

WELCOME

Welcome to the 6th International Workshop on Marine Technology – Martech Workshop 2015.

The main goal of this workshop is to show the latest investigations and to exchange information and points of view on current research in MARine TEChnology. Martech Workshop brings together a diverse set of researchers who are jointly committed to developing technology, not just for its own sake, but to generate innovation in the field of maritime technologies. The conference series was initiated in 2005 and has taken place, until now, in Vilanova i la Geltrú, Cadiz, Girona and now in Cartagena. The present edition is co-organized by the Universidad Politècnica de Cartagena and the Universitat Politècnica de Catalunya, and is taking place on September 15th--17th 2015. Cartagena is a three millennial maritime city offering a great combination of cultural, gastronomical and landscape attractions. Martech Workshop 2015 will bring together 60 contributions, which will be presented orally in two parallel sessions, and can be categorized in 10 different topics: Operational Oceanography; Instrumentation, Metrology, Signal processing; Marine sensors, sensor networks; Observatories, remote sensing; Marine Robotics: ROVs, AUVs, ASVs, Gliders; Underwater imaging and communication; Sea floor characterization; Structures and materials; Marine Biology and Aquaculture; and Renewable energies. This year the Marine robotics topic has had the largest number of contributions.

Two exciting plenary sessions will be given by John Sampson on “Holography in Ocean Sciences” and Kanna Rajan on “Space: The next frontier inter-disciplinary Ocean Sciences”.

Also new in this edition is that tutorial sessions on the 15th September are given by high technological companies showing their cutting-edge instruments. We hope that increasing participation of companies will facilitate the transfer of knowledge in both sides: science and industry. Besides the technical sessions, there will be an exhibitor area where companies will show their products, services and projects to the assistants during break times.

I would like to thank all authors and people attending at Martech Workshop 2015 for their interest and collaboration. I hope you enjoy and find fruitful the meeting, and also that you have a pleasant time in Cartagena. I would also like to thank the organizing committee from Universidad Politècnica de Cartagena and the SARTI group (Universitat Politècnica de Catalunya) for their support and effort in the organization of this successful event.

Yours sincerely

Javier Gilabert

Martech Workshop 2015 Chair

TECHNICAL PROGRAM

GENERAL PROGRAM

Tuesday 15/07/2015		Wednesday 16/09/2015		Thursday 17/09/2015		
		Registration opens at 8:00		Registration opens at 8:30		
		9:00 - 9:45 h (Room 1)		9:00 - 10:30 h (Room 1)	9:00 - 10:30 h (Room 2)	9:00 - 13:00 h Companies Exposition
		Inaugural Session and Invited Conference 1: "Fundamentals and Applications of New Developments in Holography in the Ocean Science" by Dr. John Samson (4Deep Inwater Imaging, Halifax, NS, Canada)		E1: Renewable energies	E2: Marine sensors, sensor networks	
		10:00 - 11:30 h (Room 1) A1: Marine Robotics: ROVs, AUVs, ASVs, Gliders	10:00 - 11:30 h (Room 2) A2: Operational Oceanography	10:30 - 11:00 h Coffee Break		
		11:30 - 12:00 h Coffee Break		11:00 - 11:30 h (Room 1)		
12:00 - 14:00 h HydroSurveyor: bathymetry, velocity profile and acoustic bottom tracking (Sidmar)	12:00 - 14:00 h Introduction to the AD2CP Platform: a new generation current profilers from Nortek (Innova)	12:00 - 13:30 h (Room 1) B1: Marine Robotics: ROVs, AUVs, ASVs, Gliders	12:00 - 13:30 h (Room 2) B2: Instrumentation, Metrology, Signal processing	11:45 - 13:15 h (Room 1) F1: Renewable energies and Underwater imaging and communication	11:45 - 13:15 h (Room 2) F2: Marine sensors, sensor networks and Sea floor characterization	
14:00 - 15:30 h Lunch		13:30 - 14:30 h Lunch		13:15 - 13:30 h Closing Session and Martech 2016 announcement		
15:30 - 17:30 h OCEAN SAMPLING DAY: Real-time, in-situ observation of particles and micro-organisms with holographic microscopy (4Deep & Ecohydros)	15:30 - 17:30 h Capture and data collection with SAMBAT and SMATCH multiparametric sondes. (Nautilus Oceanica)	14:30 - 16:00 h (Room 1) C1: Marine Robotics: ROVs, AUVs, ASVs, Gliders	14:30 - 16:00 h (Room 2) C2: Instrumentation, Metrology, Signal processing and Observatories, remote sensing	13:30 h Lunch		
17:30 - 18:00 h Break		16:00 - 16:30 h Coffee Break				
18:00 - 19:30 h EXO: Advanced water quality monitoring platform		16:30 - 18:00 h (Room 1) D1: Marine Robotics: ROVs, AUVs, ASVs, Gliders and Marine Biology and Aquaculture	16:30 - 18:00 h (Room 2) D2: Structures and materials			
		20:00 h Travel to gala dinner				
		20:15 h Cultural activity				
		21:00 h Gala dinner				

