis of large scale path loss in an underwater acoustic network
Jesus Llor, *Universidad Miguel Hernandez*
Milica Stojanovic, *Northeastern University*
Manuel Pérez Malumbres, *Universidad Miguel Hernandez*

Broadband amplitude and phase sonar calibration using LFM pulses for high-resolution study of hard and soft acoustic targets
Alan Islas-Cital, *The University of Birmingham*
Philip Atkins, *The University of Birmingham*
Kae Foo, *The University of Birmingham*
Ruben Picó, *Universitat Politecnica de Valencia*

On the in-situ detection of flint for underwater Stone Age archaeology
Qunyan Ren, *Environmental Hydroacoustics Lab*
Ole Gron, *Langelands MuseumCenter for Maritime Archaeology*
Jean-Pierre Hermand, *Environmental Hydroacoustics Lab*

High transmission loss of slit arrays for underwater sound
Héctor Estrada, *Centro de Tecnologías Físicas, Unidad Asociada ICMM- CSIC/UPV*
José María Bravo, *Centro de Tecnologías Físicas, Unidad Asociada ICMM- CSIC/UPV*
Francisco Meseguer, *Centro de Tecnologías Físicas, Unidad Asociada ICMM- CSIC/UPV*

Modulation of a high-frequency shallow-water acoustic channel by sea surface waves: 3-D PE-based modeling
Wendell Saintval, *Naval Research Laboratory*
Thomas Hayward, *Naval Research Laboratory*

Vehicle Design II

5-Room 4B (Bahía Hall)
Tuesday, June 7 (3:00PM - 4:30PM)
Chair: Kenichi Asakawa, *Japan Agency for Marine-Earth Science and Technology*

Experimental determination of the hydrofoil's angle of attack in the case of a turtle-like Autonomous Underwater Vehicle
Davinia Font, *Universitat de Lleida*
Marcel Tresancez, *Universitat de Lleida*
Cedric Siegenthaler, *ETH Züric*
Mercè Teixidó, *Universitat de Lleida*
Tomàs Pallejà, *Universitat de Lleida*

Cedric Pradalier, *ETH Züric*
Jordi Roca, *Universitat de Lleida*

Design of communication and video system for a multi-legged subsea robot
Banghyun Kim, *MOERI-KORDI*
Bong-Huan Jun, *MOERI-KORDI*
Pan-Mook Lee, *MOERI-KORDI*
Sung-Woo Park, *MOERI-KORDI*

Huxley: A flexible robot control architecture for autonomous underwater vehicles
Dani Goldberg, *Bluefin Robotics Corporation*

Approximated modeling of hydrodynamic forces acting on legs of underwater walking robot
Bong-Huan Jun, *MOERI-KORDI*
Pan-Mook Lee Lee, *MOERI-KORDI*
Hyuk Baek, *MOERI-KORDI*
Yong-Kon Lim, *MOERI-KORDI*

Design concept of tsukuyomi - a prototype of underwater glider for virtual mooring
Kenichi Asakawa, *Japan Agency for Marine-Earth Science and Technology*
Masahiko Nakamura, *Research Institute for Applied Mechanics, Kyushu University*
Taiyo Kobayashi, *Japan Agency for Marine-Earth Science and Technology*
Yoshitaka Watanabe, *Japan Agency for Marine-Earth Science and Technology*
Tadahiro Hyakudome, *Japan Agency for Marine-Earth Science and Technology*
Yuzuru Ito, *Ocean Engineering Research, Inc.*
Junichi Kojima, *KDDI Research and Development Laboratories*

Array Signal Processing, Array Design and Vector Sensor Processing

6-Room 5 (Bahía Hall)
Tuesday, June 7 (3:00PM - 4:30PM)
Co-Chairs: Paulo Santos, *ISR - University of Algarve*
Hock Siong Lim, *Thales Solutions Asia Pte Ltd*

Particle filtering with enhanced likelihood model for underwater acoustic source DOA tracking
Xionghu Zhong, *Centre for multimedia and network technology*
Hari Vishnu, *School of Computer Engineering*
A. Premkumar, *School of Computer Engineering*
A. S. Madhukumar, *School of Computer Engineering*

Angle of arrival estimation based on Warped Delay-and-Sum (WDAS) beamforming technique
Ali Massoud, *Queen's university, Kingston, Ontario*
Aboelmagd Noureldin, *Royal Military College*

Underwater signal detection in partially known ocean using short acoustic vector sensor array
Hari Vishnu, *Nanyang Technological University*
G. Anand, *Indian Institute Of Science, Bangalore*
Annamalai Premkumar, *Nanyang Technological University*
A. Madhukumar, *Nanyang Technological University*

Underwater acoustic positioning in dense multipath channels using a 2-Dwideband sparse array
Sung-Hoon Byun, *MOERI/KORDI*
Sea-Moon Kim, *MOERI/KORDI*
Pan-Mook Lee, *MOERI/KORDI*
Yong-Kon Lim, *MOERI/KORDI*
Woojae Seong, *Seoul National University*

Estimation and compensation of rotation perturbation in linear 2D Acoustic vector sensor array
Hock Siong Lim, *Thales Solutions Asia Pte Ltd*
Ketan Rameshchandra, *Thales Solutions Asia Pte Ltd*
Wei Siong Toh, *DSO National Laboratories*

Geometric and seabed parameter estimation using a vector sensor array - experimental results from makai experiment 2005
Paulo Santos, *ISR - University of Algarve*
José João, *ISE - University of Algarve*
Orlando Rodríguez, *ISR - University of Algarve*
Paulo Felisberto, *ISR - University of Algarve*
Sergio Jesús, *ISR - University of Algarve*

Marine Renewable Energy - 3

1-Assembly Room
Tuesday, June 7 (5:00PM - 6:30PM)
Chair: Y. Meriah Arias-Thode, *SPAWAR Pacific*

Viability of complementary sun concentrated based power plants for offshore structures
Ramon Garcia, *University of A Coruna*
Manuel Casado, *University of Cadiz*

Stream analytical processing of acoustic signals for cetacean studies and environmental monitoring of ocean energy conversion devices
Harry Kolar, *IBM Corporation*
Eoin Sweeney, *Sustainable Energy Authority or Ireland*
Adam Russell, _
Eugene McKeown, *Biospheric Engineering Ltd*
Paul Gaughan, *Marine Institute of Ireland*
Aidan McGowan, *IBM Corporation*
Eric Bouillet, *IBM Corporation*

Development of microbial fuel cell prototypes for examination of the temporal and spatial response of anodic bacterial communities in marine sediments
Y. Meriah Arias-Thode, *SPAWAR Pacific*
Ken Richter, *SPAWAR Pacific*
Adriane Wotawa-Bergen, SPAWAR Pacific
D. Bart Chadwick, *SPAWAR Pacific*
Jinjun Kan, *Stroud Water Research Center*
Kenneth Nealson, *University of Southern California*

The high efficiency multi-less (HEML) fuel cell - a high energy power source for underwater vehicles, buoys, and stations
Hiroshi Yoshida, *JAMSTEC*
Tadahiro Hyakudome, *JAMSTEC*
Toshihiro Tani, *Mitsubishi Heavy Industries, Ltd.*
Shojiro Ishibashi, *JAMSTEC*
Mitsuyoshi Iwata, *Mitsubishi Heavy Industries, Ltd*.
Takuya Moriga, *Mitsubishi Heavy Industries, Ltd.*

Buoy Technology and Cables and Connectors

2-Room 1 (Bahía Hall)
Tuesday, June 7 (5:00PM - 6:30PM)
Co-Chairs: Enrique Peña, Water and Environmental Engineering Group (GEAMA). *University of A Coruña*
Xulio Fernández-Hermida, *University of Vigo*

A low cost reconfigurable sensor network for coastal monitoring
Carlos De Marziani, *National University of Patagonia San Juan Bosco/CONICET*
Romulo Alcoleas, *National University of Patagonia San Juan Bosco*
Francisco Colombo, *National University of Patagonia San Juan Bosco*
Nicolás Costa, *National University of Patagonia San Juan Bosco*
Francisco Pujana, *National University of Patagonia San Juan Bosco*
Alejandro Colombo, *National University of Patagonia San Juan Bosco*
Joaquín Aparicio, *University of Alcalá*
Fernando Álvarez, *University of Extremadura*
Ana Jiménez, *University of Alcalá*
Jesús Ureña, *University of Alcalá*
Alvaro Hernández, *University of Alcalá*

Design and performance of a low power moored data buoy system
Srinivasan R
Shijo Zacharia
Thamarai T
Tata Sudhakar
M.Aravindakshan Atmanand

Strain gauges measurements of mooring lines and module connector forces in a physical model of the Aguete Port floating breakwater.
Enrique Peña, *Water and Environmental Engineering Group (GEAMA). University of A Coruña*
Antia López, *Water and Environmental Engineering Group (GEAMA). University of A Coruña.*
Javier Ferreras, *Water and Environmental Engineering Group (GEAMA). University of A Coruña.*
Félix Sánchez-Tembleque, *CITEEC (R+D Centre of Technological Innovation in Building an Civil Engineering), University of A Coruña.*
Fernando López, *Aquática Ingenieria Civil*
Javier Sopelana, *Aquática Ingeniería Civil*

From research to commercial operations: The next generation Easy-to-Deploy (ETD) tsunami assessment buoy
Robert Lawson, *Science Applications International Corporation*
Christian Meinig, *NOAA*
David Graham, *Science Applications International Corporation*
Scott Stalin, *NOAA*
Dirk Tagawa, *NOAA*
N. Lawrence-Slavas, *NOAA*
Ross Hibbins, Australia Bureau of Meteorology
Brian Ingham, *Australia Bureau of Meteorology*

Hidroboya: an autonomus buoy for real time high quality sea and continental water data retrieval
Xulio Fernández-Hermida, *University of Vigo*
Carlos Durán-Neira, *Centro de Investigaciones Submarinas (CIS).*
Manuel Lago-Reguera, *Centro de Investigaciones Submarinas (CIS).*
Carlos Rodríguez-Alemparte, *University of Vigo*
Fernando Martín-Rodríguez, *University of Vigo*

Preliminary study of moored power cables
Joana Prat, *UPC*
Joaquin del Río Fernández, *UPC - SARTI*
Alejandro Arbos, *UPC - SARTI*

Hydrography

3-Room 2A (Bahía Hall)
Tuesday, June 7 (5:00PM - 6:30PM)
Co-Chairs: Ahmed El-Rabbany, *Ryerson University*
Dr. Genndii Kaloshin

SAS multipass interferometry for monitoring seabed deformation using a high-frequency imaging sonar
Claudio Prati, *DEI - Politecnico di Milano*
Riccardo De Paulis, *Politecnico di Milano*
Silvia Scirpoli, DEI - *Politecnico di Milano*
Fabio Rocca, DEI - *Politecnico di Milano*
Alessandra Tesei, *NURC - Nato Undersea Research Centre*
Per Arne Sletner, *NURC - Nato Undersea Research Centre*
Stefano Biagini, *NURC - Nato Undersea Research Centre*
Piero Guerrini, *NURC - Nato Undersea Research Centre*
Francesco Gasparoni, *Tecnomare*

Cosmo Carmisciano, *INGV*
Marina Locritani, *INGV*

Development of visual laser lights for providing more effective coastal navigation
Genndii Kaloshin, *V.E. Zuev Institute of Atmospheric Optics of Siberian Branch Russian Academy of Sciences*

