



future ocean  
KIEL MARINE SCIENCES

## 3rd BI-ANNUAL SYMPOSIUM FUTURE OCEAN

| 13.09. - 16.09.2010

Christian-Albrechts-Universität zu Kiel, Audimax, Kiel, Germany

## VENUE

Christian-Albrechts-Universität  
zu Kiel, Audimax  
Christian-Albrechts-Platz 2  
24118 Kiel, Germany

## ABSTRACT SUBMISSION

Please submit your abstract  
on the FUTURE OCEAN website  
[www.ozean-der-zukunft.de/english/  
the-network/symposium](http://www.ozean-der-zukunft.de/english/the-network/symposium)  
by July 5, 2010.

## REGISTRATION

Please register online on the  
FUTURE OCEAN website  
[www.ozean-der-zukunft.de/english/the-  
network/symposium](http://www.ozean-der-zukunft.de/english/the-network/symposium)  
Registration rates will be 120 €  
(students may apply for reduced  
rates). Registration deadline is  
September 6, 2010.  
On spot registration ist possible.  
Rate will be 50 €/day.

For further information please refer to  
the symposium website at  
[www.ozean-der-zukunft.de/english/the-  
network/symposium](http://www.ozean-der-zukunft.de/english/the-network/symposium)  
or contact  
Emanuel Söding and Kirsten Schäfer at  
[symposium@ozean-der-zukunft.de](mailto:symposium@ozean-der-zukunft.de)

## SCIENTIFIC STEERING COMMITTEE

- ▶ Thomas Bosch | Kiel | Germany
- ▶ Gernot Friedrichs | Kiel | Germany
- ▶ Roland von Glasow | Norwich | UK
- ▶ Christoph Heinze | Bergen | Norway
- ▶ Benjamin Horton | Philadelphia, Pa. | USA
- ▶ Gernot Klepper | Kiel | Germany
- ▶ Sebastian Krastel | Kiel | Germany
- ▶ David J. Miller | Townsville | Australia
- ▶ Charles A. Nittrouer | Seattle, Wash. | USA
- ▶ Alexander Proelß | Kiel | Germany
- ▶ Birgit Schneider | Kiel | Germany
- ▶ Ralph Schneider | Kiel | Germany
- ▶ Kerstin Schrottke | Kiel | Germany
- ▶ Klaus Schwarzer | Kiel | Germany
- ▶ Thomas Slawig | Kiel | Germany
- ▶ Karl Stattegger | Kiel | Germany
- ▶ Friedrich Temps | Kiel | Germany
- ▶ Athanasios Vafeidis | Kiel | Germany
- ▶ Martin Visbeck | Kiel | Germany
- ▶ Doug Wallace | Kiel | Germany
- ▶ Colin Woodroffe | Wollongong | Australia

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**ICEBREAKER** Monday 13.09.2010 | 18:00

**SYMPOSIUM DINNER** Wednesday 15.09.2010 | 19:00

**September 13 – 16, 2010 - Kiel, Germany**

Profound knowledge on the future ocean is essential for the adequate handling of ocean risks and sustainable use of marine resources. The main challenge in this respect is the understanding of ocean changes, both man-made and natural, and its consequences. Detecting and understanding these changes, and linking key aspects of a changing ocean to a full picture are the overarching goals of the 3rd symposium on the Future Ocean.

Today's knowledge of the future ocean is addressed and reflected in seven topics from processes at the ocean surface to those starting at the sea-floor; from river-mouths to coral-reefs, from estimating the past to future CO<sub>2</sub> uptake capacity to valuing and managing ocean changes economically.

**THE FUTURE OCEAN**

The **Kiel Cluster of Excellence „The Future Ocean“** is a unique research group in Germany comprising 250 scientists from six faculties of the Christian-Albrechts-University zu Kiel (CAU), the Leibniz Institute of Marine Sciences (IFM-GEOMAR), the Institute for World Economy (IfW) and the Muthesius University of Fine Arts.