* Room 1: Salón de Actos "Issac Peral"
* Room 2: Salón de Grados de la Facultad de Ciencias de la Empresa

TUTORIALS

TUESDAY, 15:30 - 17:30

OCEAN SAMPLING DAY: Real-time, in-situ observation of particles and micro-organisms with holographic microscopy

By John Samson (4Deep) & Alex Monná (Ecohydros)

4Deep inwater imaging scientists will demonstrate how in line holographic microscopy can be used to monitor and observe underwater life and particles down to less than 0.5 μm resolution in real time with its submersible microscope. State of the art software packages will be introduced. *Octopus* reconstructs and displays 3D volumes which can be zoomed, rotated and panned through. *Swordfish* detects and measure microorganisms such as algae or zooplankton within the water column, detect oil, particulate matter, gas bubbles and more. Finally, *Stingray* automatically finds organisms based on flexible analysis criteria, extracts morphological parameters of discovered objects and uses powerful machine vision algorithms to identify and group objects into taxons.

An introduction to holographic microscopy in the form of a presentation will last about 10 - 15 minutes. Here the advantages of using holography as a form of microscopy will be introduced by examples of previous uses and deployments into the natural environment to showcase the basic imaging capabilities of the submersible microscope. An introduction and demonstration of the software will follow.

The deployment of the microscope into local waters will then take place on the dock, or on a supplied vessel. The guests of the demonstration will be invited to use the software to explore the volume of water passing through the instrument and see the microscopic life in real time, and see the 4D capabilities. Holograms will be recorded and then reconstructed to fully demonstrate the capability of the technology and resulting images will be shared amongst participants.

TUESDAY, 12:00 - 14:00

Introduction to the AD2CP Platform: a new generation current profilers from Nortek

By Oswaldo López - INNOVA

Nortek is introducing an advanced system built on the new patented AD2CP hardware platform. These instruments are able to do sequential tasks within a second, so different measurements (currents, waves, turbulence...) can be done simultaneously. We aim to reach the following goals:

Primary goal: Increased flexibility

- Multi-function systems – many combinations of beams, ping sequences, acoustic frequencies, etc.
- Proper broadband processing
- Smaller, lighter, lower power
- Smarter interfaces

Secondary Goal: Develop a hardware/firmware structure that allows us to meet the requirements for the next 10 years.

This new technology open new possibilities in applications like: long range, DVL and high energy turbulent environments.

TUESDAY, 12:00 - 14:00

HydroSurveyor: bathymetry, velocity profile and acoustic bottom tracking

By Lee Pimble (Xylem Analytics) and José María Cortés (SIDMAR)



The HydroSurveyor™ is a system designed to collect bathymetric, water column velocity profile, and acoustic bottom tracking data as part of a hydrographic survey. The two key components of the system are the HydroSurveyor Acoustic Doppler Profiler (ADP®) platform, and the powerful, yet user-friendly, data collection software. With the HydroSurveyor platform, SonTek is able to offer an exclusive 5-beam depth sounding device, with built-in navigation, full water column velocity (currents) profiling, full compensation for speed of sound (with the CastAway-CTD), and integrated positioning solution. [HydroSurveyor Software](#) — v 1.50 — is a user-friendly software package offering a central recording and processing platform that allows users to develop bathymetric maps with modest accuracy, using properly gridded data points. Features include CastAway-CTD integration, data gridding and interpolation, automatic track switching and a central recording platform. In this tutorial the HydroSurveyor will be demonstrated at sea and data collected will be processed by interested audience.

TUESDAY, 15:30 - 17:30

Capture and data collection with SAMBAT and SMATCH multiparametric sondes

By Manuel Martín – Nautilus Oceanica



SAMBAT and SMATCH are two systems for monitoring water quality of the French firm NKE Instrumentation, designed for use in fresh and salt water respectively. The purpose of the tutorial will be the presentation, capture, collection and interpretation of data with such equipment. The exact position during the data capture process is crucial to obtain a better resolution and accuracy. It will also be explained how have been resolved the classical biofouling problems in the medium term, which affect the measurements of turbidity, fluorescence and dissolved oxygen.

TUESDAY, 18:00 - 19:30

EXO: Advanced water quality monitoring platform

By Eloy Abascal (Xylem Analytics) and José María Cortés (SIDMAR)



Breaking the sonde barrier, EXO represents the intersection of the Environment and Observation and a new generation of monitoring technology. EXO multiparameter probe is the first sonde in the market, for water quality measurements, conceived and designed for marine applications.