Program complex Range for the analysis and designing of visual aids to navigation of the seas
Genndii Kaloshin, *V.E. Zuev Institute of Atmospheric Optics of Siberian Branch Russian Academy of Sciences*
Sergei Shishkin, *V.E. Zuev Institute of Atmospheric Optics of Siberian Branch Russian Academy of Sciences*

GPS outage recovery using wavelet and neural network models in support of multibeam hydrography
Ahmed El-Rabbany, *Ryerson University*
Ashraf El-Assal, *Arab Academy for Science and Technology*
Saad Mesbah, *Arab Academy for Science and Technology*

Underwater Acoustics & Acoustical Oceanography

4-Room 3B (Bahía Hall)
Tuesday, June 7 (5:00PM - 6:30PM)
Co-Chairs: Alain Maguer, *NATO Undersea Research Centre*
Sergio Jesús, *University of Algarve*

NURC within glider sensors calibration, validation and monitoring facilities
Marina Ampolo Rella, *NATO Undersea Research Centre*
Alain Maguer, *NATO Undersea Research Centre*
Richard Stoner, *NATO Undersea Research Centre*
Domenico Galletti, *NATO Undersea Research Centre*
Eugenio Molinari, *NATO Undersea Research Centre*

HYDRA: High Yield Data Recording acoustic Array
Alain Maguer, *NATO Undersea Research Centre*
Luigi Troiano, *NATO Undersea Research Centre*
Rodney Dymond, *NATO Undersea Research Centre*
Piero Guerrini, *NATO Undersea Research Centre*
Alberto Dassatti, *NATO Undersea Research Centre*

Improving a novel image-processing based method for automatic detection, extraction and characterization of marine mammal tonal calls by means of a segmentation process based on learning machines
Rosa María Menchón Lara, *Universidad Politécnica de Cartagena*
Antonio Sánchez García, *SAES*
Consuelo Bastida Jumilla, *Universidad Politécnica de Cartagena*
Jorge Larrey Ruiz, *Universidad Politécnica de Cartagena*
Rafael Verdú Monedero, *Universidad Politécnica de Cartagena*
Juan Morales Sánchez, *Universidad Politécnica de Cartagena*
José Luis Sancho-Gómez, *Universidad Politécnica de Cartagena*

Opportunistic XOR network coding for multihop data delivery in Underwater acoustic networks
Haojie Zhuang, *Institute for Infocomm Research, A*STAR, Singapore*
Alvin Valera, *Institute for Infocomm Research, A*STAR, Singapore*
Zhi Ang Eu, *Institute for Infocomm Research, A*STAR, Singapore*
Pius Wei Qi Lee, *Institute for Infocomm Research, A*STAR, Singapore*
Hwee-Pink Tan, I*nstitute for Infocomm Research, A*STAR, Singapore*

An integrated observation system with multiple acoustic arrays for underwater behavioral study of the Ganges river dolphins
Junichi Kojima, *KDDI R&D Laboratories Inc.*
Harumi Sugimatsu, *The University of Tokyo*
Tamaki Ura, *The University of Tokyo*
Rajendar Bahl, *Indian Institute of Technology Delhi, India*
Sandeep Behera, *WWF-India*
Vivek Sagar, *WWF-India*

Acoustic observatories for ocean tomography: multi-array matched-field tomography
Cristiano Soares, *Instituto de Sistemas e Robótica*
Paulo Felisberto, *Instituto de Sistemas e Robótica*
Sérgio Jesus, *Instituto de Sistemas e Robótica*

Vehicle Performance

5-Room 4B (Bahía Hall)
Tuesday, June 7 (5:00PM - 6:30PM)
Co-Chairs: Victor Lobo, *CINAV-PO Navy Research Center/ISEGI-UNL*
Haro M, *University of Cádiz*

Experiments of flipper type crawler system at sea to verify running performance on sandy or irregular steep terrain seafloor
Tomoya Inoue, *JAMSTEC*
Ken Takagi, *The University of Tokyo*
Takuya Shiosawa, *The University of Tokyo*

Hydrodynamic investigation of the AUV PICASSO
Tomoya Inoue, *JAMSTEC*
Hiroyoshi Suzuki, *Osaka University*
Atsushi Yamamichi, *Osaka University*
Risa Kitamoto, *Osaka University*
Yoshitaka Watanabe, *JAMSTEC*
Hiroshi Yoshida, *JAMSTEC*

Ship's roll stabilization by anti-roll active tanks
Haro M, *University of Cádiz*
Ferreiro Ramón, *University La Coruña*
Francisco J Velasco, *University of Cantabria*

Real-time decision support system for monitoring stability and operational parameters of ships
Victor Lobo, *CINAV-PO Navy Research Center/ISEGI-UNL*
Paulo Martins, *CINAV-PO Navy Research Center*

Mobility and agility of multi-legged subsea robot considering tidal current
Hyungwon Shim, *Ocean Engineering Research Department/MOERI-KORDI*
Bong-Huan Jun, *Ocean Engineering Research Department/MOERI-KORDI*
Yong-Kon Lim, *Ocean Engineering Research Department/MOERI-KORDI*
Yong-Kon Lim, *Ocean Engineering Research Department/MOERI-KORDI*

Model-Based Signal Processing Techniques

6-Room 5 (Bahía Hall)
Tuesday, June 7 (5:00PM - 6:30PM)
Chair: James Candy, *Lawrence Livermore National Laboratory*

Adaptive particle filtering an approach to tracking modes in a varying shallow ocean environment
James Candy, *Lawrence Livermore National Laboratory*

Global extremum searching algorithm for the AUV guidance toward an acoustic buoy
Fedor Bezruchko, *Institute of Marine Technology Problems FEB RAS*
Igor Burdinsky, *Pacific National University*
Anton Myagotin, *St. Petersburg State University of Civil Aviation*

Raypath separation with high resolution processing
Long Jiang, *GIPSA-Lab/DIS, Grenoble INP*
Florian Aulanier, *Gipsa-lab/DIS Grenoble INP*
Grégoire Touzé, *Gipsa-lab/DIS Grenoble INP*
Barbara Nicolas, *Gipsa-lab/DIS Grenoble INP*
Jérôme Mars, *Gipsa-lab/DIS Grenoble INP*

Acoustic field calibration for noise prediction: the CALCOM'10 data set
Nélson Martins, *Universidade do Algarve*
Paulo Felisberto, *Universidade do Algarve*
Sérgio Jesus, *Universidade do Algarve*

Alternative approach of constructing a digital underwater communication system with negative SNR as well as higher security
Abolfazl Falahati, *Iran University of Science and Technology*
Milad Johnny, *IUST*

Underwater channel modeling for a relative positioning system
Joaquín Aparicio Sosa, *University of Alcalá*
Fernando Álvarez Franco, *University of Extremadura*
Ana Jiménez Martín, *University of Alcalá*
Carlos De Marziani, *Universidad Nacional de la Patagonia San Juan Bosco*
Jesús Ureña Ureña, *University of Alcalá*
Cristina Diego Guijarro, *University of Alcalá*

TECHNICAL PROGRAM

Wednesday, June 8

Marine Renewable Energy - 4

1-Assembly Room
Wednesday, June 8 (9:00AM - 11:00AM)
Co-Chairs: Edin Omerdic, *University of Limerick*
Pedro Díaz Simal, *Universidad de Cantabria*

New ICT cutting edge solutions for marine conditions prediction and logistics processes management in offshore renewable energy infrastructures installation and maintenance
Juan Gonzalez, *Conceptual KLT*
Pablo Castro, *Conceptual KLT*
Celestino Güemes, *Mundivia*
Raul Guanche, *IH Cantabria, Universidad de Cantabria*
Roberto Minguez ,*IH Cantabria, Universidad de Cantabria*

Design & development of assistive tools for future applications in the field of renewable ocean energy
Edin Omerdic, *University of Limerick*
Daniel Toal, *University of Limerick*
Sean Nolan, *University of Limerick*
Hammad Ahmad, *University of Limerick*
Garret Duffy, *NUIGalway*

A marine test site for ocean energy converters: Oceanic Platform of the Canary Islands
Javier González, *Oceanic platform of the Canary Islands (PLOCAN)*
Vidina Monagas, *Oceanic platform of the Canary Islands (PLOCAN)*
Eric Delory, *Oceanic Platform of the Canary Islands (PLOCAN)*
Joaquín Hernández-Brito, *Oceanic platform of the Canary Islands (PLOCAN)*
Octavio Llinás, *Oceanic platform of the Canary Islands (PLOCAN)*

On the profitability of renewable energy facilities, what if equipment last less than expected?.
Pedro Díaz Simal, *Universidad de Cantabria*
Saul Torres Ortega, *Universidad de Cantabria*

Building a roadmap for the implementation of marine renewable energy in Colombia
Andres Osorio, *Universidad Nacional de Colombia - Sede Medellín*
Pablo Agudelo-Restrepo, *I Consult S.A.*
Julio Correa, *Universidad Pontificia Bolivariana*
Luis Otero, *Centro de Investigaciones Oceanográficas e Hidrográficas - C I O H*
Santiago Ortega, *Universidad Nacional de Colombia - Sede Medellín*
Jose Hernandez, *Empresas Publicas de Medellín*
Juan Restrepo, *Empresas Publicas de Medellín*

A Multilateral Technology Initiative on Ocean Energy
José Villate, *Tecnalia*
John Huckerby, *AWATEA*
Eoin Sweeney, *Sustainable Energy Authority of Ireland*
Ana Brito-Melo, *Wave Energy Centre*

Ocean Dynamics: Wind, Waves, Surge and Sea Level

2-Room 1 (Bahía Hall)
Wednesday, June 8 (9:00AM - 11:00AM)
Chair: Fernando Méndez, *Universidad de Cantabria*

Oceano-meteorological conditions observed during severe storms in the southern Bay of Biscay
Daniel Cano, *Instituto Español de Oceanografía (IEO)*
Jose Luis Arteche, *Agencia Estatal de Meteorología (AEMET)*
Alicia Lavín, *Instituto Español de Oceanografía (IEO)*
Carmen Rodríguez, *Instituto Español de Oceanografía (IEO)*
Raquel Somavilla, *Instituto Español de Oceanografía (IEO)*
María Jesús García, *Instituto Español de Oceanografía (IEO)*

A methodology to define extreme wave climate using reanalysis data bases
Fernando Méndez, *IH Cantabria, Universidad de Cantabria*
Antonio Tomas, *IH Cantabria, Universidad de Cantabria*
Roberto Minguez, *IH Cantabria, Universidad de Cantabria*
Borja Reguero, *IH Cantabria, Universidad de Cantabria*

The AGL buoy. A high frequency view of processes at the air-sea interface
Raquel Somavilla Cabrillo, *Spanish Institute of Oceanography*
Alicia Lavin, *Spanish Institute of Oceanography*
Carmen Rodriguez, *Spanish Institute of Oceanography*

Non parametric estimation of the sea state bias in Jason-1 measurements and their effect on Mediterranean mean sea surface height
Rami Ali, *Centre of space techniques*
Kahlouche salem, *Centre of space techniques*
Haddad mahdi, *Centre of space techniques*
Daniel Cano, *Spanish Institute of Oceanography*

Ocean Data, Modeling and Information Management

3-Room 2A (Bahía Hall)
Wednesday, June 8 (9:00AM - 11:00AM)
Chair: Enrique Coiras, *European Union Satellite Centre*

DAMAR: Information management system for marine data
Antonia Casas, *Instituto Español de Oceanografía*
María Jesús García, *Instituto Español de Oceanografía*
Andrei Nikouline, *Instituto Español de Oceanografía*

