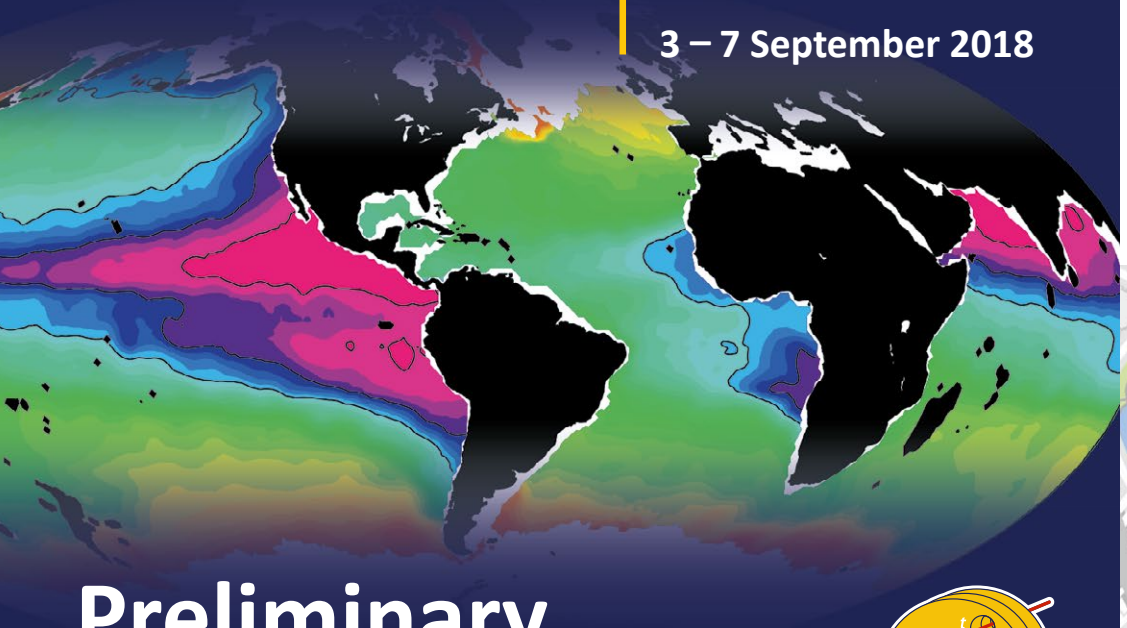
Ocean Deoxygenation: Drivers and Consequences · Past · Present · Future ·

INTERNATIONAL CONFERENCE KIEL GERMANY

3 – 7 September 2018



Preliminary Schedule

@DeoxyOcean

SFB 754

CAU Kiel University Christian-Albrechts-Universität zu Kiel

GEOMAR

future ocean KIEL MARINE SCIENCES

GO$_2$NE Global Ocean Oxygen NEtwork

UNESCO United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

DFG

www.sfb754.de/o2conference2018

02.09. SUNDAY AFTERNOON

16:00 - 21:00
Registration and Ice-Breaker

We will start the conference registration during the Ice Breaker event. For this, we have booked the 'MS Koi', a swimming first-class event location. During the cruise, finger-food and beverages will be served (included in the conference fee).

While cruising along the Kiel Fjord, hopefully enjoying a wonderful sunset, the trio 'Hightones' (Hamburg, Germany) will entertain us with a mixture of Swing, Latin and Rock'n'Roll rhythms. On board you will also meet our DJ Zee Wiese of HOTTA MUSIC SOUND. When the musicians of the 'Hightones' need a break for regaining new energy, Zee Wiese will ensure we keep on moving either slowly with nice lounge music in the background, or rather wild & crazy to hot dancing vibes. Zee Wiese will even accompany us during the Early Career Scientists Event and the Conference Dinner.

IMPORTANT: Please be at the pier on time (latest by 16:30), as the MS Koi will sail on schedule (17:00). Return is at 20:00, all participants must have left the vessel by 21:00. You will find the 'MS Koi' behind the Satori Speicher, close to the maritime museum.

03.09. MONDAY MORNING 1

08:00 - 08:30 Registration // Foyer Audimax

08:30 - 09:00	WELCOME NOTES **Karin Prien** Minister of Education, Science and Cultural Affairs of the Land Schleswig-Holstein **Prof. Peter Herzig** Scientific Director | GEOMAR Helmholtz Centre for Ocean Research Kiel **Prof. Nele Matz-Lück** Co-Speaker Cluster of Excellence 'The Future Ocean' | Kiel University **Prof. Andreas Oschlies** Speaker SFB 754 | GEOMAR Helmholtz Centre for Ocean Research Kiel
09:00 - 10:45	**01** **Prediction and Monitoring** **Keynote Talks** Audimax | Frederik-Paulsen-Hörsaal
09:00	Emergence and detection of climate change – driven trends in oceanic oxygen concentration **HENSON, Stephanie**
09:35	Constraints on ocean deoxygenation and warming from atmospheric oxygen observations **RESPLANDY, Laure**
10:10	Variability and extremes in ocean (de)oxygenation and water column denitrification in the eastern tropical Pacific **GRUBER, Nicolas**
10:45 - 11:15 Coffee Break	