The EXO2 sonde is a multiparameter instrument that collects water quality data. The sonde collects the data with up to six user-replaceable sensors and an integral pressure transducer.

Each sensor measures its parameter via a variety of electrochemical, optical, or physical detection methods. Each port accepts any EXO sensor and automatically recognizes the type of sensor. Depending on user-defined settings, the EXO2 will collect data and store it onboard the sonde, transfer the data to a data collection platform (DCP), or relay it to a user's PC or EXO Handheld via cable, USB connection, or Bluetooth connection.

In addition to six standard sensor ports, the EXO2 also has a bulkhead port for a central wiper (or an additional sensor) and an auxiliary port on top of the sonde. This auxiliary port will allow the user to connect the EXO2 to other EXO sondes.

Users communicate with the sonde via a field cable to an EXO Handheld, Bluetooth® wireless connection to a PC or EXO Handheld, or a USB connection (via communications adapter) to a PC. The EXO handheld provides an extremely durable, portable, weather-proof interface to the EXO sondes. EXO handheld has GPS, Temperature-compensated barometer, Bluetooth communication, etc. The handheld uses a mobile version of the KOR interface software.

PARALLEL SESSIONS

SESSION A – WEDNESDAY, 10:00 – 11:30

A1: Marine Robotics: ROVs, AUVs, ASVs, Gliders
(ROOM 1)

- **Homemade ROVs Make your own**
Daura Vega Moreno, Tania Morales, Carlos Barrera, Laura Cardona, Andrés Cianca, Marimar Villagarcía
- **British Geological Survey Remotely Operated Rockdrill and Vibrocorers**
Iain Pheasant, Michael Wilson, Heather Stewart
- **Vilanova sea trials of Guanay II AUV**
Ivan Masmitja, Julián González, Spartacus Gomáriz
- **Performance and security improvements in AUV surveys using RF modules**
Núria Pujol, Pablo Rodríguez
- **A python tool for auv-borne ADCP current data rprocessing**
Simó Cusí, Pablo Rodríguez, Núria Pujol, David Roque

A2: Operational Oceanography (ROOM 2)

- **Operational Oceanography and European Ocean Observing System (EOOS) - EuroGOOS priorities**
Glenn Nolan, Erik Buch
- **Marine transport prediction methodology**
Carlos Barrera, Victor Ayllón, Raúl Guanche
- **Maneuverability focused to energetic optimization**
Pablo Sánchez Muñoz, Guillermo Robles Carrasco, Enrique González Sancho, Juan Herrero Valero, Miguel Moreno López, Ana Collado Toledo, Alberto Bonillo Legaz
- **Development of the equations responsible of the movement of AUV**
Javier Martín Fernández, Vicente Castañer Franch
- **Identification of submarine fresh water discharge by towed sensors (Radon and Nitrates) and hydrodynamic model, the Mar Menor example**
Francisco López-Castejón, Paul Baudron, Javier Gilabert, Sabine Cockenpot, Adriano Mayer, Olivier Radakovitch, José Luis García Aróstegui, Christian Leduc, Christelle Claude

SESSION B – WEDNESDAY, 12:00 – 13:30

B1: Marine Robotics: ROVs, AUVs, ASVs, Gliders
(ROOM 1)

- **Optimized Adaptive Control on Dual Buoyancy System for application in Underwater Gliders**
Javier Busquets-Mataix, David Busquets-Mataix, Jose-Vicente Busquets-Mataix
- **CFD analysis and hydrodynamic improvement on hybrid buoyancy driven underwater glider for extended range capabilities**
Javier Busquets-Mataix, Francisco-Javier Martín
- **Multipurpose Underwater Manipulation for Archaeological Intervention**
Pedro J. Sanz, Antonio Peñalver, Jorge Sales, Jose J. Fernandez, Javier Perez, David Fornas, Juan C. Garcia, Raul Marin
- **Ocean Gliders for Maritime Surveillance: the FP7-PERSEUS Project**
Carlos Barrera, Daniel Alcaraz, Alessandra Tesei, Christoph Waldmann, Domenico Galletti, Maria Jose Rueda, Joaquin Hernandez-Brito, Daura Vega, Octavio Llinas
- **Underwater Robotics Ready for Oil Spill, an EU Project**
Javier Gilabert, Francisco López-Castejón, Antonio Guerrero, Juan Carlos Molina, Antonio Vasilijevic, Calado Pedro, Hayes Dan, Nicola Stilinovic, Nad D., Mandic F., Dias Paulo, Gomes J., Miskovic Nicola, Vukic Zoran, Joao Sousa, George Georgiou

B2: Instrumentation, Metrology, Signal processing
(ROOM 2)