Mosaicking Synthetic Aperture Sonar Images using Dynamic Constraints
Enrique Coiras, *European Union Satellite Centre*
David Williams, *NATO Undersea Research Centre*
Johannes Groen, *NATO Undersea Research Centre*

Answering environmental european directives through information systems
Felipe Fernández, *IH Cantabria, Universidad de Cantabria*
Víctor Velarde, *IH Cantabria, Universidad de Cantabria*
Araceli Puente, *IH Cantabria, Universidad de Cantabria*
Jose Antonio Juanes, *IH Cantabria, Universidad de Cantabria*
Raúl Medina, *IH Cantabria, Universidad de Cantabria*

Simulation benchmark for autonomous marine vehicles in Labview
Alejandro Moreno, *UNED*
David Moreno, *UNED*
Dictino Chaos, *UNED*
Joaquín Almansa, *UNED*

Application of multivariate modeling and analysis on an integrated hydrocarbon sensor array system for marine surveys
Xiubin Qi, *CSIRO*
Emma Crooke, *CSIRO*
Andrew Ross, *CSIRO*

The prediction of calm opportunities for landing on a ship
Juan Jesus Hernández, *Ministerio de Defensa*
Jose Maria Rodríguez, *Ministerio de Defensa*
Jose Maria Sierra, *Universidad Complutense de Madrid*

Optics, Imaging, Vision and E-M Systems

4-Room 3B (Bahía Hall)
Wednesday, June 8 (9:00AM - 11:00AM)
Co-Chairs: Jules Jaffe, *Marine Physical Lab*
Anne-Gaëlle Allais, *IFREMER*

Challenges of close-range underwater optical mapping
Ricard Prados, *Universitat de Girona*
Rafael Garcia, *Universitat de Girona*
Javier Escartín, *CNRS UMR 7154*
László Neumann, *ICREA*

Omni-Cam: An autonomous free-decent omni-directional camera for measuring radiance in marine environments.
Jules Jaffe, *Marine Physical Lab*
Fernando Simonet, *Marine Physical Lab*
Ben Laxton, *Marine Physical Lab*

Aerosol model development for environmental monitoring in the coastal atmosphere surface layer
Genndii Kaloshin, *V.E. Zuev Institute of Atmospheric Optics of Siberian Branch Russian Academy of Sciences*

A multi-modal event detection system for river and coastal marine monitoring applications
Edel O'Connor, *MESTECH*
Alan Smeaton, CLARITY
Noel O'Connor, *CLARITY*

Feature extraction for underwater visual SLAM
Josep Aulinas, *Institute of Informatics and Applications*
Marc Carreras, *Institute of Informatics and Applications*
Xavier Lladó, *Institute of Informatics and Applications*
Joaquim Salvi, *Institute of Informatics and Applications*
Yvan Petillot, *Ocean Systems Lab/School of EPS*
Rafael Garcia, *Institute of Informatics and Applications*
Ricard Prados, *Institute of Informatics and Applications*

SOFI: a 3D simulator for the generation of underwater optical images
Anne-Gaëlle Allais, IFREMER
Matthieu Boffety, *Institut Fresnel, CNRS, Aix-Marseille Université,Ecole Centrale Marseille*
Marie-Edith Bouhier, *IFREMER*
Malik Chami, *Observatoire Oceanologique de Villefranche, Laboratoire d'Oceanographie de Villefranche, Universite Pierre et Marie Curie, CNRS, Institut Universitaire de France*
Kerstin Ebert, *Observatoire Oceanologique de Villefranche, Laboratoire d'Oceanographie de Villefranche, CNRS*
Toussaint Edmond, *IFREMER*
Frédéric Galland, *Institut Fresnel, CNRS, Aix-Marseille Université,Ecole Centrale Marseille*
Nicolas Maciol, *Société PROLEXIA*
Stéphane Nicolas, *Société PROLEXIA*

Vehicle Navigation I

5-Room 4B (Bahía Hall)
Wednesday, June 8 (9:00AM - 11:00AM)
Chair: Francisco J. Velasco, *University of Cantabria*

Achieving high navigation accuracy using inertial navigation systems in autonomous underwater vehicles
Robert Panish, *Bluefin Robotics*
Mikell Taylor, *Bluefin Robotics*

Path planning with homotopy class constraints on bathymetric maps
Emili Hernández, *University of Girona*
Marc Carreras, *University of Girona*
Enric Galceran, *University of Girona*
Pere Ridao, *University of Girona*

Study on presentation of navigational information for support of safety of a ship by GIS
Shigeaki Shiotani, *Kobe University*
Shinchiku Ryu, *Kobe University*
Hidenari Makino, *Kobe University*
Nobukazu Wakabayshi, *Kobe University*
Yoichi Shimada, *Kobe University*

Multi-resolution path planning system for marine surface vehicle considering ocean environmental loads
TaeHwan Lee, *KAIST*
Hyun Chung, *KAIST*
Hyun Myung, *KAIST*

Single and multiple glider path planning using an optimization-based approach
Enrique Fernández-Perdomo, *Universidad de Las Palmas de Gran Canaria*
Josep Isern-González, *Universidad de Las Palmas de Gran Canaria*
Daniel Hernández-Sosa, *Universidad de Las Palmas de Gran Canaria*
Jorge Cabrera-Gámez, *Universidad de Las Palmas de Gran Canaria*
Antonio Domínguez-Brito, *Universidad de Las Palmas de Gran Canaria*
Víctor Prieto-Marañón, *Universidad de Las Palmas de Gran Canaria*

The underwater GPS problem
Gunnar Taraldsen, *SINTEF Information and Communication Technology*
Tor Arne Reinen, *SINTEF Information and Communication Technology*
Tone Berg, *SINTEF Information and Communication Technology*

Sonar imaging, Syntetic Aperture, Classification and Pattern Recognition I

6-Room 5 (Bahía Hall)
Wednesday, June 8 (9:00AM - 11:00AM)
Co-Chairs: Olga Lopera, *Royal Military Academy*
Marek Moszynski, *Gdansk University of Technology*

First ocean survey with synthetic aperture sonar on neutral trim tow-fish
Takao Sawa, *JAMSTEC*
Takashi Kasaya, *JAMSTEC*
Hiroshi Yakihara, *KAGOSHIMA Univ.*

3D reconstruction of underwater scenes using DIDSON acoustic sonar image sequences through evolutionary algorithms
Naouraz Brahim, *Université Laval, Télécom Bretagne*
Didier Guériot, *Télécom Bretagne*
Sylvie Daniel, *Université Laval*

A novel approach to the focussing evaluation of sonar images
Krzysztof Czarnecki, *Gdansk University of Technology*
Marek Moszynski, *Gdansk University of Technology*
Miroslaw Rojewski, *Gdansk University of Technology*

Sidescan sonar imagery processing software for underwater research
Jose Zamanillo, *University of Cantabria*
Isabel Zamanillo, *University of Cantabria*
Francisco Velasco, *University of Cantabria*
Elias Revestido, *University of Cantabria*

Marine Renewable Energy - 5 MAREN

1-Assembly Room
Wednesday, June 8 (11:30AM - 1:30PM)
Chair: Mario Canteli, *University of Cantabria*

Modelling Wave Energy Resources for UK?s Southwest Coast
Ana Rute Bento, *Technical University of Lisbon*
Paulo Martinho, *Technical University of Lisbon*
Carlos Soares, *Technical University of Lisbon*

WET: A Wave Energy Toolbox for oscillating-body converters
Mario Canteli, *University of Cantabria*
Severiano Pérez Remesal, *University of Cantabria*
Inmaculada Fernández Diego, *University of Cantabria*
Fernando Delgado San Román, *University of Cantabria*
Victor Manuel Moreno Saiz, *University of Cantabria*
Alberto Pigazo López, *University of Cantabria*
Paloma Roa Tortosa, *Iberdrola Renovables S.A.*
Alberto Arroyo Gutiérrez, *University of Cantabria*
Jorge Cardenal, *Iberdrola Renovables S.A.*
Ahmed Zobaa, *Brunel University*
Delfin Silio, *University of Cantabria*

Downscaling wave energy resources to coastal areas
Paula Camus, *IH Cantabria, Universidad de Cantabria*
Antonio Tomas, *IH Cantabria, Universidad de Cantabria*
Cesar Vidal, *IH Cantabria, Universidad de Cantabria*
Fernando J. Mendez, *IH Cantabria, Universidad de Cantabria*
Raul Medina, *IH Cantabria, Universidad de Cantabria*
Inigo J. Losada, *IH Cantabria, Universidad de Cantabria*

Directional calibrated wind and wave reanalysis databases using Instrumental data for optimal design of off-shore wind farms
Antonio Espejo, *IH Cantabria, Universidad de Cantabria*
Roberto Minguez, *IH Cantabria, Universidad de Cantabria*

Melisa Menéndez *IH Cantabria, Universidad de Cantabria*
Fernando Méndez, *IH Cantabria, Universidad de Cantabria*
Iñigo Losada, *IH Cantabria, Universidad de Cantabria*

A methodology to evaluate regional-scale offshore wind energy resources.
Melisa Menendez, *IH Cantabria, Universidad de Cantabria*
Antonio Tomás, *IH Cantabria, Universidad de Cantabria*
Paula Camus, *IH Cantabria, Universidad de Cantabria*
Markel García-Díez, *Santander Meteorology Group, Universidad de Cantabria*
Jesus Fernández, *Santander Meteorology Group, Universidad de Cantabria*
Lluis Fita, *Santander Meteorology Group, Universidad de Cantabria*
Fernando Méndez, *IH Cantabria, Universidad de Cantabria*
Iñigo Losada, *IH Cantabria, Universidad de Cantabria*

Coastal Hydrodynamics

2-Room 1 (Bahía Hall)
Wednesday, June 8 (11:30AM - 1:30PM)
Chair: Igor Shugan, *National Cheng Kung University*

Field studies on the hydrodynamic behavior of brine discharges
Francisco Vila, *CEDEX-CEPYC*
Macarena Rodrigo, *CEDEX-CEPYC*
Antonio Ruiz-Mateo, *CEDEX-CEPYC*
Ana Alvarez, *CEDEX-CEPYC*
Ana Lloret, *CEDEX-CEPYC*
Manuel Antequera, *CEDEX-CEPYC*

A lagrangian transport model applied to two different brackish systems: the Baltic Sea and the Guadalquivir River
Manuel Toscano-Jiménez, *University of Seville*
Jose María Abril, *University of Seville*

Surface waves excitation by internal wave
Igor Shugan, *National Cheng Kung University*
Hwung - Hweng Hwung, *National Cheng Kung University*
Ray-Yeng Yang, *National Cheng Kung University*

Oil spill trajectory forecasting and backtracking using surface currents from high-frecuency (HF) radar technology
Ana Abascal, *IH Cantabria, Universidad de Cantabria*
Sonia Castanedo, *IH Cantabria, Universidad de Cantabria*
Vicente Fernández, *Qualitas Remos S.A.*
María Ferrer, *Qualitas Remos S.A.*
Raúl Medina, *IH Cantabria, Universidad de Cantabria*

MEDVSA: a methodology for the design of brine discharges into seawater. Brine discharge modeling
Pilar Palomar, *IH Cantabria, Universidad de Cantabria*
Javier L. Lara, *IH Cantabria, Universidad de Cantabria*
Iñigo Losada, *IH Cantabria, Universidad de Cantabria*
Macarena Rodrigo, *CEDEX*

Coastal Engineering and Estuarine Systems

3-Room 2A (Bahía Hall)
Wednesday, June 8 (11:30AM - 1:30PM)
Co-Chairs: Eoghan Long, *Hydraulics and Maritime Research Centre, University College Cork*
Michael O´Shea, University College Cork.

