



OceaNET Final Workshop and Meeting

“Offshore Renewable Energy farm design and O&M”

27th and 28th March 2017, Bilbao, Spain

Venue: BEC! Bilbao Exhibition Centre

Address: Ronda de Azkue, 1, 48902 Barakaldo, Bizkaia, Spain

Research Fellows

Addressing offshore wind challenges



Yannick Debruyne, WavEC Offshore Renewables

Yannick Debruyne is a young engineer dedicated to making the offshore wind energy sector go further. Between 2010 and 2013, he obtained a large experience of the renewable marine energy field through internships and academic classes at École Centrale de Nantes. In November 2013, Yannick joined the OceaNET project at WavEC – Offshore Renewables to work on topics related to WP5 - Offshore farms design, deployment and O&M. Within OceaNET, Yannick has been increasing his knowledge of the marine renewable energy and offshore wind energy sectors through investigation, PhD level courses and industrial partnerships. Throughout the years, he specialized in the numerical modelling of both onshore and offshore wind turbines.



Simon Burmester, MARIN

Simon Burmester graduated from the University of Duisburg-Essen (Germany) in 2014 with a Master degree (M.Sc.) in Naval Engineering. Since 2014 he is employed as Early Stage Researcher within the EU ITN OceaNET. He works within the Maritime Simulation and Software Group and the Renewable Energy Team of MARIN (Maritime Research Institute Netherlands). In addition, he pursues a PhD at the University of Duisburg-Essen. Currently, he is working on the assessment of the main loads (wind, wave, current) acting on a floating offshore wind turbine involving computational fluid dynamic tools.



Addressing wave energy challenges



Nicolas Bozo, University College of Cork

Nicolás Tomey Bozo is a 3rd year PhD student at the MaREI Centre, a marine and renewable energy research centre from University College Cork in Ireland. He did a master degree in Naval and Ocean Engineering at the Universidad Politécnica de Madrid. Then in September 2014 he started a PhD on the hydrodynamics of co-located wave energy converters and offshore wind turbines at the MaREI Centre as part of the OceaNET Initial Training Network.

The aim of the work is to assess the wake effect of Wave Energy Converter (WEC) farms with the objective of potentially use these farms as shields to protect an offshore wind farm located in the leeside. The core of the work until now has been to improve the current state of the art of the methodologies to assess the wave propagation across WEC farms. Two methodologies have been developed using a time dependent mild-slope equation model to solve the wave propagation in the far-field and a boundary element method to calculate the local wave-body interaction.



Boris Teillant, WavEC Offshore Renewables

Boris Teillant holds a Master degree in Materials Science and Nanotechnologies at the National Institute of Applied Science (INSA) of Rennes, France. After a 6-months internship at Aalborg university on various wave energy projects, he has gained research experience in the techno economic optimisation of wave energy converters at the Centre for Ocean Energy Research (COER) of NUI Maynooth, Ireland during nearly 3 years. Boris is now a project manager at WavEC Offshore Renewables in the numerical modelling group focusing primarily on the areas of techno-economic analysis and logistics. Over the past 3 years, Boris has been involved in several European research projects including DTOcean, PolyWEC and WETFEEET.



Francesc Flavià, École Centrale Nantes

Francesc Fàbregas Flavià holds a BSc and MSc in Industrial Engineering from Escola Tècnica Superior d'Enginyeria Industrial de Barcelona (Polytechnic University of Catalonia, Spain) and an MSc in Renewable Energy Engineering from Cranfield University (UK). In 2013, he conducted research work in the field of wave energy capture using oscillating water columns in the Ocean Systems Test Laboratory of Cranfield University. In 2014, he started a PhD in Ecole Centrale de Nantes (FR) where he has been developing a numerical tool for the frequency domain simulation of large clusters of Wave Energy Converters (WECs).

At the OceaNET final Workshop, Francesc will give an overview of the numerical tool he has developed and will demonstrate its potential with a case-study based on the optimization of a generic bottom-referenced heave-buoy array WEC composed of 60 floats.