- **ROA/ UCM OBS pool and Alboran permanent OBS: 10 years of experiences**
Antonio Pazos, Jose Martin Davila, Elisa Buforn, Roberto Cibidades, ROA seismic group
- **Supervisor Dredging Equipment: Remote and Real time control of the dredging processes**
Xulio Fernandez Hermida, Jose Carlos Torres Barragáns, Pedro Lijó Fernández, Pablo González Cerredelo
- **Bares Wave Sensor**
Pablo González Cerredelo, Xulio Fernández Hermida
- **Initial study of the background noise level variation in the shore mediterranean sea**
Albert Garcia Benadí, Javier Cadena Muñoz, Joaquin del rio Fernandez
- **Automatic Reading of Intermodal Containers ID Numbers (Ownership Codes)**
Fernando Martín-Rodríguez, Xulio Fernández-Hermida, José Carlos Torres-Barragáns

SESSION C – WEDNESDAY, 14:30 – 16:00

C1: Marine Robotics: ROVs, AUVs, ASVs, Gliders
(ROOM 1)

- **Testing SPARUS II AUV, an open platform for industrial, scientific and academic applications**
Marc Carreras, Carles Candela, David Ribas, Narcís Palomeras, Lluís Magí, Aggelos Mallios, Eduard Vidal, Éric Pairet, Pere Ridao
- **Propulsion system and immersion for high buoyancy variation environments**
Ignacio Gonzalez, Pablo Alvarez
- **SideScanSonar RAW data integration in the software of an underwater vehicle**
Ignacio Gonzalez, Pablo Alvarez
- **A new electronic control system for unmanned underwater vehicles**
Juan Carlos Molina Molina, Antonio Guerrero González, Javier Gilabert Cervera
- **Effects of navigation systems errors in the accuracy of AUVs trajectory control algorithms during a recovery manoeuver**
Pedro Martínez Ibáñez, José Luis Aguirre Martínez, Mariano Saura Sánchez, Pablo Segado Cabezas, Gregorio Munuera Saura

C2: Instrumentation, Metrology, Signal processing and Observatories, remote sensing (ROOM 2)

- **Simulation tool for a submersible autonomous system**
Enrique Gonzalez Sancho, Guillermo Robles Carrasco, Pablo Sánchez Muñoz, Juan Herrero Valero, Miguel Moreno López, Ana Collado Toledo, Alberto Bonillo Legaz
- **MARIABOX an autonomous monitoring device for marine pollution: from the laboratory to a product: design challenges and real world trade-off**
Paolo Barattini, Esther Garcés, Matteo Bonasso, Silvia Mier, Panayiotis Philimis, Alessandro Giusti, Kevin Thomas, Antonio Varriale, Sabato D'Auria
- **SeaGuardII DCP: innovation in Doppler Current Profiling and Observatory Technology**
Emilie Dorgeville, Jarle Heltne, Harald Tholo, Anders Tengberg
- **Correlation patterns of multi-influence measurements from cruise ships in the Mediterranean Sea**
Francisco Javier Rodrigo Saura, Antonio Sanchez Garcia
- **A drone based system for surveillance applications in coastal zone**
Adrian Cantero, David Gallego, Pedro Celestino Lopez, Rafael Molina, Gonzalo Sanchez, Agustin Sueldo, Antonio Guerrero, Antonio Guillamon

SESSION D – WEDNESDAY, 16:30 – 18:00

D1: Marine Robotics: ROVs, AUVs, ASVs, Gliders and Marine Biology and Aquaculture (ROOM 1)

- **Trajectory planning algorithm for the recovery of an AUV from a moving submerged station**
Pedro Martínez Ibáñez, José Luis Aguirre Martínez, Mariano Saura Sánchez, Pablo Segado Cabezas, Gregorio Munuera Saura
- **IVER2 improvement for oil in water sampling**
Juan Carlos Molina Molina, Francisco López-Castejón, Javier Gilabert Cervera, Antonio Guerrero Gonzalez
- **Automatic Turbot Fish Cutting Using Machine Vision**
Fernando Martín-Rodríguez, Mónica Barral-Martínez
- **Visual Characterization and Automatic Detection of Posidonia Oceanica for Meadows Mapping using an AUV**
Francisco Bonin Font, Aleksandar Čosić, Miquel Massot Campos, Gabriel Oliver Codina
- **Comprehensive Framework for the Development of Control and Navigation Systems of Autonomous Underwater Vehicles: The MISSION-SICUVA Project**
Francisco Ortiz, Antonio Guerrero, Javier Gilabert, Diego Alonso, Francisco Garcia-Cordova, F. Rosique, F. Sánchez-Ledesma

D2: Structures and materials (ROOM 2)