Monitoring the morphodynamic behaviour of a breached barrier beach Ssystem and its impacts on an estuarine system
Michael O'Shea, *UCC*
Jimmy Murphy, *UCC*
Patricia Sala, *UCC*

Innovative measures to mitigate overtopping of coastal structures
Eoghan Long, *Hydraulics and Maritime Research Centre, University College Cork*
Jimmy Murphy, *Hydraulics and Maritime Research Centre, University College Cork*

New vertical floating barrier to protect against sea waves and ship waves
Sopelana Javier, Aquática Ingenieria Civil
Lopez Fernando, *Aquática Ingenieria Civil*
Rocha M Jesus, *AISTER*
Lomonaco Pedro, *IH Cantabria, Universidad de Cantabria*
Peña Enrique, *GEAMA*
Sanchez Felix, *CITTEC*
Rodriguez Juan Antonio, *Portos de Galicia*
Urquijo Pedro, *Portos de Galicia*

Measurements of bed level oscillation cycles in the surf zone of Sandy Beach
Gael Arnaud, *SIAME/LaSAGeC*
Mathieu Mory, *SIAME/LaSAGeC*
Denis Morichon, *SIAME/LaSAGeC*
Stéphane Abadie, *SIAME/LaSAGeC*

Failure probability of marine steel sheet pile structures with special consideration of the corrosion impact
Paulo Osório, *University of Luxembourg*
Christoph Odenbreit, *University of Luxembourg*
Stefan Van Baars, *University of Luxembourg*
Ton Vrouwenvelder, *Delft Institute of Technology*

Optical Sensors, Marine Optics Technology and Instrumentation

4-Room 3B (Bahía Hall)
Wednesday, June 8 (11:30AM - 1:30PM)
Chair: Davide Brizzolara, *University of Genoa*

In situ raman probe for quantitative observation of marine sediment pore water geochemistry in the deep ocean
Xin Zhang, *Key Lab of Marine Geology and Environment, Institute of Oceanology, Chinese Academy of Sciences*
William Kirkwood, *Monterey Bay Aquarium Res. Inst.*
Keith Hester, *Conoco Phillips*
Peter Walz, *Monterey Bay Aquarium Res. Inst.*
William Ussler, *Monterey Bay Aquarium Res. Inst.*
Edward Peltzer, *Monterey Bay Aquarium Res. Inst.*
Peter Brewer, *Monterey Bay Aquarium Res. Inst.*
Farley Shane, *MBARI*

The study of the underwater camera model
Sojiro Ishibashi, *JAMSTEC*

The sub sea holodeck: a 14-megapixel immersive virtual environment for studying cephalopod camouflage behavior
Jules Jaffe, *Marine Physical Lab*
Ben Laxton, *Marine Physical Lab*
Sarah Zylinski, *Duke University*

A vision-based system for on-board identification and estimation of discarded biomass: a tool for contributing to marine resources sustainability
Luis Antelo, *Instituto de Investigaciones Marinas - CSIC*
Tatiana Ordoñez, *Instituto de Investigaciones Marinas - CSIC*
Iñaki Miniño, *Marexi Marine Technology Co.*
Joaquín Gracia, *Marexi Marine Technology Co.*
Emilio Ribes, *Instituto Tecnológico de Óptica, Color e Imagen - AIDO*
Juan Hervas, *Instituto Tecnológico de Óptica, Color e Imagen - AIDO*
Santiago Simón, *Instituto Tecnológico de Óptica, Color e Imagen - AIDO*
Antonio Alonso, *Instituto de Investigaciones Marinas - CSIC*

Optical wireless underwater communication for AUVs: Preliminary simulations and experimental results
Davide Brizzolara, *University of Genoa*
Davide Anguita, *University of Genoa*
Giancarlo Parodi, *University of Genoa*
Qilong Hu, *University of Genoa*

Detection of Interest Points in Turbid Underwater Images
Rafael García, *Universitat de Girona*
Nuno Gracias, *Universitat de Girona*

Vehicle Navigation II

5-Room 4B (Bahía Hall)
Wednesday, June 8 (11:30AM - 1:30PM)
Co-Chairs: Francisco J. Velasco, *Universidad de Cantabria*
Daniel Hernández-Sosa, *Universidad de Las Palmas de Gran Canaria*

A biologically inspired neural network for navigation with obstacle Avoidance in autonomous underwater and surface vehicles
Antonio González, *Universidad Politécnica de Cartagena*
Francisco Cordova, *Universidad Politécnica de Cartagena*
Javier Cervera, *Universidad Politécnica de Cartagena*

Ship maneuvering planning using swarm intelligence
Jose Escario, *Universidad Complutense de Madrid*
Juan Castellanos, *Universidad Complutense de Madrid*

Deep-sea seafloor shape reconstruction from side-scan sonar data for AUV navigation
Philipp Woock, *Fraunhofer Institute of Optronics, System Technologies and Image Exploitation IOSB*

Autonomous mine hunting mission for the Charlie USV
Gabriele Bruzzone, *CNR - ISSIA*
Giorgio Bruzzone, *CNR - ISSIA*
Marco Bibuli, *CNR - ISSIA*
Massimo Caccia, *CNR - ISSIA*

SLAM with adaptive noise tuning for the marine environment
Akshay Rao, *Nanyang Technological University*
John Mullane, *Nanyang Technological University*
Wijerupage Wijesoma, *Nanyang Technological University*
Nicholas Patrikalakis, *Massachusetts Institute of Technology*

Long Baseline Beacon Position Estimation
Marcelo Nogueira, *Faculdade de Engenharia da Universidade do Porto*

Acoustic Telemetry and Communication I

6-Room 5 (Bahía Hall)
Wednesday, June 8 (11:30AM - 1:30PM)
Chair: Antonio Silva, *University of Algarve*

An energy-efficient routing protocol for UWSNs using physical distance and residual energy
Wahid, *Kyungpook National University*
Sungwon Lee, *MONET*
DongKyun Kim, *MONET*

Adaptive frequency-domain equalization for underwater acoustic communications
Abdelhakim Yuocef, *Telecom Bretagne*
Christophe Laot, *Telecom Bretagne*
Karine Amis Cavalec, *Telecom Bretagne*

Mobile multi-input multi-output underwater acoustic communications
Kexin Zhao, *University of Florida*
Jun Ling, *University of Florida*
Jian Li, *University of Florida*

Characterization of underwater acoustic channel using slowly moving transmitter in shallow water
Sea-Moon Kim, *MOERI/KORDI*
Sung-Hoon Byun, *MOERI/KORDI*
Seung-Geun Kim, *MOERI/KORDI*
Yong-Kon Lim, *MOERI/KORDI*

Statistical characteristics of digital hydro-acoustic signal with Sweep-spread carrier in the receiver predetection point
Konstantin Kebkal, *EvoLogics GmbH*
Rudolf Bannasch, *EvoLogics GmbH*
Oleksiy Kebkal, *EvoLogics GmbH*

D-MAC: Media access control architecture for underwater acoustic sensor networks
Oleksiy Kebkal, *EvoLogics GmbH*
Maxim Komar, *EvoLogics GmbH*
Konstantin Kebkal, *EvoLogics GmbH*
Rudolf Bannasch, *EvoLogics GmbH*

Sonar Imaging, Synthetic Aperture, Classificarion and Pattern Recognition II

7-Room 3A (Bahía Hall)
Wednesday, June 8 (11:30AM - 1:30PM)
Chair: Jose M. Zamanillo, *Universidad de Cantabria*

A fast physics-based, environmentally adaptive underwater object detection algorithm
David Williams, *NATO Undersea Research Centre*
Johannes Groen, *NATO Undersea Research Centre*

Combining despeckling and segmentation techniques to facilitate detection and identification of seafloor targets
Olga Lopera, *Royal Military Academy*
Yves Dupont, *Ministry of Defense*

Quality assessment of synthetic aperture sonar images based on a single ping reference
Stefan Leier, *Technische Universität Darmstadt*
Abdelhak Zoubir, *Technische Universität Darmstadt*

Marine Renewable Energy - 6

1-Assembly Room
Wednesday, June 8 (3:00PM - 4:30PM)
Co-Chairs: Hassan Mahfuz Mahfuz, *Florida Atlantic University*
Andres Osorio, *Universidad Nacional de Colombia - Sede Medellín*

Life prediction of composite turbine blades under random ocean current and velocity shear
Hassan Mahfuz Mahfuz, *Florida Atlantic University*
Mohammad Akram, *University of Illinois at Urbana Champaign*

Assessing the impact of ADCP resolution and sampling rate on tidal current energy project economics
Tim Stiven, *Ocean Power Technologies Ltd.*
Scott Couch, *University of Edinburgh*
Abhinaya Iyer, *University of Edinburgh*

Dynamic behavior of a second generation hydrokinetic converter
Amable López Piñeiro, *Universidad Politécnica de Madrid*
José Andrés Somolinos, *Universidad Politécnica de Madrid*
Luis Ramón Núñez Rivas, *Universidad Politécnica de Madrid*
Jesús Valle Cabezas, *Universidad Politécnica de Madrid*

European Projects on Underwater Networks - 1

2-Room 1 (Bahía Hall)
Wednesday, June 8 (3:00PM - 4:30PM)
Chair: Henry Dol, TNO

AUVs as mobile nodes in acoustic communication networks: field experience at the UAN10 experiment
Andrea Caiti, *University of Pisa*
Vincenzo Calabro, *University of Pisa*
Gianluca Dini, *University of Pisa*
Angelica Lo Duca, *University of Pisa*
Andrea Munafo', *University of Pisa*

A comperative view of routing protocols for underwater sensor networks
Yonca Bayrakdar, *Ege University*
Nirvana Meratnia, *Twente University Pervasive Systems Group*
Aylin Kantarci, *Ege University*

RACUN (Robust Acoustic Communications in Underwater Networks): An Overview
Jörg Kalwa, *ATLAS ELEKTRONIK GmbH*

Underwater sensing and communication platform
Kui Zhang, *University of Twente, Pervasive Systems*
Wouter van Kleunen, *University of Twente, Pervasive Systems*
Paul Havinga, *University of Twente, Pervasive Systems*
Nirvana Meratnia, *University of Twente, Pervasive Systems*
Emiel Tijs, *Microflown Technologies*

Implementation of an underwater acoustic modem with network capability
Thor Husoy, *Kongsberg Maritime*
Magne Pettersen, *Kongsberg Maritime*
Bernt Nilsson, *FOI Swedish Defence Research Agency*
Tommy Öberg, *FOI Swedish Defence Research Agency*
Narada Warakagoda, *Sintef ICT*
Arne Lie, *Sintef ICT*

Oceanography: Physical, Chemical and Biological

3-Room 2A (Bahía Hall)
Wednesday, June 8 (3:00PM - 4:30PM)
Co-Chairs: Daniel Hayes, *Oceanography Center, University of Cyprus*
Giorgio Caramanna, *The University of Nottingham*

Preliminary results of project MAST/AM: advanced tracking and telemetry methodologies to study marine animals
Paulo Oliveira, *ISR-501507930*
Carlos Silvestre, *IST/ISR*
Marco Morgado, *IST/ISR*
Karim Erzini, *Universidade do Algarve*
Luis Bentes, *Universidade do Algarve*
André Afonso, *Universidade do Algarve*
Fábio Hazin, *Universidade Federal Rural de Pernambuco*
Barbara Block, *Stanford University*

