



Ocean Energy

From Innovation to Industry

Monday, October 23rd, 2006

Tuesday, October 24th, 2006

EC Contractors' Meeting

Wednesday, October 25th, 2006

**Deutsches Schiffahrtsmuseum
Bremerhaven, Germany**



Conference Chairman:

Prof. Dr.-Ing. Jürgen Schmid

Institut für Solare Energieversorgungstechnik (ISET) e. V.,
Kassel, Germany

Scientific Committee:

Yves Bamberger

EDF Research, France

Jochen Bard

ISET, Germany

Peter Fraenkel

Marine Current Turbines, UK

Prof. Kai Uwe Graw

University of Dresden, Germany

Prof. Ian Bryden

Robert Gordons University, UK

Dr. Tony Lewis

University College Cork, Ireland

Kim Nielsen

Ramboll, Denmark

Prof. António Sarmento

Wave Energy Centre, Portugal

Prof. Jürgen Schmid

ISET, Germany

Johan Hustad

Sintef, Norway

Language:

The Conference Language is English.

Information about OTTI:

OTTI has a 30-person strong team which provides seminars, specialist forums and conferences. About 5000 specialists and managerial personnel from business, administration and science take part every year.

The OTTI is one of the leading conference organisers in the field of renewable energy sources. With us you not only update your knowledge, but also feel good. Lectures on the latest themes provide optimal information and that with shared meals, evening events where you can make worthwhile contacts with other participants and lecturers.

Chairman's Message:

The oceans represent a huge but so far untapped resource of renewable energy e.g. in the form of tides, waves and currents. After more than two decades of R&D in new technologies, the utilisation of this resource is just about to become reality when the first energy farms of wave and tidal current devices will be installed in the upcoming months. According to the national and international funding programmes announced recently, we can expect a total investment of more than 200 mill. Euro into ocean energy technologies within the next few years only in Europe. From the state of the art of pilot and demonstration devices, the technology has to move forward quickly to high technical standards on the system and component level in order to provide the reliability required for many years of operation. Furthermore, the whole planning process including administrative and environmental aspects as well as availability of grid connections still needs to be improved and harmonised.

The aim of this new conference event is to bring together research and development, industries, project developers, utilities, policy makers and organisations involved in the permission process and to provide a platform for technical and non-technical discussions.

Due to the rapidly increasing political and industrial interest in ocean energies in Germany, we have selected Bremerhaven for this 1st conference. We hope that it will become very productive in the sense of new results and expand the global network of actors and that this event may be followed by a series of future conferences.

We would like to invite you to participate in this fascinating and challenging subject and we would be glad to welcome you in Bremerhaven in October 2006.

Prof. Dr.-Ing. Jürgen Schmid
Institut für Solare Energieversorgungstechnik (ISET) e. V.,
Kassel, Germany

Conference Location:

Bremerhaven built in 1827 is situated where the river Weser enters the North Sea. Well known by its famous international "Windjammer Festival" also the world's oldest hanseatic cog is anchored in Bremerhaven's National German Maritime Museum.

Deutsches Schiffahrtsmuseum
Hans-Scharoun-Platz 1
27568 Bremerhaven, Germany
www.dsm.de

Phone: +49 471 48207-0
Fax: +49 471 48207-55

You will meet:

- Planners
- Producers
- Energy politicians
- Engineers and scientists active in ocean energy

Focus of the Conference:

- Development of Technologies
- Know-how Transfer
- Identification of R&D Needs
- Exchange of Results and Ideas

Your Advantages:

- You gain comprehensive information about the **state of technology** as well as latest **results from research and development**.
- The scope of the conference is intended to encourage a hearty **open discussion of problems and future strategies to spread** Ocean Energy.
- The speakers are leading scientific and business experts.
- The programme structure and the conference venue best ensure **exchange of views** between participants and presenters.
- The detailed **proceedings book** with all talks and poster contributions will be handed over at the start of the conference and will serve you well as reference works.

How to get to Bremerhaven:

By Plane: Next Airport is Bremen Airport. It is located 65 kilometres south of Bremerhaven, in Bremen.

By Train : Next railway station is Bremerhaven Hauptbahnhof (central railway station Bremerhaven) which provides an excellent connection to the public transport system (bus service, taxi ranks) of Bremerhaven.

By Car: Next motorway to Bremerhaven A27, exit no. 7.