03.09. MONDAY MORNING 2

11:15 - 13:00	**02** **Ecosystem Impacts** **Keynote Talks** Audimax | Frederik-Paulsen-Hörsaal
11:15	Benthic ecosystem responses to open ocean deoxygenation **LEVIN, Lisa**
11:50	How the oxygen minimum zone can drive ecosystem functioning from plankton to seabirds and fishers **BERTRAND, Arnaud**
12:25	Coastal hypoxia and benthic ecosystem functioning **NORKKO, Alf**
13:00 - 14:30 Lunch Break	

03.09. **MONDAY AFTERNOON 1**

14:30 - 16:00	**01** **Prediction and Monitoring** Block 1 // Audimax | Hörsaal A	**02** **Ecosystem Impacts** Block 1 // Audimax | Hörsaal C	**03** **Ventilation and Oxygen Supply** Block 1 // Audimax | Hörsaal D
14:30	Upper ocean O_2 trends: 1958 - 2015 **MINOBE, Shoshiro** (Hokkaido University, Japan)	Factors controlling the productivity of plankton communities in the coastal upwelling system of Peru **BACH, Lennart** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)	Ventilation pathways for the North Pacific Oxygen Deficient Zone revealed by secondary oxygen maxima and Lagrangian particle tracking **MARGOLSKEE, Andrew** (University of Washington, USA)
14:45	Autonomous observation of oxygen deficient zone (ODZ) biogeochemistry **ALTABET, Mark** (University of Massachusetts Dartmouth, USA)	Zooplankton of the low-oxygen waters of Bahia Callao, central Peru - with special reference to the reproductive activity of the copepod *Acartia nsp* **AYON, Patricia** (Marine Institute of Peru, Peru)	Mechanisms of low-frequency oxygen variability in the North Pacific **ITO, Taka** (Georgia Institute of Technology, USA)
15:00	Internal variability as a driver of decadal deoxygenation **TAKANO, Yohei** (Max Planck Institute for Meteorology, Germany)	Intercalated low oxygen maxima, beam attenuation and ADCP amplitude within the suboxic layer off Peru **MASKE, Helmut** (Center for Scientific Research and Higher Education at Ensenada, Mexico)	Variability and drivers of the oxygen minimum zone in the tropical Pacific over the past decades **WANG, Xiujun** (Beijing Normal University, China)
15:15	Quality of the baseline climatologies for oxygen and nutrients for inventory studies **GARCIA, Hernan** (NOAA National Centers for Environmental Information, USA)	Elemental fluxes mediated by vertically migrating zooplankton and nekton into the mesopelagic oxygen minimum zone off Peru **HAUSS, Helena** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)	Low-oxygen mesoscale eddies in the eastern South Pacific **PIZARRO, Oscar** (University of Concepción, Chile)
15:30	Volcanic impacts on air-sea oxygen exchange: insights from the large ensemble experiment **EDDEBBAR, Yassir** (Scripps Institution of Oceanography, UCSD, USA)	Potential complexity of zooplankton responses to deoxygenation: very small oxygen differences matter **WISHNER, Karen** (University of Rhode Island, USA)	Interannual variability of the OMZ of the South Eastern Pacific **DEWITTE, Boris** (LEGOS (IRD/CNRS/CNES/University of Toulouse), France)
15:45	The conundrum of marine oxygen: why is the future ocean loosing oxygen despite declining export production? **KOEVE, Wolfgang** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)	Interactive effects of temperature and low oxygen on the vertical distribution of copepod eggs and nauplii in coastal seas **ROMAN, Michael** (University of Maryland Center for Environmental Science, USA)	ENSO-driven fluctuations in the vertical extent of oxygen-poor waters in the oxygen minimum zone of the Eastern Tropical South Pacific **JOSE, Yonss** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)
16:00 - 16:30 Coffee Break			