- **Nautical and Environment: Present and future of environmental quality in areas of anchorage in Marine Protected Areas**
Francisco Bonin Font, Aleksandar Čosić, Miquel Massot Campos, Gabriel Oliver Codina
- **ECODRAGA: A Dredger ship that overcomes the environmental impact of the dredging activities**
Xulio Fernandez Hermida, Fernando Martín Rodriguez, Alejandro Arias, Isabel Fernández Sónora, Soledad Torres Guijarro, David Roca, Anne Gosset, Marcos Lema
- **Method for the acoustic characterization of underwater sources in anechoic tanks based on simulated free-field scenario**
Pablo Ruiz Molina, Jordi Solé Rebull, Pablo Cervantes Fructuoso, Noelia Ortega Ortega
- **Comparison between analytical and numerical methods focused in structure optimization**
Juan Herrero Valero, Aida Navarro Compañ, Francisco José Pérez Mendoza, Juan José Fernández Marín, Ramón Martínez García, Antonio José Lorente López
- **Nonlinear Finite Element Method in Cable Marine Structures. Application on fishing cage**
José Enrique Gutiérrez Romero, Julio García Espinosa, Blas Zamora Parra, Jerónimo Antonio Esteve Perez

SESSION E - THURSDAY, 9:00 - 10:30

E1: Renewable energies (**ROOM 1**)

- **Piezoelectric energy harvesting system for volcanic seismic acquisition equipment**
Normandino Carreras, Daniel Mihai Toma, Spartacus Gomariz, Montserrat Carbonell, Jordi Vidal
- **Diseño de una planta desaladora y potabilizadora de agua de mar mediante células de combustible**
Dionisio Tudela Meroño, Javier Gilabert Cervera, Luis López Palancar, Tomás López Maestre
- **Wave Energy Flux vectorial prediction at three coastal buoys in Spain**
Gabriel Ibarra-Berastegi, Jon Sáenz, Ganix Esnaola, Agustin Ezcurra, Alain Ulazia, Naiara Rojo, Gorka Gallastegui
- **Modelization of a Hybrid System with Renewable Energy for Electric Propulsion in Boats. Application to a Robotic Floating Platform**
J.M. Jiménez-Ariza, S.A. Gómez-Lopera
- **Design of a Continuous Production Energy Machine From Marine Trochoidal Waves**
Carlos Inglés-Inglés, S. A. Gómez-Lopera

E2: Marine sensors, sensor networks (**ROOM 2**)

- **A Real Time Seafloor Seismometer**
Montserrat Carbonell, Imma Massana, Joana d'Arc Prat, Enric Trullols
- **Machine Learning for the Localization of Biological and Anthropogenic Sources at Deep Sea Observatories**
Ludwig Houegnigan, Mike van der Schaar, Michel André
- **SIMOC, a versatile tool for continuous monitoring of water quality**
Alberto Perán, Tomás Senabre, Pedro A. Miñano, Antonio Belmonte, Valentín Aliaga, José Miguel Gutiérrez
- **Low Cost Optic Sensor for hydrocarbon detection in open oceans**
Lorena Parra, Sandra Sendra, Jaime Lloret, Jonatan Mendoza

SESSION F - THURSDAY, 11:45 - 12:30

F1: Renewable energies and underwater imaging and communication (**ROOM 1**)

- **Renewable energy supply to ships at port**
Jerónimo Esteve-Pérez, José Enrique Gutiérrez-Romero
- **Control Architecture of a prototype for the real-time validation of emersion and immersion maneuvers of underwater devices for energy harnessing**
Marina P. Portilla, Montserrat Espín, José A. Somolinos, Amable López, Rafael Morales
- **Multiscale approach for Numerical modeling of aquaculture**
José Miguel Gutiérrez, Francisco Javier Campuzano, Alberto Perán, Tomás Senabre, Marcos Mateus, Antonio Belmonte, Valentín Aliaga, Ramiro Neves
- **Design obstacle detection system for AUV GUANAY II**
Cesar Mauricio Galarza Bogota, Ivan Masmitjà, Julian Gonzalez, Jordi Prat, Spartacus Gomariz
- **Wireless RF Camera Monitoring for Underwater Cooperative Robotic Archaeological Applications**
Diego Centelles, Eduardo Rubino, Jorge Sales, Jose Vte. Marti, Raul Marin, Pedro J. Sanz

F2: Marine Sensors, sensor networks and sea floor characterization (**ROOM 2**)

- **COMMON SENSE Project: A step forward to implement MSFD**
Sergio Martínez Navas, Lola Rodríguez Coronil
- **Low Cost Buoy for Monitoring Recreational Areas**
Honorio Navarro, Cristina Albaladejo, Fulgencio Soto, Andrés Iborra
- **Auto-positioning solar panel for harvesting power system in WSN marine buoys**
Roque Torres, Fulgencio Soto, Cristina Albaladejo, Honorio Navarro, Juan Antonio Lopez, Carlos Fernandez
- **Optical Data Processing in the Context of the PICMAR Project**
Ricard Prados, Tudor Nicosevici, Rafael Garcia
- **3D Data Processing for Underwater Inspection and Monitoring**
Tudor Nicosevici, Ricard Prados, Rafael Garcia