Programme:

Monday, October 23rd, 2006

Opening Address

09:00 Eckardt Günther, OTTI, Regensburg, Germany

09:10 Jürgen Schmid, ISET, Kassel, Germany

Opening Session: Political – Economical Framework

Chair: Prof. Jürgen Schmid, ISET, Germany

**Co-Chair: Komninos Diamantaras, Project Officer,
European Commission, Research Directorate-General,
New and Renewable Energy Sources**

09:20 Ralf Christmann, Federal Ministry for the Environment,
Nature
Conservation and Nuclear Safety, Berlin, Germany

09:30 Welcome address
Alla Weinstein, European Ocean Energy Association

09:35 5-Year Activity Review of the IEA Ocean Energy Systems
Implementing Agreement
Katrina Polaski, Sustainable Energy Ireland, Dublin, Ireland

09:50 An Analysis of the Research Landscape and Priorities
for Marine Renewable Energy
Markus Mueller, Institute for Energy Systems, School of
Engineering & Electronics, University of Edinburgh

10:00 The developing focus on renewable energy resources
in Canada's three oceans
Chris Campbell, Ocean Renewable Energy Group,
Nanaimo, Canada

10:10 Ocean Energy from the utility perspective
Yves Bamberger, EDF Research, France

10:30 Coffee break

Field Experience

Chair: Prof. Ian Bryden, University of Edinburgh, United Kingdom

11:00 Seagen: pioneering megawatt-scale tidal stream
power generation
Peter Fraenkel, Marine Current Turbines Limited, Bristol, UK

11:15 Grid-Connected OWC Wave Power Plant at Azores, Portugal
Frank Neumann, Wave Energy Centre, Lisbon, Portugal

11:30 Preliminary Results from Second Phase Sea Testing
of the Wave Dragon Prototype Wave Energy Converter
James Tedd, Department for Civil Engineering,
Aalborg, Denmark

11:45 Wave Star Energy – new wave energy converter, which is now under going sea trial in Denmark
Per Resen Steenstrup, Wave Star Energy,
Charlottenlund, Denmark

12:00 Discussion

12:20 Poster Session

Chair: Jochen Bard, ISET, Germany

B. Market/Economics/Finances

- B1 How can we convince nature conservationists, authorities and residents of the advantages and benefits of several Tidal Power Plants in one region
Kai-Ude Janssen, Atlantisstrom, Wolfsburg, Germany

C. Modelling/Simulation/Testing

- C1 Comparison of linear and nonlinear energy and energy flux calculations for bi-chromatic long-crested surface water waves
Emile Baddour, National Research Council – Canada Institute for Ocean Technology, St. John's, Canada
- C2 Conceptual design for Bacanga tidal power plant
Rafael Ferreira, Submarine Technology Lab,
Federal University of Rio de Janeiro, Brazil
- C3 A model to investigate interacting wave power devices
Charlotte Beels, Ghent University, Zwiijnaarde, Belgium
- C4 Influence of spectrum spreading on the performance of the SEAREV wave energy converter
Alain H. Clément, Laboratoire de Mécanique des fluides,
Ecole Centrale de Nantes, France
- C5 Large-scale sea state simulation in the GWK for testing ocean wave energy systems
Joachim Grüne, Coastal Research Centre,
Hannover, Germany
- C6 The reduction of risks and the acceleration of development through the step wise evaluation of scaled prototypes
Jamie Grimwade, New and Renewable Energy Centre (NaREC) Ltd, Glasgow, UK
- C7 Optimisation of the Geometry of Wave Energy Converters
Pierpaolo Ricci, Instituto Superior Técnico, Lisbon, Portugal

E. Systems Technology

- E1 Condition Monitoring and Fault Prediction for Marine Current Turbines
Jochen Giebhardt, Institut für Solare Energieversorgungstechnik (ISET) e.V, Kassel, Germany
- E2 Development of a 500kW Tidal Current Turbine
Albert Ruprecht, University of Stuttgart, Germany

F. Field Experience

- F1 Ifremer and Ocean Energy
Michel Paillard, Ifremer, Plouzane, France

G. Environmental Aspects

- G1 Predictive methods for the evaluation of ecological change in the proximity of MEC developments
John Ruscoe, ICIT, Heriot-Watt University, Orkney, Scotland
- G2 Life Cycle Assessment of the Wave Energy Converter: Wave Dragon
Hans Christian Sorensen, Wave Dragon ApS,
Copenhagen, Denmark

13:00 Lunch break on the museum's ship "Seute Deern"

Modelling/Simulation/Testing Part I (Tidal)

Chair: Kim Nielsen, Ramboll, Denmark

- 14:30 Load Simulation for Tidal Turbines using Wind Turbine Experience
Graeme McCann, Garrad Hassan and Partners Ltd.,
Bristol, England, UK
- 14:45 Modelling and Simulation Techniques applied to Marine Current Turbines
Giovanni Mattarolo, Institut für Solare Energieversorgungstechnik (ISET) e.V., Kassel, Germany
- 15:00 Investigations of the wake effects in marine current farms, through numerical modelling with the TELEMAC system
Clément Buvat, EDF R&D, Chatou, France
- 15:15 About the optimization of a "vertical axis" marine river power farm
Sylvain Antheaume, EDF R&D, Chatou, France
- 15:30 Discussion
- 15:50 Coffee break and visit of the poster exhibition