03.09. **MONDAY AFTERNOON 2**

16:30 - 18:00	**08** **Coastal Systems: From Understanding to Management** Block 1 // Audimax | Hörsaal A		**02** **Ecosystem Impacts** Block 2 // Audimax | Hörsaal C	**03** **Ventilation and Oxygen Supply** Block 2 // Audimax | Hörsaal D
16:30	Chesapeake Bay hypoxia: relative impacts of nitrogen entering from the land, the atmosphere, and the coastal ocean **DA, Fei** (VIMS, College of William and Mary, USA)		Zooplankton-mediated fluxes in the Eastern Tropical North Atlantic **KIKO, Rainer** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)	Time scales of oxygen variability in the eastern tropical North Atlantic **HAHN, Johannes** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)
16:45	Quantifying the relative contributions of riverine versus oceanic nutrient sources to coastal hypoxia **GROßE, Fabian** (Dalhousie University, Canada)		Pelagic key species and mechanisms driving energy flows in the northern Benguela upwelling ecosystem and their feedback into biogeochemical cycles **EKAU, Werner** (Leibniz Centre for Tropical Marine Research, Germany)	Driving mechanisms for maintaining the equatorial deep jets and the quasi-steady flanking jets and the implications for the equatorial oxygen budget **CLAUS, Martin** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)
17:00	Oscillations of oxygen in the hypoxic transition zone of the Eastern Gotland Basin (Baltic Sea) – causes and consequences on benthic biogeochemical fluxes **SOMMER, Stefan** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)		Size structure, community composition and biomass size spectra of mesopelagic fishes in the tropical Atlantic Ocean and the West-Saharan OMZ in 2015 **FOCK, Heino** (Thuenen Institute of Sea Fisheries, Germany)	Ventilation of the eastern tropical North Atlantic oxygen minimum zone by latitudinally alternating zonal jets in a shallow water model **KÖHN, Eike E.** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)
17:15	Upscaling the impact of coastal hypoxia from species to ecosystem function. The case of bioturbation in the Black Sea **GRÉGOIRE, Marilaure** (University of Liège, Belgium)		Demersal fish communities across oxygen gradients: How multiple methodologies can offer unique insights into the ecological impacts of ocean deoxygenation **GALLO, Natalya** (Scripps Institution of Oceanography, UCSD, USA)	On Nearshore hypoxia and oxygen ventilation in the Eastern tropical North Atlantic **CAPET, Xavier** (LOCEAN-IPSL (UPMC Paris 6/CNRS/IRD/ MNHN), France)
17:30	Co-existence of nitrogen oxidation and reduction in oxygenated estuaries **WAN, Xianhui** (Xiamen University, China)		Simulating fish population responses to coastal hypoxia: movement behavior and the tradeoff between more oxygen and less food **ROSE, Kenneth** (University of Maryland Center for Environmental Science, USA)	Variability of the Atlantic North Equatorial Undercurrent and its impact on oceanic oxygen distribution **BURMEISTER, Kristin** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)
17:45				Early detection of anthropogenic climate change signal in the interior subpolar North Atlantic oxygen **TJIPUTRA, Jerry** (Uni Research Climate, Norway)

18:00 Programme ends

08:30 - 10:15

03
Ventilation and Oxygen Supply

Keynote Talks

Audimax | Frederik-Paulsen-Hörsaal

08:30	Ocean deoxygenation in the 21st century: the role of ventilation **BOPP, Laurent**
09:05	Physical forcings of Eastern Pacific OMZ **MONTES , Ivonne**
09:40	Drivers and mechanisms of thermocline oxygen changes in the eastern tropical North Atlantic **BRANDT, Peter**

10:15 - 10:45 Coffee Break

10:45 - 12:30

04 Microbial Communities and their Impact on Biogeochemical Cycles in OMZs

Keynote Talks

Audimax | Frederik-Paulsen-Hörsaal

10:45	New microbial players in oxygen-minimum-zone biogeochemistry **ULLOA, Osvaldo**
11:20	Nitrogen biogeochemistry of oxygen minimum zones: what controls the distribution of microbes and N transformation reactions? **WARD, Bess B.**
11:55	Anaerobic methane oxidation is an important sink for methane in the ocean's largest oxygen minimum zone **THAMDRUP, Bo**

12:30 - 13:15

Invited Speaker

Audimax | Frederik-Paulsen-Hörsaal

Gendered innovations in science, climate change, machine learning, and robotics

SCHIEBINGER, Londa

13:15 - 14:30 Lunch Break

13:30 - 14:30

Preparation Workshop for Early Career Scientists Event (for early career scientists only) (see Page 15)