This interdisciplinary group comprises marine scientists, earth scientists and economists, as well as medical scientists, mathematicians, lawyers and sociologists to jointly investigate climate and ocean change, to re-evaluate the opportunities and risks of global change for the oceans and develop a sustainable system

of resource management of the world's oceans and marine resources. The Cluster of Excellence „The Future Ocean“ is supported within the scope of the Excellence Initiative of the German Research Foundation on behalf of the German government and the federal states of Germany.

For more information see  
[www.ozean-der-zukunft.de](http://www.ozean-der-zukunft.de)

**ADDRESS**

Exzellenzcluster „Ozean der Zukunft“  
Christian-Albrechts-Universität zu Kiel  
24098 Kiel, Germany  
[info@ozean-der-zukunft.de](mailto:info@ozean-der-zukunft.de)  
Phone: ++49 431 880-1604

08:00–09:00 Registration

09:00–10:30 Opening

## COFFEE BREAK

11:00–12:30 Plenary Session 1

Charles A. Nittrouer  
Seattle, Wash., USAJames P.M. Syvitski  
Boulder, Colo., USA

## LUNCH BREAK

Sunday, 12.09.2010 | 14:00–17:30  
Monday, 13.09.2010 | 14:00–17:30

Workshop

Monday, 13.09.2010 | 14:00–15:30  
Monday, 13.09.2010 | 16:00–17:30

Workshop

1 |

**River-Mouth Systems**

River-mouth systems respond in various ways and on different time scales to global change. The style of deposition or erosion at the end of a river course, as well as the final locus of deposition at the sink – all influenced by climate change – have emerged as key to our understanding of coasts and shallow marine sedimentary environment. Enhancing the scientific underpinning will help to improve the success of coastal management and restoration.

**1a | Short Courses on Rivermouth Systems**

James P.M. Syvitski Boulder, Colo., USA

**2a | Coral Genomics**

David J. Miller Townsville, Australia

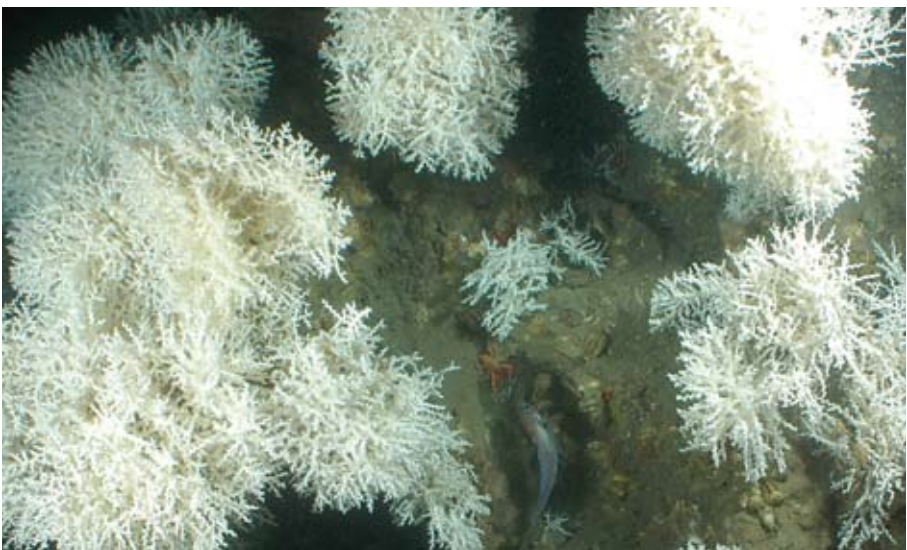
Sylvain Foret Townsville, Australia

Marcelo Kitahara Townsville, Australia

Konstantin Khalturin Kiel Germany

## ICEBREAKER

18:00



2 |

**Recent Breakthroughs in Coral Research**

Understanding corals at a molecular and physiological level and examining potential mechanisms of coral reefs for adaptation and acclimatization to environmental change is in the focus of today's coral research. Coral genomics as well as coral diseases will be addressed in this session.