Glider transects in the Levantine Sea: characteristics of the warm core Cyprus Eddy
Daniel Hayes, *Oceanography Center, University of Cyprus*
Pierre Testor, *LOCEAN-IPSL/CNRS, Universite Pierre et Marie Curie*
George Zodiatis, *Oceanography Center, University of Cyprus*

Gregory Konnaris, *Oceanography Center, University of Cyprus*
Angelos Hannides, *Oceanography Center, University of Cyprus*
Dmitry Solovyov, *Oceanography Center, University of Cyprus*

Eight years of research on a marine natural analogue for sub-seabed CO2 storage seepage
Giorgio Caramanna, *The University of Nottingham*
Nunzia Voltattorni, *Istituto Nazionale di Geofisica e Vulcanologia*
Mercedes Maroto-Valer, *The University of Nottingham*

Variability of phytoplankton communities in central east atlantic (ESTOC)
Daura Vega Moreno, *Instituto Canario de Ciencias Marinas*
Carolina Llerandi, *Instituto Canario de Ciencias Marinas*
Andrés Cianca, *Instituto Canario de Ciencias Marinas*
Laura Cardona, *Instituto Canario de Ciencias Marinas*
Marimar Villagarcía, *Instituto Canario de Ciencias Marinas*
Rosa Santana, *Instituto Canario de Ciencias Marinas*
María José Rueda, *Instituto Canario de Ciencias Marinas*
Octavio Llinás, *Plataforma Oceánica de Canarias*

Compact archival tags for the migratory studies of marine species
Prajas John, *Cochin University of Science and Technology*
Adrine Correya, *Cochin University of Science and Technology*
Supriya H, *Cochin University of Science and Technology*
P. R. Pillai, *Cochin University of Science and Technology*

3D Imaging and Holography

4-Room 3B (Bahía Hall)
Wednesday, June 8 (3:00PM - 4:30PM)
Chair: Luis Antelo, I*nstituto de Investigaciones Marinas - CSIC*

First sea trials of a laser aided three dimensional underwater image mosaicing technique
Lorenzo Brignone, *IFREMER*
Matteo Munaro, *IFREMER*
Anne-Gaëlle Allais, *IFREMER*
Jan Opderbecke, *IFREMER*

Using in-situ holographic microscopy for ocean particle characterization
James Sullivan, *WET Labs, Inc.*
Joseph Katz, *Johns Hopkins University*

Siddharth Talapatra, Johns Hopkins University
Michael Twardowski, *WET Labs, Inc.*
Jiarong Hong, *Johns Hopkins University*
Percy Donaghay, *University of Rhode Island*

Bundle adjustment in large-scale 3D reconstructions based on underwater robotic surveys
Chris Beall, *Georgia Tech*
Frank Dellaert, *Georgia Tech*
Ian Mahon, *Australian Centre for Field Robotics*
Stefan Williams, *Australian Centre for Field Robotics*

Surface reconstruction methods for the recovery of 3D models from underwater interest areas
Ricard Campos, *University of Girona*
Rafael García, *University of Girona*
Tudor Nicosevici, *University of Girona*

Evaluation the plankton particle coordinates from digital holographic video
Victor Dyomin, *Tomsk State University*
Alexey Olshukov, *Tomsk State University*
Denis Kamenev, *Tomsk State University*

Autonomous Underwater Vehicles I

5-Room 4B (Bahía Hall)
Wednesday, June 8 (3:00PM - 4:30PM)
Chair: Christian Degel, *Fraunhofer IBMT*

Automatic reconfiguration and control of the MARES AUV in the presence of a thruster fault
Bruno Ferreira, *INESC Porto / University of Porto*
Anibal Matos, *INESC Porto / University of Porto*
Nuno Cruz, *INESC Porto / University of Porto*

On the effects of node mobility on energy efficiency and delay sensitive applications in underwater sensor network
El Hadi Cherkaoui, *Istituto Italiano di Tecnologia*
Laura Toni, *Istituto Italiano di Tecnologia*
Lorenzo Rossi, *Istituto Italiano di Tecnologia*
Jean-Guy Fontaine, *Istituto Italiano di Tecnologia*
Nazim Agoulmine, *LRSM IBISC University of Evry Val d'Essonne*

REP10 AUV: Shallow water operations with heterogeneous autonomous vehicles
Ricardo Martins, *FEUP*
João Sousa, *FEUP*
Carlos Afonso, *Citan Portuguese Navy*

Leader-follower control of underwater vehicles over acoustic communications
Pedro Ribeiro, *Faculdade de Engenharia da Universidade do Porto*
João Sousa, *Faculdade de Engenharia da Universidade do Porto*

Docking problem and guidance laws considering drift for an underactuated AUV
Jin-Yeong Park, *Maritime & Ocean Engineering Research Institute / KORDI*
Bong-Huan Jun, *Maritime & Ocean Engineering Research Institute / KORDI*
Pan-Mook Lee, *Maritime & Ocean Engineering Research Institute / KORDI*
Jun-Ho Oh, *Humanoid Robot Research Center/KAIST*
Yong-Kon Lim, *Maritime & Ocean Engineering Research Institute / KORDI*

Obstacle avoidance using echo sounder sonar
Pedro Ribeiro, *Faculdade de Engenharia da Universidade do Porto*
Marcelo Nogueira, *Faculdade de Engenharia da Universidade do Porto*
Ricardo Gomes, *Faculdade de Engenharia da Universidade do Porto*
Ricardo Gomes, *Faculdade de Engenharia da Universidade do Porto*
Joana Cardoso, *Faculdade de Engenharia da Universidade do Porto*
Pedro Teixeira, *Faculdade de Engenharia da Universidade do Porto*
Sujit B, *Faculdade de Engenharia da Universidade do Porto*
João Sousa, *Faculdade de Engenharia da Universidade do Porto*

Acoustic Telemetry and Communication II

6-Room 5 (Bahía Hall)
Wednesday, June 8 (3:00PM - 4:30PM)
Co-Chairs: Roberto Petroccia, *Università di Roma "La Sapienza"*
Qinqing Zhang, *Johns Hopkins University, Applied Physics Lab*

DSSS: A TDMA-based MAC protocol with dynamic slot scheduling strategy for underwater acoustic sensor networks
Yen-Da Chen, *Department of Computer Information and Network Engineering, Lunghwa University of Science and Technology*
Chan-Ying Lien, *Department of Computer Science and Information Engineering Tamkang University*

Sun-Wei Chuang, *Department of Computer Science and Information Engineering Tamkang University*
Kuei-Ping Shih, *Department of Computer Science and Information Engineering Tamkang University*

Probe timing optimization for time-reversal underwater communications
Antonio Silva, *University of Algarve*
Sergio Jesús, *University of Algarve*
João Gomes, *Instituto Superior Técnico*

From underwater simulation to at-sea testing using the NS-2 network simulator
Roberto Petroccia, *Università di Roma "La Sapienza"*
Chiara Petrioli, *Università di Roma "La Sapienza"*
Lee Freitag, *Woods Hole Oceanographic Institution*
Jon Shusta, *Woods Hole Oceanographic Institution*

Adaptive power control for underwater acoustic communications
Parastoo Qarabaqi, *Northeastern University*
Milica Stojanovic, *Northeastern University*

Performance of hydro-acoustic data transmission in horizontal channels using sweep-spread signaling and turbocoding
Veronika Kebkal, EvoLogics GmbH
Rudolf Bannasch, *EvoLogics GmbH*
Konstantin Kebkal, *EvoLogics GmbH*

Marine Renewable Energy - 7

1-Assembly Room
Wednesday, June 8 (5:00PM - 6:30PM)
Co-Chairs: Reza Chini, *Memorial University of Newfoundland*
Amadou Thiam, *Boston University*

Blades optimization for an ocean current horizontal axis turbine using response surface methodology
Reza Chini, *Memorial University of Newfoundland*
Martin Ordonez, *Simon Fraser University*
Ralf Bachmayer, *Memorial University of Newfoundland*

Numerical simulation of a submerged wave energy converter under irregular wave conditions
Victoria Gómez, *IH Cantabria, Universidad de Cantabria*
Raúl Guanche, *IH Cantabria, Universidad de Cantabria*
Cesar Vidal, *IH Cantabria, Universidad de Cantabria*
Irene Eguinoa, *MTorres*

Upper limits to the power that can be extracted from ocean waves by Pelamis-type energy devices
Amadou Thiam, *Boston University*
Allan Pierce, *Boston University*

European Projects on Underwater Networks - 2

2-Room 1 (Bahía Hall)
Wednesday, June 8 (5:00PM - 6:30PM)
Co-Chairs: Gianluca Antonelli, *ISME - University of Cassino*
Andrea CAITI, *Dep. of Energy and Systems Engineering*

Underwater acoustic communication research at TNO - past and present
Henry Dol, *TNO*
Paul van Walree, *FFI*

UAN - Underwater Acoustic Network
Sergio Jesús, *University of Algarve*
Andrea Caiti, I*SME, Universita di Genova*
Paulo Felisberto, *Universidade do Algarve*
Thor Husoy, *Kongsberg Maritime*
Ilkka Karasalo, *FOI*
Riccardo Massimelli, *Selex Sistemi Integrati SPA*
Tor Reinen, *Stiftelsen Sintef*
Antonio Silva, *ISR - University of Algarve*

The CO3AUVs (Cooperative Cognitive Control for Autonomous Underwater Vehicles) Project: overview and current progresses
Gianluca Antonelli, *ISME - University of Cassino*
Andrea Caiti, *ISME - University of Pisa*
Giuseppe Casalino, *ISME - University of Genova*
Giovanni Indiveri, I*SME - University of Salento*
Andreas Birk, *Jacobs University*
Antonio Pascoal, *Instituto Superior Tecnico*
Andrea Caffaz, Graal Tech

Underwater communications for moving source using geometry-adapted time reversal and DFE: UAN10 data
Usa Vilaipornsawai, *University of Algarve*
António Silva, *University of Algarve*
Sérgio Jesús, *University of Algarve*

On the impact of the environment on MAC and routing in shallow water scenarios
Saiful Azad, *University of Padova*
Paolo Casari, *Department of Information Engineering, University of Padova*
Chiara Petrioli, *University of Rome, "La Sapienza"*
Roberto Petroccia, *Department of Computer Science, University of Rome*
Michele Zorzi, *Department of Information Engineering, University of Padova*

Marine Law, Management and Safety

3-Room 2A (Bahía Hall)
Wednesday, June 8 (5:00PM - 6:30PM)
Chair: Carlos Perez-Labajos, *University of Cantabria*

Option and Quasyoption value: an approach to deal with climate change effects in coastal areas
Pedro Díaz Simal, *Universidad de Cantabria*
Saul Torres Ortega, *Universidad de Cantabria*

Promoting an optimal networking of fishing actors to organize a responsible, optimal and sustainable exploitation of marine resources: the FAROS Initiative
Luis Antelo, *Instituto de Investigaciones Marinas - CSIC*
Tatiana Ordoñez, *Instituto de Investigaciones Marinas - CSIC*
Amaya Franco-Uría, I*nstituto de Investigaciones Marinas - CSIC*
José Luis Gómez-Gesteira, *Centro Tecnológico del Mar - Fundación CETMAR*
María Luisa Fernández-Cañamero, *Centro Tecnológico del Mar - Fundación CETMAR*
Nélida Pérez, *Centro Oceanográfico de Vigo - Instituto Español de Oceanografía*
José Castro, *Centro Oceanográfico de Vigo - Instituto Español de Oceanografía*
José María Bellido, *Centro Oceanográfico de Murcia - Instituto Español de Oceanografía*
Francisco Landeira, *Centro de Supercomputación de Galicia - CESGA*
Antonio Alonso, *Instituto de Investigaciones Marinas - CSIC*