Audimax | Hörsaal E

John C. Webb

04.09. **TUESDAY AFTERNOON 1**

14:30 - 16:00	**06 Physiological Effects of Oxygen & Interactions with Multiple Stressors** Block 1 // Audimax | Hörsaal A	**04 Microbial Communities and their Impact on Biogeochemical Cycles in OMZs** Block 1 // Audimax | Hörsaal C	**03 Ventilation and Oxygen Supply** Block 3 // Audimax | Hörsaal D
14:30	In situ respiration rates of meso- and bathypelagic animals **REISENBICHLER, Kim** (Monterey Bay Aquarium Research Institute, USA)	Diversity, distribution and abundance of nitrogen fixing microbes in the oxygen minimum zones **JAYAKUMAR, Amal** (Princeton University, USA)	Ocean deoxygenation and N_2O emissions projected in multi-millenial global warming simulations **JOOS, Fortunat** (University of Bern, Switzerland)
14:45	Oxygen dependence of visual function and ecology in marine larvae **MCCORMICK, Lillian** (Scripps Institution of Oceanography, UCSD, USA)	Regulation of N_2O production by oxygen and organic matter in the ETSP **FREY, Claudia** (University of Basel, Switzerland)	Elevated marine oxygen inventory by enhanced anaerobic respiration in a warmer future ocean **OSCHLIES, Andreas** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)
15:00	Variation in growth, morphology and reproduction of the bearded goby (*Sufflogobius bibarbatus*) in varying oxygen environments of northern Benguela **SALVANES, Anne G. V.** (University of Bergen, Norway)	Microbial degradation activity and organic matter lability in the oxygen minimum zone off Peru **MAßMIG, Marie** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)	Robust millennial-scale recovery of deep ocean ventilation and oxygenation with global warming? **FROELICHER, Thomas** (University of Bern, Switzerland)
15:15	Winning ways with hydrogen sulphide on the Namibian shelf **CURRIE, Bronwen** (Ministry of Fisheries and Marine Resources, Namibia)	Eukaryotic denitrification pathway of benthic foraminifera thriving in oxygen-depleted environments **ROY, Alexandra-Sophie** (Kiel University, Germany)	High frequency wind forcings and interior oxygen levels **DUTEIL, Olaf** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)
15:30	Combined effects of warming and acidification on hypoxia tolerance of northern shrimp, *Pandalus borealis* **CHABOT, Denis** (Maurice-Lamontagne Institute, Canada)	Isotopic fingerprints of benthic nitrogen cycling in the Peruvian oxygen minimum zone **DALE, Andrew W.** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)	Submesoscales reduce deoxygenation in temperate gyres **LÉVY, Marina** (LOCEAN-IPSL (UPMC Paris 6/CNRS/IRD/MNHN), France)
15:45	Understanding physiological mechanisms of Chilean scallop to the multiple-stressor scenario of upwelling by using an experimental integrative approach **RAMAJO, Laura** (Adolfo Ibañez University, Chile)	Untangling the key drivers in oxygen minimum zone (OMZ)-influenced waters that shape natural plankton assemblages **PAUL, Allanah J.** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)	Oxygen utilisation rate - a poor measure of ocean respiration **KÄHLER, Paul** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)
16:00 - 16:30 Coffee Break			

04.09. TUESDAY AFTERNOON 2

16:30 - 17:45

02 Ecosystem Impacts

Block 3 // Audimax | Hörsaal A

16:30

Assessing the effects of recurring seasonal hypoxia on benthic communities and reconstructing baseline community states on the basis of sediment cores (northern Adriatic Sea)

TOMAŠOVÝCH, Adam
(Slovak Academy of Sciences, Slovakia)

16:45

Effects of regimes of dissolved oxygen variability on functional diversity of sublittoral macrobenthos off central Peru (12°S) and northern Chile (23°S)

GUTIÉRREZ , Dimitri
(Marine Institute of Peru, Peru)

17:00

Hypoxia in mangroves: occurrence and impact on nursery fish habitats

DUBUC, Alexia
(James Cook University, Australia)

17:15

The ocean is losing its breath: declining oxygen in the world's ocean and coastal waters

ISENSEE, Kirsten
(Intergovernmental Oceanographic Commission - UNESCO, France)

17:30

17:45

04 Microbial Communities and their Impact on Biogeochemical Cycles in OMZs

Block 2 // Audimax | Hörsaal C

A metatranscriptomics/metagenomics approach to obtain insights into the biogeochemistry of the suboxic zone of the Black Sea

JÜRGENS, Klaus
(Leibniz Institute for Baltic Sea Research Warnemünde, Germany)

Ecological strategies of sulfur-oxidizing bacteria in responses to the changing marine environment

DANG, Hongyue
(Xiamen University, China)

Pathways of gravitational particle export in the peruvian oxygen minimum zone

LE MOIGNE, Frederic
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)

The role of marine snow for nitrogen loss from oxygen minimum zones

KARTHÄUSER, Clarissa
(Max Planck Institute for Marine Microbiology, Germany)

Deep maximum of virus-bacterial ratio in oxygen minimum zone in the South China Sea: preliminary evidence for viral control of bacterial depletion of oxygen

YIN, Kedong
(Sun Yat-sen University, China)

05 Major Upwelling Systems

Block 1 // Audimax | Hörsaal D

Dispersion of a tracer in the Eastern Tropical South Pacific

FREUND, Madeleine
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)

The role of filaments for ventilating the oxygen minimum zone off Peru

HAUSCHILDT, Jaard
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)

Impact of non-linear internal waves on the cross slope circulation in the Peruvian upwelling region.

DENGLER, Marcus
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)

Linking upwelling, export production and nitrogen cycling processes in the OMZ waters of the ETSP

LAVIK, Gaute
(Max Planck Institute for Marine Microbiology, Germany)

Measurements of biogenic volatile organic compounds (BVOCs) in marine boundary layer of Arabian Sea (OMZ): Role of carbon cycle in pre-monsoon season

SAHU, Lokesh Kumar
(Physical Research Laboratory, India)

Please note: Change of location

18:30 - 23:00 Early Career Scientists Event
Halle 400 | An der Halle 400 No. 1 | 24143 Kiel
More information on page 14

18:30 - 23:00 Early Career Scientists Event
Halle 400 | An der Halle 400 No. 1 | 24143 Kiel
More information on page 14

09:00 - 10:45

05
Major Upwelling Systems

Keynote Talks

Audimax | Frederik-Paulsen-Hörsaal

09:00
Factors affecting the variability of the Arabian Sea OMZ over seasonal, interannual and climate-change time scales

LÉVY, Marina

09:35
The “bad” breath of the ocean: Greenhouse gas emissions from Eastern Boundary Upwelling Ecosystems

ARÉVALO-MARTÍNEZ, Damian L.