09:00 – 10:30 Plenary Session 2

**Terry Hughes**  
Townsville, Australia

**Denis Allemand**  
Monaco

## COFFEE BREAK

3 |

**Sea-Level Rise: Past, Present and Future**

Sea-level rise (SLR) is one of the most certain consequences of climate change. Potential social and economic impacts are significant but uncertain. Quaternary geologic records enable the quantification of the characteristics of past rises in sea levels and provide a baseline for predicting future sea levels, while satellite observations and numerical models are employed for quantifying current and future SLR. We invite field- and modelling-based contributions addressing quaternary and ongoing sea-level changes as well as future predictions. We also welcome contributions assessing the potential impacts of accelerated SLR.

11:00 – 12:30 Plenary Session 3

**Anny Cazenave**  
Toulouse, France

**Colin Woodroffe**  
Wollongong, Australia

**Mark Siddall**  
Bristol, UK

## LUNCH BREAK

**2b | Coral Diseases**

**Virginia Weis** Oregon, USA  
**Bill Leggat** Townsville, Australia  
**Thomas Bosch** Kiel, Germany  
**Tomislav Domazet-Lošo** Zagreb, Croatia

14:00 – 15:30 Workshop  
16:00 – 17:30**3a | Sea-Level Rise**

**Jochen Hinkel** Potsdam, Germany  
**Robert Nichols** Southampton UK

14:00 – 15:30 Workshop  
16:00 – 17:30

## COFFEE BREAK

**1b | Rivermouth Systems**

17:30 – 19:00 Postersession

**2c | Recent Breakthroughs in Coral Researchs**

17:30 – 19:00 Postersession

**3b | Sea-Level Rise**

17:30 – 19:00 Postersession

**4e | Chemistry at Marine Interfaces**

17:30 – 19:00 Postersession

4 |

**Chemistry at Marine Interfaces**

The sea-surface microlayer influences the ocean-atmosphere coupling as well as the surface chemistry of sea-borne aqueous aerosols by modulating the physical, chemical and biological processes at the interface. Contributions for improving our understanding of the underlying processes are solicited from experimental, numerical modelling, and theoretical groups working in a diversity of fields, e.g., surface science, spectroscopy, chemical kinetics, or environmental chemistry.

**09.00–10.30** Plenary Session 4  
**Michael Grunze**  
 Heidelberg, Germany  
**Heather C. Allen**  
 Columbus, Ohio, USA

5 |

**The Oceanic CO<sub>2</sub> Sink: From Past to Future**

The ocean has absorbed roughly 50 % of anthropogenic CO<sub>2</sub> emissions. On geologic time scales weathering of CaCO<sub>3</sub> from seafloor sediments will greatly enhance the capacity for uptake and storage of CO<sub>2</sub> in the ocean. As such the ocean constitutes the ultimate CO<sub>2</sub> sink, with a strong potential to regulate climate and the carbon cycle. We invite contributions from the fields of paleo reconstruction and modern observations, forward and inverse modeling, with the aim to understand climate carbon cycle interactions, including natural fluctuations of the marine carbonate system, and to give future projections of the behaviour of the oceanic CO<sub>2</sub> sink.

