

INORE EUROPEAN SYMPOSIUM 2013 WALES



Swansea University
Prifysgol Abertawe

INTERNATIONAL NETWORK ON
INORE
OFFSHORE RENEWABLE ENERGY



GL 
GL Garrad Hassan

MARIN

LCRI LOW CARBON
RESEARCH INSTITUTE

 **ES** | OCEAN
ENERGY
SYSTEMS

INDRE

SYMPOSIUM 2013 AGENDA

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
830					Breakfast		
900							
930		INDRE Intro	Kieran Mank Tiago Mendez Duarte	Emmanuel Fernandez Michael Barq	Parterrezzion 5	Parterrezzion 8	Tidy
1000		Duncan Sutherland				Dr. Joachim Weber	Leaves
1030		Iain Keaney	NOC - Dr Annie Linley NOC - Dr Eleanor Ashton	Parterrezzion 3	Collaborative talk/Julia Fernandez Chozas: Energy future 2	Tecnalia - Imanol Gonzalez	
1100		Tam Lake	Collaborative talk	Collaborative talk		HR Wallingford - Dr John Harris	
1130		Lunch				Plymouth Coast Lab - Prof. Gregoria Iglesias	
1200						Lunch	
1230							
1300			Lunch/New committee Intro-Ocean Suite	Lunch/New Committee Candidates Elevator Pitches-Ocean Suite	Lunch/Julia Fernandez Chozas: Energy future 2		
1330		Activity					
1400			LCRI - Drian Masters	MHPA and Julia Fernandez Chozas: Energy future		Parterrezzion 9	
1430							
1500			MARIN - Sebastian Guaydan	Collaborative task	GL Garrad Hassan - Steven Parkinson	Collaborative Task Presentations	
1530			Collaborative talk		Parterrezzion 7		
1600							
1630							
1700							
1730			Dinner		BBQ/New Committee Results	Dinner	
1800							
1830		Matt Hall	Parterrezzion 2	Collaborative talk/Julia Fernandez Chozas: Energy future 1		Best Freshwater Parter/Bert Fazzil	Best Parter/Bert Talk Prize Giving - Ocean Suitor
1900		Uuse Fechner					
1930		Parterrezzion 1	Sporting activity				
2000				Cameron McMatt			
2030		Fun and Games		Fun and Games			
2100							
2130		Dinner					
2200		Health and safety talk					
2230							
2300							
2330							

From the 12th to the 18th of May this year 50 young researchers in Offshore Renewable Energy travelled from around the world to meet in Pembroke Dock for one week of keynote presentations, poster sessions, collaborative tasks, renewable energy tasks and hours of networking events.

- 50 researchers,
- 8 poster session hours,
- 10 attendee presentations,
- 12 keynote speakers,
- 4 campfires,
- ...and 1 great band!



All this...packed into 5 days of pure INORE.



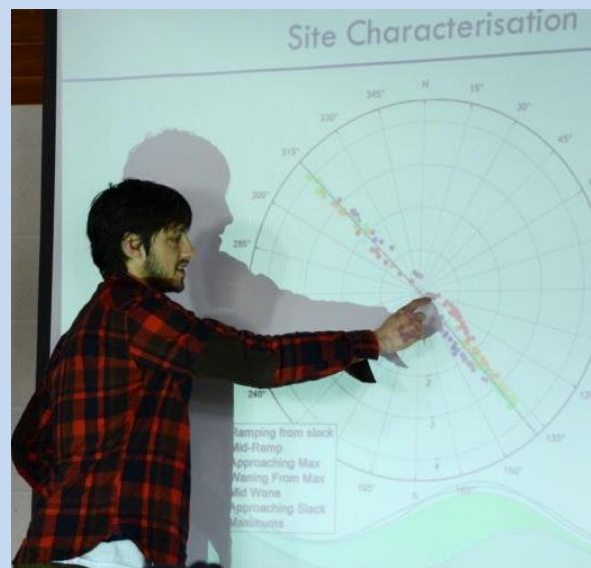
Turbine and Seabed Installed Acoustic Sensor Arrays.

Iain Keaney gave a presentation on Experimental Wave Tank Tests. The morning session finished on an environmental impact note, with Tom Lake presenting a computer model of marine mammal behaviour, in particular, a study on Harbour Porpoise at a potential tidal stream turbine deployment site.

The week began in true Welsh style...with rain... outside Cardiff Station on Sunday the 12th of May.

Introductions over a late supper were closely followed by networking in the Ocean Suite, overlooking a tidal estuary with, some may say, the 2nd largest tidal range in the world!