Flooding accidents in Spanish fishing boats
Carlos Perez-Labajos, *University of Cantabria*
Beatriz Blanco, *University of Cantabria*
Lidia Sánchez,*University of Cantabria*
Rafael Rodríguez, *University of Cantabria*
Andres R. Ortega, *University of Cantabria*

Oceanographic Instrumentation, Sensors and Current Measurement Technology I

4-Room 3B (Bahía Hall)
Wednesday, June 8 (5:00PM - 6:30PM)
Chair: Albert Williams, *Woods Hole Oceanographic Institution*

Calibration process of geophones
Xavier Roset, *Polytechnic University of Catalonia*
Albert Garcia, *Polytechnic University of Catalonia*
Antoni Mànuel, *Polytechnic University of Catalonia*
Julian González, *UPC*

Thirteen years of drifting data. Surface currents in the Canary region
Laura Cardona, *Canary Institute of Marine Science (ICCM)*
Marimar Villagarcía, *Canary Institute of Marine Science (ICCM)*
Javier Pérez-Marrero, *Canary Institute of Marine Science (ICCM)*
Rosa Santana, *University of Las Palmas de Gran Canaria*
Andres Cianca, *Canary Institute of Marine Sciences*
Carlos Barrera, *Oceanic Platform of the Canary Islands (PLOCAN)*
Carolina García, *Canary Institute of Marine Sciences*
Daura Vega-Moreno, University of Las Palmas de Gran Canaria
Maria José Rueda, Canary Institute of Marine Sciences
Octavio Llinás, *Oceanic Platform of the Canary Islands (PLOCAN)*

Flux measurements from an ice tethered profiler: first look
Fredrik Thwaites, *Woods Hole Oceanographic Institution*
Richard Krishfield, *Woods Hole Oceanographic Institution*
Mary-Louise Timmermanns, *Yale University*
John Toole, *Woods Hole Oceanographic Institution*
Albert Williams, *Woods Hole Oceanographic Institution*

A system to monitoring marine environment based on wireless sensor network
Cristina Perez, *Technical University of Cartagena*
Roque Sanchez, *Technical University of Cartagena*
Fulgencio Valles, *Technical University of Cartagena*
Juan Lopez, *Technical University of Cartagena*
Andres Garcia, *Technical University of Cartagena*

Autonomous Underwater Vehicles II

5-Room 4B (Bahía Hall)
Wednesday, June 8 (5:00PM - 6:30PM)
Chair: Jin-Yeong Park, *Maritime & Ocean Engineering Research Institute / KORDI*

Control network architecture for an autonomous underwater vehicle. Divisamos project
Ricardo Pizá, *Universidad Politecnica de Valencia*
Julián Salt, *Universidad Politécnica de Valencia*
Angel Cuenca, *Universidad Politecnica de Valencia*
Vicente Casanova, *Universidad Politecnica de Valencia*

Estimation of different acoustic signals usage efficiency for navigation systems of underwater autonomous vehicles
Ivan Karabanov, *Pacific National University*
Igor Budinskiy, *Institute of Marine Technology Problems FEB RAS*
Mihail Linnik, *Pacific National University*
Andrei Mironov, *Pacific National University*

Cooperative distributed behaviours of an AUV network for asset protection with communication constraints
Andrea Caiti, *University of Pisa*
Andrea Munafo', *University of Pisa*

On-board Underwater glider Real-time acoustic environment sensing
Alain Maguer, *NATO Undersea Research Centre*
Alberto Dassatti, *NATO Undersea Research Centre*
Piero Guerrini, *NATO Undersea Research Centre*
Mike Van Der Schaar, *Universitat Politècnica de Cataluña*
Michel Andre, *Universitat Politècnica de Cataluña*

Concept and demonstrator for modular pressure tolerant autonomous underwater vehicle
Christian Degel, *Fraunhofer IBMT*
Franz Josef Becker, *Fraunhofer IBMT*
Martin Heinz, *Fraunhofer IBMT*
Marc Schmieger, *Fraunhofer IBMT*
Manfred Moses, *Fraunhofer IBMT*
Matthias Molitor, *Fraunhofer IBMT*
Holger Hewener, *Fraunhofer IBMT*
Daniel Schmitt, *Fraunhofer IBMT*
Peter Weber, *Fraunhofer IBMT*
Robert Lemor, *Fraunhofer IBMT*

Acoustic Telemetry and Communication III

6-Room 5 (Bahía Hall)
Wednesday, June 8 (5:00PM - 6:30PM)
Chair: Konstantin Kebkal, *EvoLogics GmbH*

Underwater MAC protocol performance evaluation: From simulation to at-sea testing
Roberto Petroccia, *Università di Roma "La Sapienza"*
Chiara Petrioli, *Università di Roma "La Sapienza"*
John Potter, *NATO Undersea Research Centre*

Underwater acoustic communication channel characterization in the presence of bubbles and rough sea surfaces
Allan Boyles, *Johns Hopkins University, Applied Physics Lab*
Allan Rosenberg, *Johns Hopkins University, Applied Physics Lab*
Qinqing Zhang, *Johns Hopkins University, Applied Physics Lab*

Channel prediction for adaptive modulation in underwater acoustic communications
Andreja Radosevic, *University of California - San Diego*
John Proakis, *University of California, San Diego*
Tolga Duman, *School of Electrical, Computer and Energy Engineering, Arizona State University*
Milica Stojanovic, *Northeastern University*

Implementation of a micro-modem for underwater wireless sensor networks
Jun-Ho Jeon, *Gangneung-Wonju National University*
Tae-Hee Won, *Gangneung-Wonju National University*
Hunchul Cho, *Gangneung-Wonju National University*
Sung-Joon Park, *Gangneung-Wonju National University*

Contention free MAC protocol based on priority in underwater acoustic communication
Hui-Jin Cho, *Kookmin Univ.*
Jung-Il Namgung, *Kookmin Univ.*
Nam-Yeol Yun, *Kookmin Univ.*
Soo-Hyun Park, *Kookmin Univ.*
Chang-Hwa Kim, *Gangneung-Wonju National University*
Youngsun Ryuh, *Korea Institute of Industrial Technology*

TECHNICAL PROGRAM

Thursday, June 9

Marine Communications and Technology I

1-Assembly Room
Thursday, June 9 (9:00AM - 11:00AM)
Co-Chairs: Zheng Peng, *University of Connecticut*
Christian Berger, *Carnegie Mellon University*

Study of pilot designs for Cyclic-Prefix OFDM on time-varying and sparse underwater acoustic channels
Christian Berger, *Carnegie Mellon University*
Joao Gomes, *Instituto Superior Tecnico*
José Moura, *Carnegie Mellon University*

Sea-trial results for Cyclic-Prefix OFDM with long symbol duration
Christian Berger, *Carnegie Mellon University*
Joao Gomes, *Instituto Superior Tecnico*
José Moura, *Carnegie Mellon University*

Design and implementation of a ð/4-DQPSK transmitter for maritime VHF digital communications
Kim Seung-Geun, *MOERI/KORDI*
Sung Soyoung, *MOERI/KORDI*
Yun Changho, *MOERI/KORDI*
Lim Young-Kon, *MOERI/KORDI*

Aqua-TUNE: A testbed for underwater networks
Zheng Peng, *University of Connecticut*
Son Le, *University of Connecticut*
Haining Mo, *University of Connecticut*
Michael Zuba, *University of Connecticut*
Yibo Zhu, *University of Connecticut*
Lina Pu, *University of Connecticut*
Jun Liu, *University of Connecticut*
Jun-Hong Cui, *University of Connecticut*

Proposal of a medium frequency offshore grid for identification of vessels sailing in high density maritime spanish routes
Alfonso López, *Universidad Católica de Ávila*
Miguel Ángel Gutiérrez García, *Universidad Católica de Ávila*
Andres Ortega Piris, *Universidad de Cantabria*

Fernando Blanco Silva, *Universidad de Santiago de Compostela*
Manuel Ángel Graña López, *Universidad da Coruña*

Numerical and experimental study of the hydrodynamic phenomena in sea surface scattering
Slahedine Ben Khadra, *ENSTA Bretagne*
Ali Khenchaf, *ENSTA Bretagne*

European Projects on Underwater Networks - 3

2-Room 1 (Bahía Hall)
Thursday, June 9 (9:00AM - 11:00AM)
Chair: Nirvana Meratnia, *University of Twente, Pervasive Systems*

CLAM: Collaborative embedded networks for submarine surveillance
Nirvana Meratnia, *University of Twente, Pervasive Systems*
Paul Havinga, *University of Twente, Pervasive Systems*
Paolo Casar
Chiara Petrioli, *Università degli Studi di Roma*
Knut Grythe, *SINTEF*
Thor Husoy, Kongsberg Maritime
Michele Zorzi, *University of Padova*

Underwater communications protocols and architecture developments at NURC
John Potter, *NATO Undersea Research Centre*
Alessandro Berni, *NURC*
Joao Alves, *NURC*
Diego Merani, *NURC*
Giovanni Zappa, *NURC*
Robert Been, *NURC*

On ARQ Strategies over random access protocols in underwater acoustic networks
Saiful Azad, *University of Padova*
Paolo Casari, *University of Padova*
Federico Guerra, *University of Padova*
Michele Zorzi, *University of Padova*

First output of the SOWFIA project: streamlining of ocean wave farms impact assessment
Cristina Huertas Olivares, *Inabensa*
Deborah Greaves, *University of Plymouth*
Brian Holmes, HMRC, *University College Cork*
Yago Torre-Enciso, *Ente Vasco de la Energía*
Ian Bailei, *University of Plymouth*
Felix Danos, *European Ocean Energy Association*
Hakim Mouslim, *Ecole Centrale de Nantes*
Daniel Conley, *University of Plymouth*
Teresa Simas, *Wave Energy Centre*
Jan Sundberg, *University of Uppsala*
Victoria Osta Mora-Figueroa, *University of Cadiz*

Coastal Radars and Passive Observing Sensors

3-Room 2A (Bahía Hall)
Thursday, June 9 (9:00AM - 11:00AM)
Co-Chairs: Lucy Wyatt, *University of Sheffield*
Malcolm Heron, *James Cook University*

Wind farm impacts on HF radar current and wave measurements in Liverpool Bay
Lucy Wyatt, *University of Sheffield*
Alice Robinson, *University of Sheffield*
M. Howarth, *National Oceanography Centre*

The data archive for the phased array HF radars in the australian coastal ocean radar network
Malcolm Heron, *James Cook University*
Arnstein Prytz, *James Cook University*

Coherent marine radar measurements of ocean surface currents and directional wave spectra
Dennis Trizna, *Imaging Science Research, Inc*

Application of S-band nautical radar for ocean surface wave measurements
Hao-Yuan Cheng, *Institute of Hydrological and Oceanic Sciences,National Central University*
Hwa Chien, *Institute of Hydrological and Oceanic Sciences,National Central University*

Sea surface current measurements at long range using lower-band high-frequency radar
Eric Gill, *Memorial University of Newfoundland*
Weimin Huang, *Memorial University of Newfoundland*

Implications of satellite sea-surface salinity observations for operational microwave radiometry
Eric Bayler, *NOAA / NESDIS*