**11.00–12.30** Plenary Session 5  
**Samar Khatiwala**  
 Columbia, N.Y., USA  
**Christoph Heinze**  
 Bergen, Norway  
**Sara Mikaloff-Fletcher**  
 Wellington, New Zealand

**4a | Chemistry at Marine Interfaces**

Franz Geiger Evanston, USA  
 Martina Roeselova Prague, Czech

**14.00–15.30** Workshop**5a | Climate and Ocean Carbon Cycle Feedbacks****14.00–15.30** Workshop**4b | Chemistry at Marine Interfaces**

Barbara D'Anna Lyon, France

**16.00–17.30** Workshop**5b | Optimal Initialisation of Future Models****16.00–17.30** Workshop**5d | Data Assimilation and Optimisation****17.30–19.00** Postersession**SYMPOSIUM DINNER****19.00**

COFFEE BREAK

LUNCH BREAK

6 |

**Tracing Tsunami Impacts On- and Offshore**

Tsunamis are among the largest catastrophic events in the world. They are a major threat to coastal communities and infrastructure. They have been recorded for centuries and numerous investigations have been done concerning their origin, wave distribution and energy release along coastlines. Despite steady advances in research, numerous fundamental questions on the origin, destruction force and risk prediction remain open. The session will be open for all contributions on tsunami generation, tsunami modeling and tsunami impact.

09:00 – 10:30	Plenary Session 6
	<b>Kazuhisa Goto</b> Chiba, Japan
	<b>Benjamin Horton</b> Philadelphia, Pa., USA
	<b>Philip Liu</b> Cornell, N.Y., USA

## COFFEE BREAK

7 |

**Climate Engineering**

Climate Engineering may become an option of last resort if catastrophic climate change takes place and adaptation measures are not sufficient. Research on the risks and opportunities of Climate Engineering should help to be prepared for such an event. Improving our understanding regarding effectiveness and environmental risks of different climate engineering methods requires close interaction among experts from climate physics, oceanography, economics, ethics and law.

11:00 – 12:30	Plenary Session 7
	<b>Catherine Redgwell</b> London, UK

## LUNCH BREAK

4c | **Chemistry at Marine Interfaces**

Reinhard Zellner Essen-Duisburg, Germany

14:00 – 15:30	Workshop
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5c | **Data Assimilation and Optimisation**

14:00 – 15:30	Workshop
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6a | **Tracing Tsunami Impacts**

Carl Harbitz Oslo, Norway

Anond Snidvongs Bangkok Thailand | Anders Solheim Oslo, Norway

Witold Szczucinski Poznan, Poland | Robert Weiss Texas, USA

14:00 – 15:30	Workshop
16:00 – 17:30	

7a | **Climate Engineering: Economics and Law**

Gregor Betz Stuttgart, Germany | Sebastian Harnisch Heidelberg, Germany

Harald Ginzky Dessau, Germany | Friederike Herrmann Dessau,

Germany | Iris Grossmann Washington, USA

14:00 – 15:30	Workshop
16:00 – 17:30	

## COFFEE BREAK

4d | **Chemistry at Marine Interfaces**

Roland von Glasow Norwich, UK

Hartmut Herrmann Leipzig, Germany

16:00 – 17:30	Postersession
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5e | **Climate and Ocean Carbon Cycle Feedbacks**

16:00 – 17:30	Postersession
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4f | **Chemistry at Marine Interfaces**

17:30 – 19:00	Postersession
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5f | **Initialising Interactive Future Models**

17:30 – 19:00	Postersession
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6b | **Tracing Tsunami Impacts**

17:30 – 19:00	Postersession
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7b | **Climate Engineering:  
Economics, Ethics and Governance**

17:30 – 19:00	Postersession
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# GUIDING MAP



- 1 CENTRAL RAILWAY STATION
- 2 INTERCITY HOTEL
- 3 STEIGENBERGER HOTEL CONTI HANSA
- 4 MUTHESIUS ACADEMY OF FINE ARTS
- 5 LEIBNIZ INSTITUTE OF MARINE SCIENCES  
WEST SHORE CAMPUS
- 6 LEIBNIZ INSTITUTE OF MARINE SCIENCES  
EAST SHORE CAMPUS
- 7 KIEL INSTITUTE FOR THE WORLD ECONOMY
- 8 CHRISTIAN - ALBRECHTS - UNIVERSITÄT  
ZU KIEL, AUDIMAX