INVITED SESSIONS

CONFERENCE 1 - WEDNESDAY, 9:00 - 9:45 (ROOM 1)

"Fundamentals and Applications of New Developments in Holography in the Ocean Sciences" by Dr. John Samson (4Deep Inwater Imaging, Halifax, NS, Canada), Research Scientist

John has been working in various sciences for a decade, from biology and fabrication, to acoustics and optics. He has a degree in physics from Dalhousie University, and has worked under Dr. Kreuzer and Dr. Jericho in holography. John works directly with clients of 4Deep and the product development team to establish usage methods for the microscopes, and to adapt both the products and methodologies to meet industry needs.

CONFERENCE 2 - THURSDAY, 11:00 - 11:30 (ROOM 1)

"Space: The Next frontier in inter-disciplinary Ocean Sciences" by Dr. Kanna Rajan, University of Porto

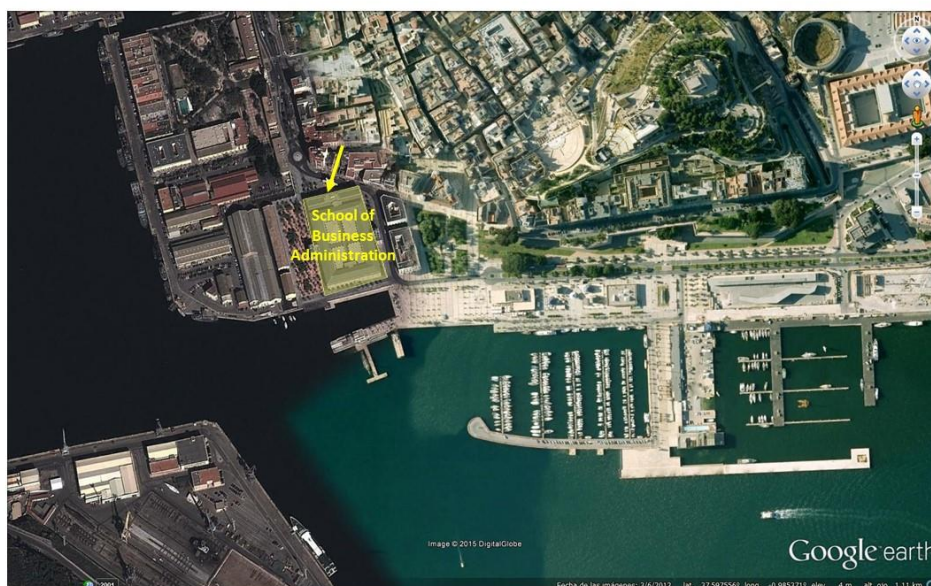
Kanna is a Visiting Professor, Faculty of Engineering, Univ. of Porto affiliated with the Underwater Systems Technology Lab. Till recently he was the Principal Researcher in Autonomy at the Monterey Bay Aquarium Research Institute (<http://www.mbari.org>). Prior to that he was a Senior Research Scientist for the Autonomous Systems and Robotics Area at NASA Ames Research Center Moffett Field, California. At NASA Ames, he was the Principal Investigator of the MAPGEN Mixed-Initiative Planning effort to command and control the Spirit and Opportunity rovers on the surface of the Red Planet. MAPGEN was awarded NASA's 2004 Turning Goals into Reality award under the Administrators Award category, a NASA Space Act Award, a NASA Group Achievement Award and a NASA Ames Honor Award Prior to joining NASA Ames, he was in the doctoral program at the NYU Courant Institute of Math Sciences. He was at the Knowledge Systems group at American Airlines, helping build a Maintenance Routing scheduler.

Kanna is the recipient of the 2002 NASA Public Service Medal and the First NASA Ames Information Directorate Infusion Award also in 2002. In Oct 2004, the Jet Propulsion Laboratory awarded him the NASA Exceptional Service Medal for his role on the Mars Exploration Rovers mission. He was the Co-chair of the 2005 International Conference on Automated Planning and Scheduling (ICAPS), Monterey California and till recently the chair of the Executive Board of the International Workshop on Planning and Scheduling for Space. He continues to serve on review panels for NASA, the Italian Space Agency and European Space Agency and the US National Science Foundation.