Oceanographic Instrumentation, Sensors and Current Measurement Technology II

4-Room 3B (Bahía Hall)
Thursday, June 9 (9:00AM - 11:00AM)
Co-Chairs: Jaume Recolons, *Universitat Politècnica de Cataluña*
Kim Lau, *MESTECH, National Centre for Sensor Research, DCU.*

A new method for sea wave detection by using a speed log meter
Jaume Recolons, *Universitat Politècnica de Cataluña*
Josep Torrents, *Universitat Politècnica de Cataluña*

Smart sensors for interoperable smart ocean
Daniel Toma, *Technical University of Catalonia, UPC-SARTI*
Tomas O'Reilly, *MBARI*
Joaquin Fernández, *Technical University of Catalonia, UPC-SARTI*
Kent Headley, *MBARI*
Antoni Lázaro, *Technical University of Catalonia, UPC-SARTI*
Duane Edgington, *MBARI*
Arne Bröring, *52North*

Distributed sensing devices for monitoring marine environment
Kim Lau, *MESTECH, National Centre for Sensor Research, DCU*
Dermot Diamond, *MESTECH, National Centre for Sensor Research, DCU*
fiona Lau, MESTECH, *National Centre for Sensor Research, DCU*

Monitoring species using acoustic communications
David Gandul, UPC-SARTI
Erik Molino-Minero-Re, *Universidad Politecnica Catalunya*
Antoni Manuel, *Universidad Politécnica de Cataluña*
Joaquín del Río, *Universidad Politécnica de Cataluña*
Francesc Sarda, *Institut de Ciencies del Mar*
Jacopo Aguzzi, *Institut de Ciencies del Mar*
Guiomar Rollant, *Institut de Recerca i Tecnologia Agroalimentaries*

Systems and Observatories I

5-Room 4B (Bahía Hall)
Thursday, June 9 (9:00AM - 11:00AM)
Co-Chairs: Eric Delory, *Plataforma Oceánica de Canarias*
Pierre Leon, *IFREMER*

A new open cabled infrastructure in Medsea
Pierre LEON, *IFREMER*
Jean Francois Drogou, *IFREMER*
Claude Leveque, *IFREMER*
Pierre Valdy, *IFREMER*
Carl Cojak, *INSU*
Vincent RIGAUD, *IFREMER*
Henri Martinossi, *IFREMER*
damien Chenot, *IFREMER*
Dominique Santarelli, *IFREMER*
Anne Deschamps, *Geosciences Azur*
yann Hello, *Geosciences Azur*
Dominique Lefevre, *CNRS*
Zouhir Hafidi, *INSU*
jean jacques Destelle, *cppm*
Alain Massol, *IFREMER*
Christian Tamburini, *CNRS*
Karim Mahiouz, *INSU*
Yannick Lenault, *INSU*

Planning the installation of the European Multidisciplinary Sea-floor Observatory (EMSO): First approach using Geographic Information Systems (GIS)
Ismael Aymerich, *Marine Technology Unit (UTM-CSIC)*
Jaume Piera, *Marine Technology Unit (UTM-CSIC)*
Juanjo Dañobeitia, *Marine Technology Unit (UTM-CSIC)*

The PLOCAN Observatory: a multidisciplinary multiplatform observing system for the central-eastern Atlantic Ocean
Eric Delory, *Plataforma Oceánica de Canarias*
Joaquín Hernández-Brito, *Plataforma Oceánica de Canarias*
Octavio Llínas, *Plataforma Oceánica de Canarias*

The Gotland deep environmental sampling station in the Baltic Sea
Ralf Prien, *Leibniz Institute for Baltic Sea Research*
Detlef Schulz-Bull, *Leibniz Institute for Baltic Sea Research*

Walking on the sea side: Modelling and observational efforts of the Iberian Margin Observatory (RAIA)
Pablo Otero, *Instituto Español de Oceanografía*
Manuel Ruiz-Villarreal, *Instituto Español de Oceanografía*
Luz García-García, I*Instituto Español de Oceanografía*
Martinho Marta-Almeida, *Centro de Estudos do Ambiente e do Mar*
Marcos Cobas, *Centro de Supercomputación de Galicia - I. Español de Oceanografía*
Gonzalo González-Nuevo, *Instituto Español de Oceanografía*
Jose Manuel Cabanas, *Instituto Español de Oceanografía*

Acoustic Telemetry and Communication IV

6-Room 5 (Bahía Hall)
Thursday, June 9 (9:00AM - 11:00AM)
Co-Chairs: Ilkka Karasalo, *Swedish Defence Research Agency*
Xiaopeng Huang, *Stevens Institute of Technology*

On the performance of delay-tolerant routing protocols in underwater networks
Muhammad Rahim, *Department of Information Engineering, University of Padova*
Paolo Casari, *Department of Information Engineering, University of Padova*
Federico Guerra, *Consorzio Ferrara Ricerche*
Michele Zorzi, *Department of Information Engineering, University of Padova*

Effect of wind-generated bubbles on OFDM power loading for Time-varying shallow water acoustic channels with limited feedback
Xiaopeng Huang, *Stevens Institute of Technology*
Victor Lawrence, *Stevens Institute of Technology*

A low cost and high efficient acoustic modem for underwater sensor networks
Antonio Sánchez, Universitat Politècnica de València
Sara Blanc, *Universitat Politècnica de València*
Pedro Yuste, *Universitat Politècnica de València*
Juan Serrano, *Universitat Politècnica de València*

Time-domain modelling of turbo-coded underwater communication
Ilkka Karasalo, *Swedish Defence Research Agency*

Performance assessment and EXIT chart analysis of IDMA-based underwater communications
Salah Aliesawi, *School of Electrical, Electronic and Computer Engineering*
Charalampos Tsimenidis, *School of Electrical, Electronic and Computer Engineering*

Bayan Sharif, *School of Electrical, Electronic and Computer Engineering*
Martin Johnston, *School of Electrical, Electronic and Computer Engineering*

Low-complexity doppler compensation for OFDM-based underwater acoustic communication systems
Ammar Abdelkareem, *School of Electrical, Electronic and Computer Engineering*
Bayan Sharif, *School of Electrical, Electronic and Computer Engineering*
Charalampos Tsimenidis, *School of Electrical, Electronic and Computer Engineering*
Jeffrey Neasham, *School of Electrical, Electronic and Computer Engineering*
Oliver Hinton, *Newcastle University*

Marine Communications and Technology II

1-Assembly Room
Thursday, June 9 (11:30AM - 1:30PM)
Co-Chairs: Dale Green, *Teledyne Benthos*
Chin-Feng Lin, *Department of Electrical Engineering/National Taiwan Ocean University*

Underwater radio frequency communications
Alejandro Beck, *Nautilus Oceanica*
Manuel Gómez, *Nautilus Oceanica*
Ian Crowther, *WFS Technology*
Mark Rhodes, *WFS Technology*
Mark Volanthen, *WFS Technology*

An MIMO-OFDM underwater acoustic multimedia communication
Chin-Feng Lin, *Department of Electrical Engineering/National Taiwan Ocean University*
Shun-Hsyung Chang, *National Kaohsiung Marine Univerity*

An optimized UUV communications framework for multi-vehicle arbitration
Andrew Bouchard, *Naval Surface Warfare Center Panama City Division*

Investigation of a full duplex acoustic link for a tetherless micro-ROV
Geraint Goodfellow, *Newcastle University*
Jeffrey Neasham, *Newcastle University*
Charalampos Tsimenidis, *Newcastle University*
Oliver Hinton, *Newcastle University*
Bayan Sharif, *Newcastle University*

Low overhead routing for underwater acoustic networks
Joao Alves, *NATO Undersea Research Center*
Giovanni Zappa, *NATO Undersea Research Center*

Beyond underwater acoustic communications
Dale Green, *Teledyne Benthos*
Ken Scussel, *Teledyne Benthos*

Airborne and Satellite Radar, SAR and Space Systems

3-Room 2A (Bahía Hall)
Thursday, June 9 (11:30AM - 1:30PM)
Chair: René Garello, *Telecom Bretagne*

Near-Nadir KA-BAND radar backscattering measurements over water surfaces, in preparation of the swot mission
Jean-François Nouvel, *ONERA*
Joseph Martinot-Lagarde, *ONERA*
Hélène Oriot, *ONERA*
Roger Fjortoft, *CNES*

GPS passive bistatic radar system in oceanic environment: detection performance estimation
Frederic Maussang, *Telecom Bretagne*
Rene Garello, *Telecom Bretagne*
Francois Soulat, *CLS - Space Oceanography Division*
Jean-Damien Desjonqueres, *CNES - DCT/SI/AR*
Nadine Pourthie, *CNES - DCT/SI/AR*

Polarimetric characteristics of ships on RADARSAT-2 Data
Bo Wang, *Telecom Bretagne*
Bertrand Chapron, *IFREMER*
Grégoire Mercier, *Telecom Bretagne*
René Garello, *Telecom Bretagne*
Ming-Xia HE, *Ocean Remote Sensing Institute*

Detection and classification of man-made offshore objects in TerraSAR-X and RapidEye imagery: selected results of the DeMarine-DEKO project
Günter Saur, *Fraunhofer IOSB*
Stephane Estable, *Astrium*
Karin Zielinski, *Astrium*
Stefan Knabe, *Astrium GEO-Information Services*
Michael Teutsch, *Fraunhofer IOSB*

Maritime surveillance by integrating remote sensing and AIS: A preliminary analysis
Maria Daniela Graziano, *Second University of Naples*
Marco D'Errico, *Second University of Naples*
Elena Razzano, *Second University of Naples*

Other

4-Room 3B (Bahía Hall)
Thursday, June 9 (11:30AM - 1:30PM)
Chair: Leif Persson, *FOI*

Advances in the specification and execution of underwater autonomous manipulation tasks
Mario Prats, *Jaume-I University*
Juan Carlos García, *Jaume-I University*
Javier Fernández, *Jaume-I University*
Raúl Marín, *Jaume-I University*
Pedro Sanz, *Jaume-I University*

Active floats for seismic acquisition spreads
Behzad Vahida, *CGGVeritas Services - Marine Division - Engineering R&D*

On-line metrics for assessment of fused tracking performance
Leif Persson, *FOI*
Eva Dalberg, *FOI*
Andris Lauberts, *FOI*
Ron Lennartsson, *FOI*

Systems and Observatories II

5-Room 4B (Bahía Hall)
Thursday, June 9 (11:30AM - 1:30PM)
Co-Chairs: Jean-Philippe SCHNEIDER, ENSTA Bretagne
Andreas Marouchos, *CSIRO - CMAR*

Design of an advanced acoustic tide gauge for tsunami monitoring
Shijo Zacharia
R Srinivasan
Thamarai T.
Ramadass G.A
M.Aravindakshan Atmanand

Development of a stereo deepwater baited remote underwater video system (BRUVS)
Andreas Marouchos, *CSIRO - CMAR*
Matthew Sherlock, *CSIRO - CMAR*
Bruce Barker, *CSIRO - CMAR*
Alan Williams, *CSIRO - CMAR*

Domain-specific modelling applied to smart sensors
Jean-Philippe Schneider, *ENSTA Bretagne*
Joël Champeau, *ENSTA Bretagne*
Dominique Kerjean, *ENSTA Bretagne*
Oussama Zein, Arts, *Sciences and Technology University in Lebanon*
Yves Auffret, *IFREMER*
Laurent Dufrechou, *RTSys*