10:10
Does the Ocean lose its breath?

LÖSCHER, Carolin

10:45 - 11:15 Coffee Break

11:15 - 13:00

06 Physiological Effects of Oxygen & Interactions with Multiple Stressors

Keynote Talks

Audimax | Frederik-Paulsen-Hörsaal

11:15
Microbial biota in anaerobic and microaerobic habitats

FENCHEL, Tom

11:50
Critical oxygen levels of marine animals and the consequences of ocean deoxygenation and warming

SEIBEL, Brad

12:25
It’s not just oxygen: Understanding and managing a multiple stressor world

BREITBURG, Denise

13:00 - 14:30 Lunch Break

05.09. **WEDNESDAY AFTERNOON 1**

14:30 - 16:00

06 Physiological Effects of Oxygen & Interactions with Multiple Stressors

Block 2 // Audimax | Hörsaal A

14:30

Is oxygen limitation the cause for summer heat wave mortality in a coastal keystone predator?

MELZNER, Frank
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)

14:45

Intraspecific diversity and the selection of correlated sensitivities to multiple global change factors

WAHL, Martin
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)

15:00

The effects of hypoxia and ocean acidification on grazing interactions within giant kelp forests

NG, Crystal
(Stanford University, USA)

15:15

Variable yet predominantly additive effects of concurrent hypoxia and elevated pCO_2 on marine biota

KLEIN, Shannon
(King Abdullah University of Science and Technology, Saudi Arabia)

15:30

Ocean deoxygenation overrules ocean warming and acidification impacts in marine biota

ROSA, Rui
(University of Lisbon, Portugal)

15:45

Marine invertebrate responses to temperature-related stressors and their interactions

REDDIN, Carl
(University of Erlangen–Nürnberg, Germany)

16:00 - 16:30 Coffee Break

10 Biogeochemical Cycles: Feedbacks and Interactions

Block 1 // Audimax | Hörsaal C

Particle flux of sinking organic matter in the peruvian oxygen minimum zone

CISTERNAS-NOVOA, Carolina
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)

Sinking organic matter fluxes and remineralization attenuation in the Peruvian oxygen minimum zone

XIE, Ruifang
(GEOMAR Helmholtz-Zentrum für Ozeanforschung Kiel, Germany)

As good as it gets: fitting a global biogeochemical model to oxygen minimum zones

KRIEST, Iris
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)

Ocean phosphorus inventory and oceanic deoxygenation: large uncertainties in future projections on millennial timescales

KEMENA, Tronje Peer
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)

Benthic trace metal fluxes in the oxygen minimum zone off Peru

PLAß, Anna
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)

El Niño influence on Peruvian shelf trace metal supply to the ocean

RAPP, Insa
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)

05 Major Upwelling Systems

Block 2 // Audimax | Hörsaal D

Variability and trends of the oxygen minimum zone at the coastal upwelling system off Peru

GRACO, Michelle Ivette
(Marine Institute of Peru, Peru)

Intra-seasonal variability of the eastern boundary circulation off Peru and biogeochemical consequence

LÜDKE, Jan
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)

Spatial heterogeneity of dissolved oxygen and hypoxia events in shallow waters of central Chile: diurnal and seasonal patterns in an upwelling ecosystem

STORCH, Daniela
(Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Germany)

Recent biogeochemical trends in the Peru upwelling system

ECHEVIN, Vincent
(LOCEAN-IPSL (UPMC Paris 6/CNRS/IRD/MNHN), France)

Drivers of anoxia in a large embayment of an eastern boundary upwelling system: St Helena Bay

PITCHER, Grant
(Fisheries Research and Development, DAFF, South Africa)

05.09. **WEDNESDAY AFTERNOON 2**

16:30 - 18:00

06 Audimax | Hörsal A

How ocean deoxygenation affects fish: Implications of Gill-Oxygen Limitation Theory (GOLT)

PAULY, Daniel
(University of British Columbia, Canada)

Public Lecture

Audimax | Frederik-Paulsen-Hörsal

All presentations and the discussion will be in German.

Geht dem Ozean die Luft aus?