GENERAL INFORMATION

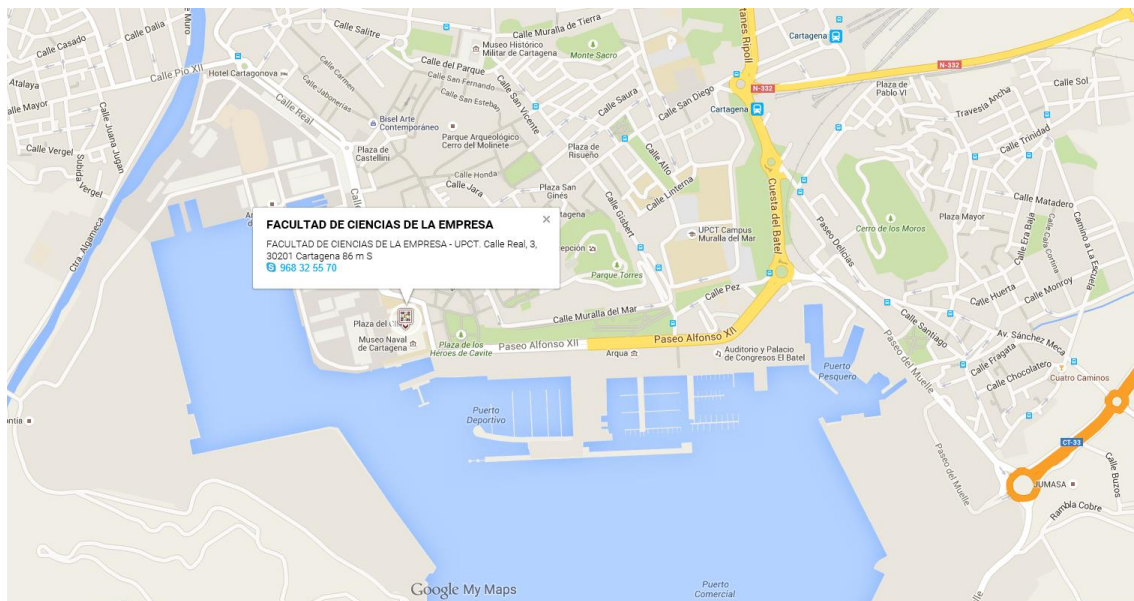
WHERE WILL THE CONFERENCE TAKE PLACE?

MARTECH 2015 will take place at the School of Business Administration (Facultad de Ciencias de la Empresa) at the Technical University of Cartagena. The venue is located at the sea front in the Cartagena Port but it can be accessed from the rear (Calle Real, 3).



The building of the School of Business Administration at the Technical University of Cartagena is an Former Headquarters of Seamanship Instruction (CIM), located in the number 3 of Calle Real (at one end of the port of Cartagena) along with the Navy Arsenal and the shipyards Navantia. Its strategic location allows easy access through the main means of transport:

- **By bus:** The Cartagena bus station is next to the Plaza Bastarreche, then you go down the Cuesta del Batel and the Paseo Alfonso XII, and at the end you will find the Former Headquarters of Seamanship Instruction (CIM), home of the Faculty.
- **By train:** The railway station is located in Plaza de Mexico, also next to the bus station.
- **By car:** You can reach the city from Madrid through the A-30 (Murcia motorway), exit "Puerto". From Valencia by the A-7 (Mediterranean highway).



The conferences will take place in two different rooms: “Isaac Peral” and “Salon de Grados” theaters, both on the 3rd floor of the building.

REGISTRATION DESK

The registration desk will open along the conference, and will be seated on the main door of the School of Business Administration. An additional information point will be placed on the 3rd floor; in any case, your accreditation (badge, tickets and materials) should be collected in the School of Business Administration main entrance.

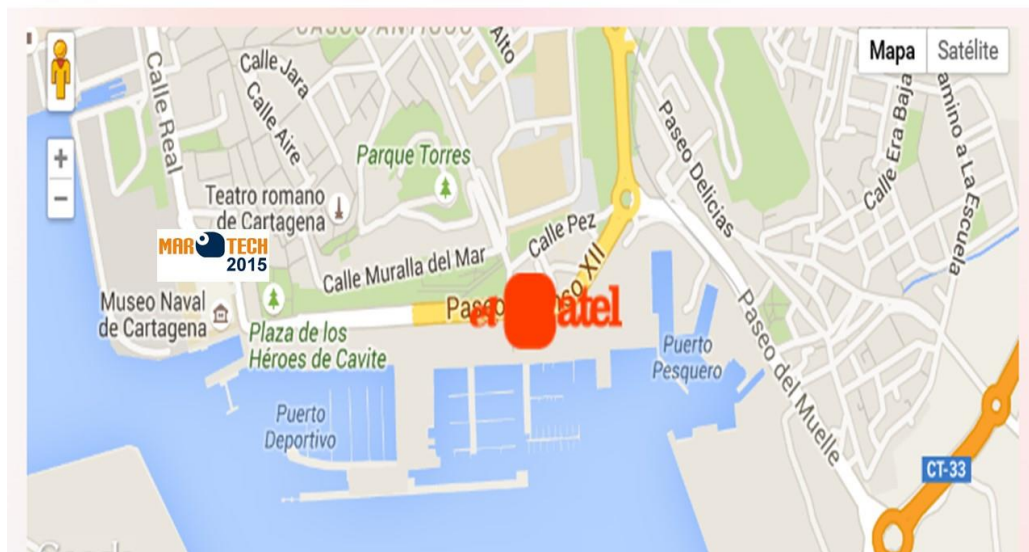
WIFI connection is free and its password will be provided with your badge.