Modelling/Simulation/Testing Part II (Wave)

Chair: Dr. Tony Lewis, University College Cork, Ireland

- 16:30 Investigation of collector width on the point absorber effect for a surging collector
Nick Baker, Lancaster University Renewable Energy Group,
Lancaster, UK
- 16:45 Comparison of simulation and test results for a generic moored WEC using a catenary mooring arrangement
Lars Johanning, School of the Built Environment,
Heriot-Watt University, Edinburgh, Scotland

17:00 Turbine type & design selection in the context of multi-parametric overall system optimisation of Oscillating Water Column wave energy converters
Jochem Weber, Hydraulics & Maritime Research Centre, University College Cork, Ireland

17:15 Discussion

17:30 End of talks – visit of the poster exhibition

18:00 End of the first conference day

20:00 **Gala Dinner**
Restaurant Strandhalle
H.-H.- Meier-Straße
Bremerhaven

Tuesday, October 24th, 2006

Technology: Components and System

Chair: Peter Fraenkel, Marine Current Turbines, United Kingdom

08:30 Power take-off technologies for tidal turbines
Jochen Bard, Institut für Solare Energieversorgungstechnik (ISET) e.V, Kassel, Germany

08:45 Wave power in Europe, the Voith Siemens perspective
Raphael Arlitt, Voith Siemens Hydropower Generation

09:00 Composite Structures for Ocean Energy Application
Dietmar Müller, xperion GmbH, Germany

09:15 Morild – Floating tidal power plant
Petter Hersleth, Statkraft, Norway

09:30 Discussion

09:50 Coffee break and visit of the poster exhibition

Resource and Site-Studies

Chair: Prof. António Sarmento, Wave Energy Centre, Portugal

10:30 Integration of Electricity generated by Ocean Energy Technologies into the Electricity Supply System
Bernhard Lange, Institut für Solare Energieversorgungstechnik (ISET) e.V., Kassel, Germany

10:45 A Wave Resource Assessment for the European Marine Energy Centre, Orkney
George H. Smith, Heriot-Watt University, Scotland

11:00 Guidelines for Wave Energy Resource Assessment and Standard Wave Climate
Jean Baptiste Saulnier, INETI, Lisbon, Portugal

11:15 Resource Assessment for Hydropower Installations in the Ocean on the Basis of Spaceborne Radar Interferometry
Roland Romeiser, Institute of Oceanography, University of Hamburg, Germany

11:30 Discussion

11:50 Lunch break on the museum's ship "Seute Deern"

Environmental Issues

Chair: Prof. Kai Uwe Graw, University Dresden, Germany

13:30 The EIA approach to wave energy within the European Research Training Network WAVETRAIN
Cristina Huertas-Olivares, Wave Energy Centre, Lisbon, Portugal

13:45 Environmental Impact Assessment of a Wave Energy Converter: Wave Dragon
Iain Russell, Wave Dragon Ltd, Wales, UK

14:00 Design of ocean systems for permittability
Alla Weinstein, Aqua Energy Group, USA

14:15 Discussion

Closing Session

Chair: Yves Bamberger, EDF Research, France

Co-Chair: Wiktor Raldow, European Commission, Research Directorate-General, Head of Unit New and Renewable Energy Sources

14:30 Synergies between Ocean energy technologies and small hydropower
Bernhard Pelikan, President of the European Small Hydropower Association (ESHA)

14:45 Ocean Energy perspectives in the 7th framework programme of the EC
Kominos Diamantaras, Project Officer, European Commission, Research Directorate-General, Unit New and Renewable Energy Sources,

15:00 Discussion

15:10 Conclusions and Outlook
Announcement of the next Conference
Jürgen Schmid, ISET, Kassel, Germany

15:30 End of the Conference

15:30 Last coffee break

16:00 Start of Technical Tours

Transfer by car pools/car sharing

16:15 Alfred Wegner Institut, Bremerhaven, Germany

16:15 Weser Wind GmbH, Bremerhaven, Germany

17:30 Coastal Research Centre (FZK), Large Wave Channel, Hanover, Germany

Wednesday, October 25th, 2006

The European Commission's Research Directorate General is organising a one-day **Ocean Energy EC Contractors' Meeting** on October 25th, 2006 in connection with the International Conference Ocean Energy. The event is open to all, and no conference fee is foreseen, although prior registration is required.

The event will bring together EC-funded projects on ocean energy with other stakeholders, including those from offshore wind energy and small hydropower. The aim is to disseminate information on current RTD activities, evaluate industry needs and identify challenges and opportunities for the development of ocean energy related science and technologies. The Seventh Framework Programme for research will also be presented.