Vorträge zu SFB 754 Highlights

Sauerstoff im Meer: Was geht uns das an?
OSCHLIES, Andreas
GEOMAR

Peru: Sauerstoffminimumzone vor der Haustür – was bedeutet das für die Fischerei?
SALVATTECI, Renato
CAU

Jagd auf gigantische Wasserwirbel in der Todeszone
HAHN, Johannes
GEOMAR

Leben ohne Sauerstoff – ist das möglich?
HAUSS, Helena
GEOMAR

Weitere Gäste in der Diskussionsrunde

DAGAN, Tal
CAU

VISBECK, Martin
GEOMAR, Sprecher Exzellenzcluster »Ozean der Zukunft«

Moderation

BURMEISTER, Kristin
GEOMAR

GRASSE, Patricia
GEOMAR

BEHRENS, Martin
Gemeinschaftsschule Probstei

Ende ca. 18:30

10 Biogeochemical Cycles: Feedbacks and Interactions

Block 2 // Audimax | Hörsal C

16:30 — Radium isotopes as tracers of shelf-derived trace element inputs along the Benguela upwelling zone
VIEIRA, Lucia Helena
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)

16:45 — Sources and composition of water-soluble trace elements in aerosols over the Benguela and Peruvian oxygen minimum zone
YONG, Jaw Chuen
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)

17:00 — The influence of iron on extended elemental stoichiometries in diazotrophs
MARKI, Alexandra
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)

17:15 — Nutrient controls on productivity overlying and offshore of oxygen minimum zones
BROWNING, Thomas
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)

17:30 — H_2S events in the Peruvian oxygen minimum zone enhances dissolved Fe concentrations
SCHLOSSER, Christian
(GEOMAR Helmholtz Centre Ocean Research Kiel, Germany)

17:45 — How the oxygen concentration can impact the redox processes of trace elements and reactive oxygen species
WUTTIG, Kathrin
(Antarctic and Climate Systems CRC, University of Tasmania)

03 Ventilation and Oxygen Supply

Block 4 // Audimax | Hörsal D

Oxygenation and deoxygenation of Atlantic and Pacific Ocean Oxygen Minimum Zones by the wind interacting with mesoscale eddies
KARSTENSEN, Johannes
(GEOMAR, Germany)

Near-inertial wave interaction with coherent anticyclonic eddies – a ventilation source for oxygen minimum zones?
SCHÜTTE, Florian
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)

Understanding the dynamics of oxygen minimum zones by deliberate tracer release experiments (TREs)
TANHUA, Toste
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)

Understanding the Dynamics of the Oxic-Anoxic Interface in the Black Sea
STANEV, Emil Vassilev
(Helmholtz Centre for Materials and Coastal Research, Germany)

Shift in the Black Sea ventilation regime and decline of its oxygen inventory
CAPET, Arthur
(University of Liège, Belgium)

Strong intensification of the Arabian Sea oxygen minimum zone in response to Arabian Gulf warming
LACHKAR, Zouhair
(New York University Abu Dhabi, United Arab Emirates)

18:00 - 20:30
Poster Session
with fingerfood and drinks

Tent in front of the Audimax

18:00 - 20:30
Poster Session
with fingerfood and drinks

Tent in front of the Audimax

09:00 - 10:45	**07** **Impacts on Fisheries / Socioeconomics** **Keynote Talks** Audimax | Frederik-Paulsen-Hörsaal
09:00	Deoxygenation effects on fisheries: a mosaic of effects and responses **ROSE, Kenneth**
09:35	Effect of deoxygenation on fish biology and fisheries in an enclosed brackish marine ecosystem **CASINI, Michele**
10:10	Fish, ocean oxygen depletion and the food security of current and future generations **SUMAILA, Rashid**
10:45 - 11:15 Coffee Break	

11:15 - 13:00	**08** **Coastal Systems: From Understanding to Management** **Keynote Talks** Audimax | Frederik-Paulsen-Hörsaal
11:15	Greening of the land and the coastal ocean **RABALAIS, Nancy**
11:50	Coupled physical-biogeochemical study of eutrophication/hypoxia in the Pearl River estuary off Hong Kong **GAN, Jianping**
12:25	The Baltic Sea: from understanding to management **CONLEY, Daniel**
13:00 - 14:30 Lunch Break	

06.09. **THURSDAY AFTERNOON 1**

14:30 - 16:15

07
Impacts on Fisheries / Socioeconomics
Block 1 // Audimax | Hörsaal A

14:30
Economic repercussions of tipping points in the Humboldt upwelling system
BRONNMANN, Julia
(Kiel University, Germany)

14:45
Valuing ecosystem services at risk from deoxygenation of oceans, estuaries, and coastal seas
LIMBURG, Karin E.
(SUNY College of Environmental Science and Forestry, USA)

15:00
Ecological-economic sustainability of the Baltic cod fisheries under global change
STIASNY, Martina
(Kiel University, Germany)

15:15

15:30

15:45

16:00 - 16:30 Coffee Break

16:00

08
Coastal Systems: From Understanding to Management
Block 2 // Audimax | Hörsaal C

Controls on coastal hypoxia: a global synthesis
FENNEL, Katja
(Dalhousie University, Canada)

Oxygen concentrations from water column to seabed – integrating observations and modelling to support assessments of status and predict change
GREENWOOD, Naomi
(Cefas, UK)

On the eutrophication, hypoxia and ocean acidification in the coastal ocean
DAI, Minhan
(Xiamen University, China)

The future of coastal hypoxia under scenarios of river management
JUSTIC, Dubravko
(Louisiana State University, USA)

Climate change is projected to exacerbate impacts of coastal eutrophication in the northern Gulf of Mexico
LAURENT, Arnaud
(Dalhousie University, Canada)