Coffee breaks will be served in the Exhibition Area, next to the “Issac Peral” theater. Lunch on the 17th will be served on the courtyard.

CONFERENCE DINNER



The Gala Dinner will take place in the Auditorium “El Batel” restaurant, just at the other side of the sea front promenade, 10 minutes walking distance from the Business School. A cocktail will be served on the terrace of the restaurant - with fantastic sights to the sea - before dinner at 21:00.



HOW TO GET HERE (Public transport)

- Buses: Lines and timetables
http://www.cartagena.es/frontend/pagina/_xzuM2Hlr2V9OC6Whpf8OOps0ggFA37uv9yxVZ-K7dNfZ5uNzZ9txtA
- Taxis:
 - RADIO TAXI CARTAGENA: 968 563 863 - 968 563 863
968 145 000 - 968 145 000
 - TELE-TAXI: 968 531 313 - 968 531 313
 - UNIÓN RADIO TAXI CARTAGENA: 968 311 515 - 968 311 515
968 520 404 - 968 520 404

WIFI CONNECTION

Free WIFI connection will be available during Wednesday 16th and Thursday 17th.

User: **martech**

Password: **xctm363**

COMMERCIAL EXHIBITION

EXHIBITION AREA

The exhibition area will be next to the “Isaac Peral” theatre, at the end of the corridor from the “Salon de Grados” on the 3rd floor.

EXHIBITION LIST



– **ÁLAVA INGENIEROS** – www.alava-ing.es

Alava Ingenieros Group is an entirely privately owned group which has been providing high technology solutions in the Testing, Measurement, Communications, Security, Defense and Preventive Maintenance fields since it was first founded in 1973. The group offers consultancy, engineering, distribution, training and technical services, providing turn-key projects for several sectors including Aerospace, Automotive, Security, Defense, Energy, Communications and Finance, as well as Testing and Research Centres, Universities, Public Services and Industry in general. During Martech workshop, we will present the latest developments in Oceanographic and Hydrographic systems from our partners: Teledyne Reson, AML Oceanographic, Applanix, QPS, Trimble Marine, Teledyne TSS, Riegl, SBG systems et al.



– **ECOHYDROS** – www.ecohydros.com

Ecohydros is a consulting related to management (both coastal and inland) aquatic ecosystems. Ecohydros emerges as a research, consulting and specialized technical assistance in the study and restoration of aquatic ecosystems. It addresses sectoral or integrated surveys of aquatic systems, coastal and inland water (rivers, reservoirs, lakes and other wetlands) and estuaries, with special emphasis on research and analysis of biotopes (habitats and communities) as leading indicators and recipients the quality of these ecosystems. It is the official distributor for AMT-GMBH, 4DEEP Holographic Microscopes and TriOS optical sensors.

INNOVA *oceanografía litoral* - **INNOVA Oceanografía Litoral** - www.oceanografialitoral.com

Specializes in oceanographic services and supplies for the monitoring and control of dynamic variables at sea. It provides installation and maintenance of buoys waves, Doppler profilers, weather stations and all kinds of monitoring systems at sea. It is a company committed to conducting studies, analyzes and projects aimed at finding the best possible management and resolution of problems relating to the marine environment. It is the official distributor for a large number of oceanographic and marine instruments including AUVs (Teledyne Gavia, LAUV (OceanScan)), Gliders and ROVs.



– NAUTILUS OCEANICA – www.nautilusoceanica.com

Nautilus Oceanica has a large fleet of equipment working for the development of field campaigns that its customers might need: Echo sounders, side scan sonar, GPS receivers, multiparameter probes, gauges, current meters, dredgers and sample bottles, underwater cameras, diving equipment, boats, etc. The company is working on various projects, offering its services to private companies (energy sector, environmental sector, civil works, engineering) and the different administrations (universities, municipalities, autonomous regions, ministries, etc.).



– SIDMAR – www.sidmar.es

Focuses in the field of Marine Science and Technology. Highlight the following lines: Representation and sale of oceanographic instrumentation. Services include custom-made instrumentation, with advice from the decision-making to the operational. Comprehensive services in oceanography. Specializing in the observation and analysis of oceanographic processes, and in the field of coast engineering. R+D+i. Serves as a testing ground for products and services. All of them are in constant renovation to offer clients the latest available techniques and technologies. It is the official distributor for a large number of oceanographic and marine instruments including buoys, communication and control, geophysics, water samplers, current meters, AUVs and ROVs.