For registration and more information please refer to the events web site <http://www.otti.de/>

The final programme of the day will be available at the events site, as well as at: <http://ec.europa.eu/research/energy>

For additional queries please contact the responsible scientific officer, at Komninos.Diamantaras@ec.europa.eu

Accommodation:

Please book your accommodation as soon as possible by yourself!
Password: "Ocean Energy"

Nordsee Hotel Bremerhaven (4*)

Phone: +49 471 4877-0
Fax: +49 471 4877-9 99
(Distance to venue: 500 m)

Hotel Columbus

Phone: +49 471 9544-0
Fax: +49 471 9544-266
(Distance to venue: 2,5 km)

For tourist information you might consult

www.bremerhaven-tourism.de
Touristik@bis-bremerhaven.de

Atlantic Hotel am Flötenkiel (2*)

Phone: +49 471 80626-0
Fax: +49 471 80626-26
(Distance to venue: 3,5 km)

Hotel Haverkamp (4*)

Phone: +49 471 4833-0
Fax: +49 471 4833-281
(Distance to venue: 500 m)

Conference Organiser

Eckardt Günther/Britta Haseneder/Gabriele Struthoff-Müller

OTTI e.V.
Wernerwerkstraße 4
93049 Regensburg
Germany

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E-Mail: britta.haseneder@otti.de
E-Mail: gabriele.struthoff-mueller@otti.de

Conference Fee

International Conference Ocean Energy

If registered until August 25th, 2006 | after August 25th, 2006

Per Person: €440,00 | €500,00
Member of OTTI: €380,00 | €440,00
Reduced fee for presenters: €250,00

Fees cover the admission to all sessions, invitation to all coffee breaks, conference lunches, the gala dinner and the conference proceedings.

EC Contractors' Meeting

Participation free of charge

If registered for both events

(Ocean Energy Conference and EC Contractors' Meeting)

Per Person: €380,00

If you are registered for both events and will only attend in the International Conference Ocean Energy please note that the regular conference fee for this conference will be charged (depending on the date of your registration).

Registration Conditions

You will receive the relevant papers and confirmation as soon as we have your registration. The fees are exempt from value-added tax (VAT) and are payable in full upon receipt of the invoice. **Payment must be received no later than 14 days before the conference begins (it has to be settled in EURO). All bank charges have to be covered by the transmitter!** OTTI reserves the right to refuse admission if the amount has not arrived, unless said amount is paid by cheque on the day. In case transferring occurs later than 14 days before the conference, please keep a copy of the transfer order ready and show it in the organisation office at the conference. OTTI reserves the right to change the programme at short notice for urgent reasons. There is no charge for cancellations made at least 35 days before the event starts. If the booking is cancelled 34 days before the start of the conference a service charge of €120,00 will be made. It is possible to rebook once without extra charge. All cancellations must be in writing. Legal domicile and place of fulfilment is Regensburg. It is possible to send a substitute delegate at any time without additional cost, but we need a written message about the change.

Timetable:

International Conference Ocean Energy

	October 23 rd , 2006	October 24 th , 2006
08:30		
09:00		Technology: Components and System
09:30	Opening Address	
10:00	Opening Session: Political-Economical Framework	Coffee break
10:30	Coffee break	
11:00		Resource and Site-Studies
11:30	Field Experience	
12:00		
12:30	Poster Session	Lunch break
13:00		
13:30	Lunch break	
14:00		Environmental Issues
14:30		
15:00	Modelling/ Simulation/Testing Part I (Tidal)	Closing Session
15:30		Coffee break
16:00	Coffee break and visit of the poster exhibition	
16:30	Modelling/ Simulation/Testing Part II (Wave)	Start of technical tours
17:00		
17:30		
18:00		
18:30		
19:00		
19:30		
20:00	Gala Dinner	

International Conference Ocean Energy

October 23rd/24th, 2006 (COE 2580)

Ocean Energy EC Contractors' Meeting

October 25th, 2006

OTTI e.V.

Headword: Ocean Energy

Wernerwerkstraße 4
93049 Regensburg
Germany

Please print your member or customer number:

OTTI (Member number only)

I will participate in

- International Conference Ocean Energy
- EC Contractors' Meeting
- Both events

We are interested in sponsorship.
Please send us information and the registration form.

I cannot participate but wish to order the conference proceedings at the price of € 90,00 (incl. VAT) plus postage and packing – delivery after the conference.

We would like to present our products in the exhibition.
Please send us information and the registration form.

Family name

First name/Mr/Mrs/Ms/Dr/Prof.

Phone/Fax

Profession

Company/Institute

Postal address

Invoice address

Postal code/City

Country

E-MAIL

Number of employees

Date/Signature/Company stamp

Registration only valid with signature and company stamp!