Future climate change exacerbates hypoxia in Chesapeake Bay due to warming temperatures
HINSON, Kyle
(VIMS, College of William and Mary, USA)

09
Ocean Deoxygenation - How the Past can Inform the Future
Block 1 // Audimax | Hörsaal D

Variability of dissolved oxygen over the last millennium and the 21st century in an earth system model.
HAMEAU, Angélique
(University of Bern, Switzerland)

Reconstruction of paleo-redox conditions in particle rain vs. diffusion dominated settings in Pacific oxygen minimum zones
EROGLU, Suemeyya
(GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)

I/Ca ratios of carbonates as proxy for changes of deoxygenation in the past: a Nano-SIMS study on benthic foraminifera for better mechanistic understanding, evaluation and application
LIEBETRAU, Volker (GEOMAR, Germany)

Decadal to millennial-scale changes in oxygen minimum zone intensity, export production and fish fluctuations in the Humboldt Current System
SALVATTECI, Renato
(Kiel University, Germany)

Decadal to multidecadal changes in marine subsurface oxygenation off central Peru since the XIX century
CARDICH, Jorge
(Cayetano Heredia University, Peru)

Multidecadal changes of OMZ intensity over the Peruvian upper-slope inferred by pore density in benthic foraminifer *Bolivina seminuda* since XIXth century
ROMERO CHUQUIVAL, Dennis
(Marine Institute of Peru, Peru)

Benthic foraminiferal Mn/Ca evidence for bottom water deoxygenation in the Baltic Sea over the past 7,500 years
NI, Sha
(Lund University, Sweden)

06.09. **THURSDAY AFTERNOON 2**

16:30 - 18:00	**05** **Major Upwelling Systems** Block 3 // Audimax | Hörsaal A		**10** **Biogeochemical Cycles: Feedbacks and Interactions** Block 3 // Audimax | Hörsaal C	**09** **Ocean Deoxygenation – How the Past can Inform the Future** Block 2 // Audimax | Hörsaal D
16:30	Dissolved organic matter cycling in the coastal upwelling system off central Peru during an "El Niño" year **IGARZA, Maricarmen** (ICBM, University of Oldenburg, Germany)		Nitrogen fixation in the coastal Peruvian upwelling zone following a simulated upwelling event **KITTU, Leila** (GEOMAR Helmholtz-Centre for Ocean Research Kiel, Germany)	Spread of ocean anoxia and sluggish overturning circulation in a warmer-than-today world: does the geological record support this scenario? **KUHNT, Wolfgang** (Kiel University, Germany)
16:45	Distributions and emissions of dissolved methane in coastal upwelling region off Peru **SUN, Mingshuang** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)		Biologically-associated nitrous oxide accumulation in the euphotic zone **KAO, Shuhji** (Xiamen University, China)	Climate-carbon cycle dynamics on a warmer-than-modern Miocene Earth **HOLBOURN, Ann** (Kiel University, Germany)
17:00	Pathways and variability of N_2O emissions in the Pacific Ocean **BIANCHI, Daniele** (University of California, Los Angeles, USA)		Silicon and nitrogen cycling in the upwelling area off Peru: a dual isotope approach **GRASSE, Patricia** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)	The initiation and establishment of the Western Indian Ocean Oxygen Minimum Zone during the Early to Middle Miocene **BIALIK, Or M.** (University of Haifa, Israel)
17:15	Insights of the dynamics in the East Pacific Upwelling System from a nested 1/20° ocean circulation model **GETZLAFF, Klaus** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)		Long term variability in the denitrification rate in the eastern tropical North Pacific **DEVOL, Allan** (University of Washington, USA)	Oscillations in Cretaceous ocean productivity and deoxygenation induced by redox-dependent nutrient cycling **WALLMANN, Klaus** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)
17:30	Dissolved oxygen dynamics in coastal upwelling systems: insights from idealized submesoscale physical-biogeochemical modelling **GARÇON, Véronique** (LEGOS, France)		Benthic N-cycling in the Peruvian Oxygen Minimum Zone in relation to variable bottom water redox conditions **CLEMENS, David** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)	Impact of Cenomanian-Turonian Anoxic Events on ocean oxygenation: High-resolution records from the Atlantic Tarfaya-Laayoune Basin, SW Morocco **BEIL, Sebastian** (Kiel University, Germany)
17:45 **Please note: Change of location**	Demonstrating the value of enhanced multidisciplinary sustained observations for understanding variability in the oxycline and its impacts on the EBUS ecosystems **TELSZEWSKI, Maciej** (International Ocean Carbon Coordination Project, Poland)		An experimental and modeling investigation of sediment nutrient cycling during further deoxygenation on the peruvian margin **STOLPOVSKY, Konstantin** (GEOMAR Helmholtz Zentrum für Ozeanforschung Kiel, Germany)	Constraining global (de)oxygenation during Phanerozoic climate events **OWENS, Jeremy D.** (Florida State University, USA)