Monday morning talks were started by Duncan Sutherland, presenting *Flow Characterisation Utilising*



INORE

In the afternoon, the INOREans bonded over outward-bound activities. Four different activities were available: raft building, kayaking, canoeing and coasteering.



The wind and tide meant that the estuary was a pretty tough place to be, but everyone got involved in their water sports and made the most of the afternoon, whether taking on the high seas in a canoe, running over the bows of the kayaks, or ineffectively trying to advance an asymmetric raft.

The three groups who had stayed close to the centre then waited for the return of the group who had taken on the coasts of Pembrokeshire –



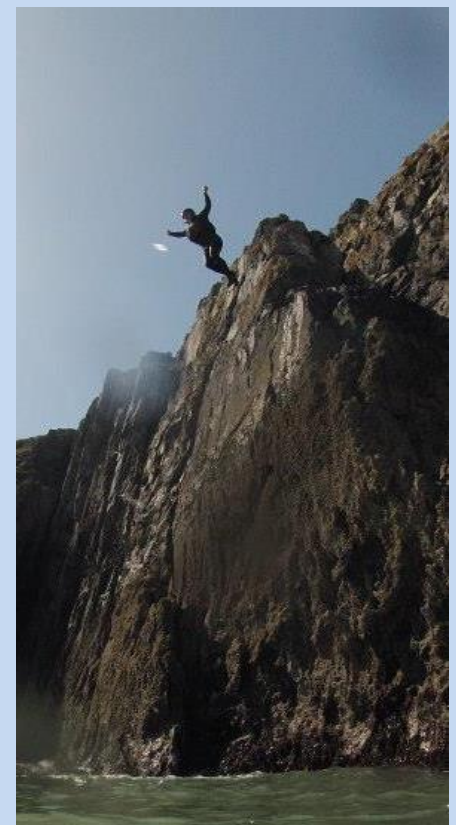
climbing up and around the cliffs so as to jump from their tops. They arrived back eventually – very cold, but smiling and with stories (and photographic evidence) of caves and plunging leaps.

After an earlier dinner Matt Hall introduced an iterative model to optimise wind turbine platforms. Uwe Fechner presented a novel kite power energy absorption device, with field testing!



The day ended with an hour of poster sessions, officiated by Kate with the cowbell, where the attendees presented their work to each other in smaller groups of informal discussions.

And this is just day one!



INORE

Tuesday began with the morning wake up call, officiated by Hannah and a cowbell at 8.30.

Kieran Monk began the second day with a presentation on the real time airflow control for power enhancement at the Pico Oscillating Water Column power plant. This was followed by Tiago Duarte presenting the 2nd order and multi-directional waves on floating offshore wind turbines.

Before Lunch, we were joined by keynote speakers Dr

Annie Linley and Dr Eleanor Ashton, talking about the opportunities and

possibilities of the Natural Environmental Research Council (NERC). Annie highlighted the importance of quality inter-disciplinary communication and events, such as the INORE symposium.

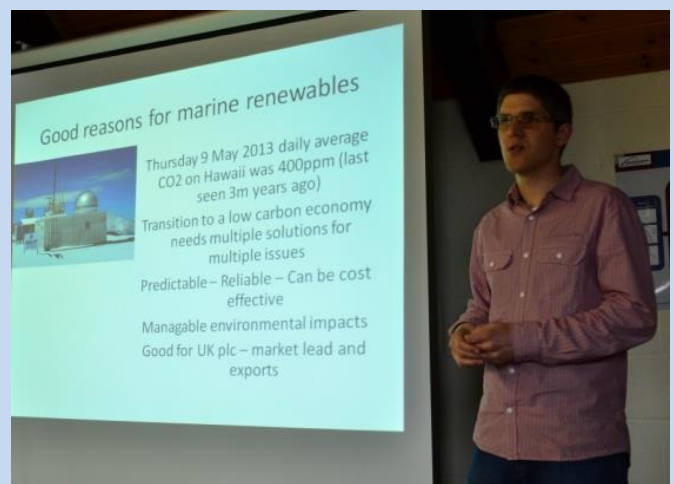
www.nerc.ac.uk

The collaborative tasks were introduced (more on this later) and then after lunch we were joined by keynote speakers from the Low Carbon Research Institute (LCRI) and Swansea University.

www.swan.ac.uk/engineering/marineenergy

Mèrin Broudic presented a study on underwater acoustic measurement and evaluation, followed by a presentation on ADCP turbulence measurement analysis by Dr Michael Togneri.