Juan Carlos, Instituto Superior Técnico

He is a mechanical engineer with more than 14 years of professional experience in the energy sector and is a PhD candidate of the MIT Portugal programme in Sustainable Energy Systems. He holds a European Master in Renewable Energy with an Advanced Training Diploma in Marine Renewable Energies, Advance Studies in Sustainable Energy Systems, Environment and Ocean Energy Resources. Besides this, He graduated as a M.Sc. in Industrial Project Management and followed advanced courses in International Business Management. Currently, He works for Instituto Superior Técnico as a researcher in the field of wave energy. His research interests are the development and integration of marine renewable energy conversion technologies towards a sustainable industry.



François- Xavier Fay, TECNALIA

Early stage research fellow in the Energy and Environment division of Tecnalia (Spain) since 2014 and currently pursuing a PhD at the University of the Basque Country. His goal is to contribute to the price reduction of marine energies. His focus is on power take-off and control systems for wave energy converters including power quality and energy storage challenges. More specifically he is developing control strategies to increase the power production of the oscillating water column technology while assuring the safe operation of the device components.

Addressing Operation and Maintenance challenges



Giovanni Rinaldi, University of Exeter

Giovanni Rinaldi works as Early Stage Researcher and PhD candidate at the University of Exeter within the European program OceaNET. His work focuses on developing reliable and cost effective tools and procedures to reduce Operation and Maintenance costs of Marine Energy devices. Giovanni received his B.Sc. in Physics and M.Sc. in Applied Physics from the University of Messina, Italy, respectively in 2009 and 2012. Then, in 2014, he received his M.Sc. in Renewable Energy with specialization in Ocean Energy and Offshore Wind.

In the final workshop, he will present the computational tools he has developed for the characterization and the optimization of the operational procedures of an offshore farm. The characterization is accomplished by means of a Monte Carlo tool expressly orientated towards Marine Renewable devices, which aims to reduce the assumptions generally needed in RAM (Reliability Availability Maintainability) analysis. The optimization is then achieved through the application of Evolutionary Algorithms and multi-objective optimization numerical tools. This combined approach permits a sensible reduction of the overall running costs of a marine renewable project.



Nathalie Müller, Fraunhofer- IWES

Nathalie Müller is a research engineer graduated from the engineering school EPF (Sceaux, France) and from the Heriot-Watt University (Edinburgh, Orkney campus, UK), where she obtained her Master of Science Degree in “Marine Renewable Energies”. Since, she has been involved in several European projects in the marine renewable energy sector. She worked in 2013-2014 under the European Project “EnergyMare” at the laboratory LERPA in La Rochelle for the evaluation of the marine energy resources along the European Atlantic Coast. Since August 2014, she is research fellow at the Fraunhofer IWES Institute (Bremerhaven, Germany) under the European Marie-Curie Project “OceaNET”, where she is undertaking research concerning the development of structural health monitoring systems for the wind energy sector. The aim is to define a SHM strategy of instrumentation of the wind turbine (and notably the foundations and the grouted connection) using optical fibers, taking into account all the uncertainties inherent to the instrumentation and to the damage detection methodology, in order to get reliable predictions for the maintenance. She is enrolled since 2015 as a PhD student at the University of Nantes (France).



Flore Remuit, Univeristy of Uppsala

Flore graduated from Ecole Centrale de Nantes (France) in 2012 and is now a PhD student within the wave power group of Uppsala University (Sweden), division for electricity. She works on improving the cable connection phase for the deployment of Wave Energy Converters. Her research is based on the use of small Remotely Operated Vehicles (ROVs) assisted by tailor made tools in order to perform demanding tasks with low investment.



Michele Martini, University of Cantabria

Michele Martini is an industrial engineer with expertise in marine renewable energy. He holds a B.Sc. in Energy Engineering from “La Sapienza” University of Rome (Italy, 2006-2009) and a M.Sc. in Innovative and Sustainable Energy Engineering from The Royal Institute of Technology, with a specialization in Wind Energy from the Technical University of Denmark (Sweden and Denmark, 2010-2012). After working two years at Politecnico di Torino at the design of ISWEC - Inertial Sea Wave Energy Converter (Italy, 2012-2014), he was awarded with a Marie Curie scholarship for a Ph.D. at the University of Cantabria (Spain, 2014-2017). He will defend his Ph.D. thesis entitled “Reducing uncertainty in floating offshore wind operation and maintenance” on April 5th, 2017. Currently, he is seconded Umbra Cuscinetti S.p.A. (Italy) where he is involved in the development of an electro-mechanical direct drive generator for wave and tidal energy conversion.