Long-term underwater monitoring of seismic areas: design of an Ocean Bottom Seismometer with Hydrophone and its performance evaluation
Giorgio Mangano, *Istituto Nazionale di Geofisica e Vulcanologia*
Antonino D'Alessandro, *Istituto Nazionale di Geofisica e Vulcanologia*
Giuseppe D'Anna, *Istituto Nazionale di Geofisica e Vulcanologia*

Monitoring sediment dynamics at the boundary between the coastal zone and the continental shelf
Josefina Antonijuan, *UPC*
Jorge Aranda, *ICM-CSIC*
Marc Cervera, *CTVG-UPC*
Antoni Làzaro, *CTVG-UPC*
Alberto Monteys, ICM-CSIC
Pere Alenyà, *ICM-CSIC*

Acoustic Telemetry and Communication V

6-Room 5 (Bahía Hall)
Thursday, June 9 (11:30AM - 1:30PM)
Co-Chairs: Konstantinos Pelekanakis, *National University of Singapore*
Mauro Biagi, *University of Rome, Sapienza*

Underwater wireless video transmission for supervisory control and inspection using acoustic OFDM
Jordi Ribas Oliva, *Massachusetts Institute of Technology*
Daniel Sura, *Massachusetts Institute of Technology*
Milica Stojanovic, *Northeastern University*

Acoustic PPM image processing for underwater communications
Mauro Biagi, *University of Rome, Sapienza*

Characteristics of underwater acoustic communication channels in shallow water
Tsih Yang, *Naval Research Laboratory*

Output SNR of time-reversal based underwater acoustic communications in different shallow water environments
Tsih Yang, *Naval Research Laboratory*

An algorithm for sparse underwater acoustic channel identification under symmetric Ð-stable noise
Konstantinos Pelekanakis, *National University of Singapore*
Hongqing Liu, *National University of Singapore*
Mandar Chitre, *National University of Singapore*

Node discovery protocol for Ad Hoc underwater acoustic networks
Ashish Patil, *Northeastern University*
Milica Stojanovic, *Northeastern University*

Oceanographic Instrumentation, Sensors and Current Measurement Technology III

7-Room 3A (Bahía Hall)
Thursday, June 9 (11:30AM - 1:30PM)
Co-Chairs: Joerg Seemann, *Helmholtz Center Geesthacht*
Andreas Rudolf, *TU Darmstadt, Institute for Applied Physics*

A Brillouin-LIDAR for remote sensing of the temperature profile in the ocean - Progress towards the implementation
Andreas Rudolf, *TU Darmstadt, Institute for Applied Physics*
Thomas Walther, *TU Darmstadt, Institute for Applied Physics*

Interoperable data management and instrument control experiences at OBSEA
Joaquin Fernández, *Technical University of Catalonia, UPC*
Daniel TOMA, *Technical University of Catalonia, UPC*
Tomás O'Reilly, *MBARI*
Antoni Lazaro, *Technical University of Catalonia, UPC*
Kent Headley, *MBARI*
Arne Bröring, *52North*
Duane Edgington, *MBARI*

Small and robust Ocean Bottom Seismometer (OBS) for long period active seismology

Shahram Shariat-Panahi, *Technical University of Catalonia (UPC)*
Normandino Carreras, *Technical University of Catalonia (UPC)*
Carola Artero, *Technical University of Catalonia (UPC)*
Antoni Mànuel Làzaro, *Universidad Politecnica de Cataluña*
Tim Owen, *Carrack Measurement Technology*
Erik Molino-Minero-Re, *Universidad Politecnica de Cataluña*

HF radar based current observation system in the german bight

Joerg Seemann, *Helmholtz Center Geesthacht*
Klaus Gurgel, *University of Hamburg*
Thomas Schlick, *University of Hamburg*
Friedwart Ziemer, *Helmholtz Center Geesthacht*
Stylianos Flampouris, *Helmholtz Center Geesthacht*
Marius Cysewski, *Helmholtz Center Geesthacht*

NOTES

EXHIBITOR BOOTH LIST

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Atlas Hydrographic GmbH	70
Bluefin Robotics	75
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Evologics GmbH	67
Grafinta, S.A.	63
Grupo Sodercan, S.A.	45 y 46
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Universitat de Girona	56
Vázquez y Torres Ingeniería, S.L.	66

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ATLAS HYDROGRAPHIC GmbH is engaged in the design, manufacture, sales and support of innovative hydrographic survey systems.
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Bluefin Robotics develops, builds, and operates Autonomous Underwater Vehicles (AUVs) and related technologies for defense, commercial, and scientific customers worldwide. We offer a full range of modular, free-flooded AUV platforms in standard and custom configurations as well as pressure-tolerant rechargeable battery packs for subsea applications. Bluefin Robotics provides expertise for the full lifecycle AUVs including research and development, technology integration, full-scale manufacturing, platform training, and operations support. Get a Bluefin and get your data. www.bluefinrobotics.com.

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CLS, a subsidiary of the French Space Agency, is the exclusive operator of the Argos satellite system and is an Iridium value-added reseller (VAR). CLS provides satellite-based data acquisition, positioning and engineering services. CLS: the satellite service provider for the met-ocean community.

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Website: *www.codar.com*

CODAR Ocean Sensors offers the SeaSonde® HF radar system for real-time, continuous ocean surface current mapping and wave monitoring. The SeaSonde is considered the backbone of many regional ocean observing systems and is more widely used internationally inside operational scenarios. It features convenient operation from shore or platform, with no equipment in water. Product enhancements are added continually, allowing it to remain the most advanced HF radar system available. A similar product, called RiverSonde®, has been recently been developed for river environment.

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INNOVA oceanografía litoral SL is a Spanish company devoted to services and sales in our local oceanographic market. We care of a range of research and consultant companies interested in dynamical oceanography (currents, waves, tides and winds). Our company, founded on 1997, is specialized in oceanographic services and supplies for monitoring and control dynamic variables at sea. We are also committed to technical developments and NextGen tools in order to reduce the gap between the active industry and the busy end-users who cannot be aware of so many new developments.

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The ENVIRONMENTAL HYDRAULICS INSTITUTE "IH CANTABRIA", is a joint research centre between the University of Cantabria and the Foundation for Environmental Hydraulics Institute. IH Cantabria is made up of approximately one hundred fifty researchers, with over twenty years of expertise in water-related fields and focuses its activities on three main pillars: research & development, consultancy and education & training activities.
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IEEE Norway Section warmheartedly welcomes you to the OCEANS'13 MTS/IEEE "The Challenges of the Northern Dimension".
The conference will be hosted in the 'Gateway to the Norwegian Fjords', in the coastal city of Bergen, Norway, June 11-14th 2013.

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Activity Description: Modeling, Optimization and Control. Guidance, navigation and control (GNC) of Marine Vehicles. Remote Marine Laboratory (MRL). Underwater Robotics. Underwater Inspection. Underwater Acoustic Image Processing.
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Universitat de Girona
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CIRS - Centre d' Investigació en Robòtica Submarina. Parc Científic i Tecnològic UdG
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The Computer Vision and Robotics Research Centre (ViCOROB) at the University of Girona (Spain) develops research in the fields of: Underwater Vision and Underwater Robotics, Medical imaging, Multimedia Imaging, Mobile Robotics and 3D perception. The team is composed of 72 researchers on different fields: Computer Engineering, Industrial Engineering, Electronical Engineering as well as Mathematics and Managment Staff.
ViCOROB has lately developed in its Underwater Robotics Research Centre (CIRS), at the Scientific and Technological Park of the UdG, an autonomous underwater vehicle (AUV) capable to navigate 500m deep (GIRONA 500). The GIRONA 500 is a compact and lightweight research platform with hovering capabilities, which can fulfill the particular needs of any application by means of mission-specific payloads and a reconfigurable propulsion system.

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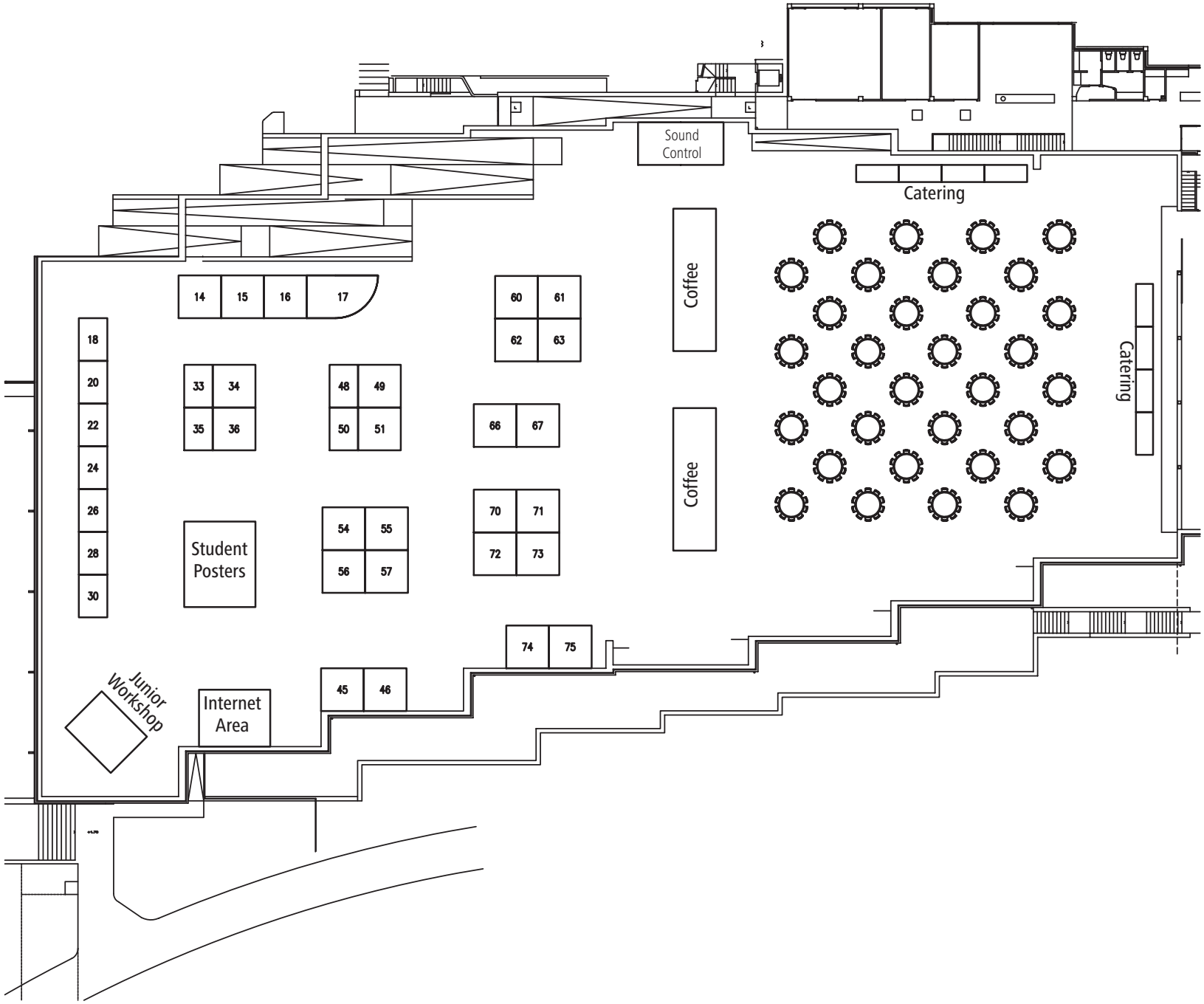
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