The session was brought to a close by Dr Ian Masters, who presented the opportunities and progress of marine energy, particularly in Wales, as well as the active research at the LCRI and Swansea University. He ended with the exciting opportunities for INOREans, considering the stage of the industry and posed thought provoking questions to the attendees; such as **Why do you work in Offshore Renewable Energy?** and **Are marine renewables more of a religion than an industry?**



INORE

After a coffee break, Sebastien Gueydon from the Maritime Research Institute Netherlands (MARIN) presented the test facilities at MARIN and the opportunities for young researchers, looking in particular at recent floating offshore wind tests.

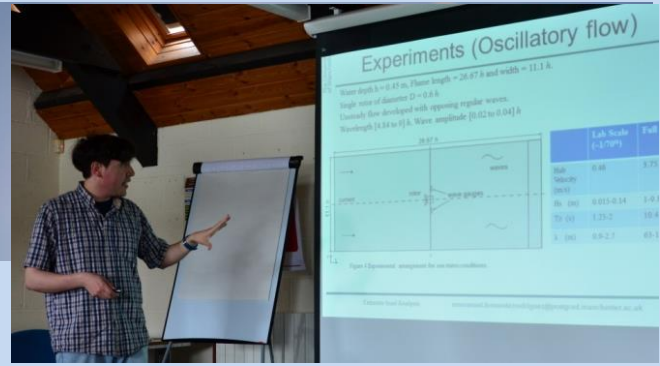
What more could an INOREan want of a day...? More poster sessions!



The day ended with the first (of many!) sing-a-long sessions around the campfire.

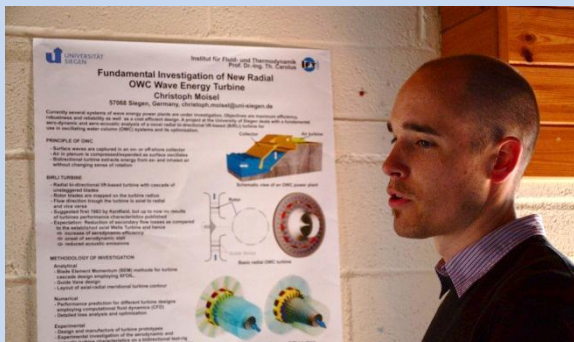


INORE



Wednesday began with attendee presentations from Emmanuel Fernandez, presenting novel floating support structures for marine and wind energy and Michael Borg, talking about coupled dynamics of offshore floating vertical axis wind turbines.

...and yet more poster sessions officiated by Andy and the cowbell.



For the remainder of the day, the group split into two and alternated between a visit to the Milford Haven Port Authority and an invited keynote interactive workshop, held by Dr Julia Fernandez Chozas on the Energy Crossroads: Changing the Game.

We were met at Pembroke Dock by Ken Hobbs, and began a tour of the dockside assembly hangers that will be used for tidal turbine manufacture. From this location, the group enjoyed a view across the Haven as Ken summarised the energy production activities in the area.

The day wrapped up with Cameron McNatt with an interesting idea to link INORE with an open source, renewable energy research website to exchange knowledge. Wednesday ended with a surprise concert by MOOSE Band Wales, which was enjoyed by all!



INORE



Thursday was a day of four seasons, beginning with bright sunshine and the **Energy Crossroads: Changing the Game** was continued outside.

This engaging workshop puts the players in charge of energy consumption and production on a massive scale and encourages the participants to think of their research in the context of international renewable energy targets. Various – challenging, inspiring as well as exciting – scenarios were proposed, and then discussed in an EU Parliament atmosphere. Overall, the session inspired everyone to think on our current and future energy systems, and the actual possibilities to make a real change.

INORE was joined by keynote speaker **Steve Parkinson** from GL Garrad Hassan. He presented tidal software and the experimental validation that has been carried out on wake interaction.

We also heard from **Brendan Cahill** outlining the activities of **MARINET**.



INORE

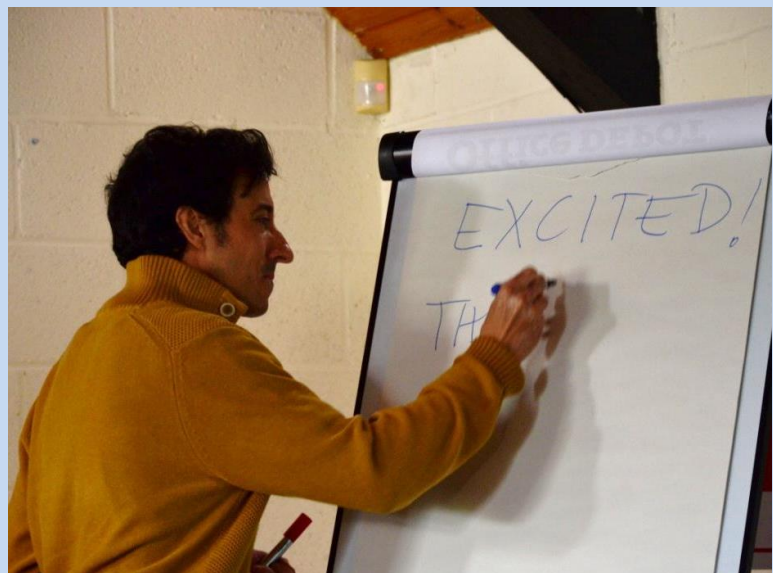
On Friday we were joined by Jochem Weber from the National University of Maynooth, who presented technology readiness levels and technology performance levels using a visual and interactive matrix.