Mohammadtaghi Poshtmashhdi, Instituto Superior Técnico

Mohammadtaghi Ghorbani was born in Kashan, Iran, in 1987. He received a BS degree in Mechanical Engineering from Kashan University, Kashan, Iran, in 2009, and his MS degree in Mechatronic Engineering in 2012 from Sharif University of Technology, Tehran, Iran. He is currently a PhD student at Institute for Systems and Robotics (ISR) an institution of Instituto Superior Técnico (IST) in Lisbon with professor António M. Pascoal and in the scope of the EU-project OceaNET. His current research work deals with cooperative control and navigation of fleets of autonomous underwater and surface vehicles to inspect offshore wind and wave energy structures.



Francisco Francisco, University of Uppsala

Francisco Francisco is a PhD candidate in Engineering Sciences (Div. of Electricity) with enthusiasm for offshore surveys. His vision is to minimize the risks associated with subsea operations during installation & operation energy converters. His current PhD research is focused on developing alternative methods & tools for environmental monitoring of marine renewable energy technologies. He is achieving this goal by developing an active acoustic monitoring platform that integrates commercial off-the-shelf hardware of active acoustic systems, in a standardized manner suitable for subsea environmental monitoring of energy converters. His PhD is part of marine renewable energy projects undertaken by Uppsala University, it is also part of the Marie Curie Initial Training Network named OceaNET. His work is focused on the using of Sonars for environmental monitoring of marine renewable energy technologies



Invited Speakers

Discussion Session: New challenges of marine renewable sector



Tony Lewis

Emeritus Beaufort Professor, University College Cork

Information available soon



Jose Luis Villate

Offshore Renewable Energy Director, TECNALIA

Jose Luis Villate B.S. degree in physics (1991) and M.Sc. degree in advanced manufacturing (1992). He works with TECNALIA, the biggest private research organisation in Spain, where he is currently the Director of Offshore Renewable Energy. He is working on several R&D projects concerning ocean energy and offshore wind with both private and public funding. Mr Villate is vice-chairman of the OES, the Technology Collaboration Programme on Ocean Energy Systems of the International Energy Agency. He is also chairman of the Spanish standardisation Committee on Marine Energy, Board member of the European Ocean Energy Association and part of the executive committee of the Ocean Energy Joint Programme of the European Energy Research Alliance. He is author or co-author of more than 40 papers and conference communications in national and international forums. He is the holder of four patents related to renewable energy.

How can industry benefit from ITNs?



Rich Walker

Senior Marine Operations Analyst, Mojo Maritime Ltd

Rich Walker is a software engineer working for James Fisher Marine Services. Rich is primarily responsible for the development of the Mermaid software system. Holding a PhD from the University of Exeter, Rich has developed a number of methods for the simulation and analysis of marine operations, with particular emphasis on the impact of weather.



Luca Castellini

Energy R&D and BD Manager at UmbraGroup

He was born in Perugia, Italy, in 1976. He graduated in aerospace electronic engineering from the University of Perugia, Italy, in 2002 and later he graduated in electrical engineering from the University of L'Aquila, Italy, in 2014.

In 2006, he joined Umbra Cuscinetti S.p.A., where he conducted research on advancement in electromechanical integration. Since 2007 he has been involved in several international research projects. From 2012 he has the role of R&D Manager and he is working on the innovation of PTO system for wave energy converters.



OceaNET



Endika Aldaiturriaga
Product Engineer, Oceantec Marine Energy

Information Available soon

Discussion session: How can O&M innovation bring ORE closer to the market?



Pedro Luis Díaz- Marta
R&D Manager, Ingeteam Power Technology S.A.

Pedro Salazar is an industrial engineer graduated from Castilla-la Mancha University and Miguel Hernández University, where he obtained the Master of Science Degree in Industrial Electronics and Automation. He has more than 8 years of professional experience in R&D and innovation. He worked 4 years in two technology centres in Valencia, (IBV and AINIA) participating in sensor networks and data analysis software development for different applications such as energy efficiency. Later, he joined Abengoa as technical manager of two European projects aimed to develop advanced technologies for monitoring and control of microgrids and integration of renewables in the power system. Since 2016, he coordinates the R&D department of the Service unit at Ingeteam Power Technology, focusing on cost reduction of power plants O&M through innovative design, condition monitoring or optimal operation.