19:00 - 23:00 Conference Dinner with Best Poster Awards

Norwegenkai | Zur Fähre 1 | 24143 Kiel
More information on page 17

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More information on page 17

09:00 - 10:45

09
Ocean Deoxygenation - How the Past can Inform the Future

Keynote Talks

Audimax | Frederik-Paulsen-Hörsaal

09:00 — Past variability and recent trends of subsurface ocean oxygenation in the Eastern Tropical South Pacific: insights from proxy records
GUTIÉRREZ, Dimitri

09:35 — Large changes in ocean oxygenation during the last ice age: observations, mechanisms and ecosystem responses to change
GALBRAITH, Eric

10:10 — Looking back into the future with a geochemical oxygenation proxy (I/Ca)
LU, Zunli

10:45 - 11:15 Coffee Break

11:15 - 13:00

10
Biogeochemical Cycles: Feedbacks and Interactions

Keynote Talks

Audimax | Frederik-Paulsen-Hörsaal

11:15 — The regulation of oxygen to low concentrations in the bay of bengal
CANFIELD, Donald

11:50 — A comparative study of coastal ocean hypoxia and acidification in two large river dominated systems (northern Gulf of Mexico and East China Sea)
CAI, Wei-Jun

12:25 — Impacts of a changing global phosphorus cycle on coastal ocean deoxygenation
JILBERT, Tom

13:00 - 14:30 Lunch Break

07.09. **FRIDAY AFTERNOON 1**

14:30 - 16:15	**09** **Ocean Deoxygenation - How the Past can Inform the Future** Block 3 // Audimax | Hörsaal A	**10** **Biogeochemical Cycles: Feedbacks and Interactions** Block 4 // Audimax | Hörsaal C	**08** **Coastal Systems: From Understanding to Management** Block 3 // Audimax | Hörsaal D
14:30	Exploring the links between flood cyclicity and the OMZ development on the Nile deep-sea fan during the African Humid Period **BLANCHET, Cecile** (Helmholtz-Centre Potsdam German Research Centre for Geosciences, Germany)	Efficient removal of nitrogen and phosphorus in a eutrophic coastal system recovering from hypoxia **VAN HELMOND, Niels** (Utrecht University, Netherlands / Lund University, Sweden)	Benthic community resilience in a harsh place: hypoxia and tsunami perturbations in the coast of the southern Humboldt Current System **QUIÑONES, Renato A.** (University of Concepción, Chile)
14:45	Nitrogen Removal Across Glacial Terminations in the Eastern Tropical South Pacific **SEPÚLVEDA, Julio** (University of Colorado Boulder, USA)	Upwelling induced anoxia in a eutrophic estuary, southwest coast of India: influence of lateral inputs **GOPURATHINGAL DEVASSYKUTTY, Martin** (Kerala University of Fisheries and Ocean Studies, India)	Seasonal and annual variability of coastal sulphur plumes and forcing processes in the Benguela upwelling system **DADOU, Isabelle** (LEGOS (IRD/CNRS/CNES/University of Toulouse), France)
15:00	A quantitative nitrate reconstruction over the last 22,000 years in the intermediate Pacific based on the pore density of the denitrifying foraminifera *Bolivina spissa* **GLOCK, Nicolaas** (GEOMAR, Germany)	Regeneration of phosphorus in the ocean during past greenhouse climates: role of redox conditions and impact on primary productivity **PAPADOMANOLAKI, Nina M.** (Utrecht University, Netherlands)	Linking shelf/break processes to coastal hypoxia in the upwelling core of the central California Current System **HEWETT, Kate** (University of California, Davis, USA)
15:15	The Natural Variability of Marine de-oxygenation in the Eastern-Tropical Pacific since the last Glacial Maximum **PICHEVIN, Laetitia** (University of Edinburgh, UK)	Time-series of the secondary nitrite maximum in the ETSP reveal tight coupling of ENSO and nitrogen processes in the OMZ **BANGE, Hermann W.** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)	Influence of hypoxic upwelled waters on the distribution of trace metals in the surficial sediments of the Cochin estuary. **PARENKAT MONY, Deepulal** (CSIR-National Institute of Oceanography, India)
15:30	Benthic pelagic coupling in the Peruvian upwelling system over the last 25 thousand years **ERDEM, Zeynep** (NIOZ Royal Netherlands Institute for Sea Research / Utrecht University, Netherlands)	Nitrogen-carbon connections in a deoxygenating ocean **LANDOLFI, Angela** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)	Human regulation of fresh-salt water budget and hypoxia in semi enclosed seas **ZACHARIAS, Ierotheos** (University of Patras, Greece)
15:45	Multidecadal to millennial-scale changes in Oxygen Minimum Zone intensity off Peru during the last 20 kyr: proxy-model comparison **SCHNEIDER, Ralph** (Kiel University, Germany)	Symmetric marine biogeochemical responses in warming and cooling worlds **KVALE, Karin** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)	
16:00 - 16:30 Coffee Break			
16:00		Improving the “bio” part of biogeochemical models **PAHLOW, Markus** (GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany)	
16:30 Conference ends			