Imanol Gonzalez from Tecnalia presented on the importance of techno-economic tools in looking at the sensitivities to cost of energy for different projects.



After a break, Dr John Harris from HR Wallingford presented on the time-variability of the sediments around offshore wind turbine foundations and how scour protection should be included and monitored.

Professor Gregorio Iglesias from Plymouth spoke about simple, non-self-destructive, friendly devices and his excitement in considering the future of offshore renewables, particularly for the new generation of INOREans.



INORE

SYMPOSIUM 2013 LIST OF ATTENDEES

Abi Iyer	a.sankaran-iyer@ed.ac.uk
Adam Brown	brownad@onid.orst.edu
Adrian de Andres	andresad@unican.es
Alex Olczak	alexander.olczak@postgrad.manchester.ac.uk
Alice Goward Brown	osua72@bangor.ac.uk
Alice Hicks	alice.hicks2@btinternet.com
Andy MacGillivray	a.macgillivray@ed.ac.uk
Antonella Colucci	eng.colucci@gmail.com
Arantza Iturrioz Ezeiza	iturrioz@unican.es
Arash Moradinegade Dizqah	arash.moradinegade@northumbria.ac.uk
Azadeh Kamjoo	azadehkamjoo@yahoo.com
Brendan Cahill	b.g.cahill@umail.ucc.ie
Cameron McNatt	c.mcnatt@ed.ac.uk
Carlos Perez Collazo	carlosperezcollazo@gmail.com
Christophe Moisel	christoph.moisel@uni-siegen.de
Dan Eddon	eg0u8144@student.liv.ac.uk
David Crooks	dcrooks02@qub.ac.uk
Duncan Sutherland	d.sutherland@ed.ac.uk
Ed Ransley	edward.ransley@plymouth.ac.uk
Emmanuel Fernandez	diseno.2@hotmail.com
Enayatollah Zangiabadi	502830@swansea.ac.uk
Gerson Fernandes	gcf105@yahoo.com
Hannah Buckland	513924@swansea.ac.uk
Iain Keaney	iain.keaney@nuim.ie
Jiska de Groot	jiska.degroot@plymouth.ac.uk
Josh Davidson	j davidson@eeng.nuim.ie
Kate Freeman	kate.freeman@plymouth.ac.uk
Kieran Monk	kieran.monk@plymouth.ac.uk
Kieran Reilly	kieranmreilly@hotmail.com
Lifen Chen	lc499@bath.ac.uk
Liz Christie	E.Christie@liv.ac.uk
Matt Hall	mtjhall@uvic.ca,
Michael Borg	m.borg@cranfield.ac.uk
Morten Jakobsen	mmj@civil.aau.dk
Morten Thott Andersen	mortenthott@gmail.com
Oana Maria Coman	ocoman11@student.aau.dk
Peter Duncan McCallum	P.McCallum@ed.ac.uk
Philip Balitsky	balitsky@eeng.nuim.ie
Richard Lupton	richard.lupton@cantab.net
Sarah Gallagher	sarah.gallagher.3@ucdconnect.ie
Sian Tedds	sian.tedds@liv.ac.uk
Tessa Gordelier	tjg206@exeter.ac.uk
Thomas Lake	527562@swansea.ac.uk

INORE

Thomas Viuff
Thomas Vyzikas
Tiago Mendes Duarte
Tom McCombes
Uwe Fechner

tviuff08@student.aau.dk
thomas.vyzikas@plymouth.ac.uk
tiago.duarte@hidro1.ist.utl.pt
tom@esru.strath.ac.uk
ufechner@sk28.de



NEW COMMITTEE

The 2012-2013 committee would like to thank everyone who helped to organise this event and who came along and shared their knowledge.

The 2013-2014 INORE Committee as voted for by the INOREans at the symposium, will be Josh Davidson (chair), Hannah Buckland (Vice Chair), Thomas Kinsey, Adrian de Andres, Matt Hall Carlos Perez Collazo, Jiska de Groot, Morten Jakobsen, Sian Tedds, Cameron McNatt, Adam Brown