



# ICBM – Alumni News #14

Carl von Ossietzky  
Universität  
Oldenburg



## Welcome to the fourteenth ICBM-Alumni-Newsletter

Newsletter –  
December 2021  
Issue 14, year 5

Dear ICBM-Alumni,

Another year comes to an end and a lot of things have happened in the ICBM.

In the fourteenth issue of our Newsletter, we report on exciting research findings, interesting documentaries about the ICBM, funded projects and titles won by our employees.

We wish you Happy Holidays and a Happy New Year!

All the best,

Ferdinand Esser and Tabea Hildebrand

## Topics of this issue

- Mass extinction through volcanic eruptions
- Carbon storage of coastal ecosystems
- Hightech-Systems explore the oceans
- Success for biodiversity research

### Mass extinction through volcanic eruptions

At the end of the Ordovician Age, around 450 million years ago, the earth cooled down drastically. Around 85 percent of all animal species died out. Responsible for the ice age and thus for the second worst mass extinction in the history of the earth could possibly have been two periods of intense volcanism, reported a team led by the Oldenburg geochemist Dr. Jack Longman in the journal Nature Geoscience. Researchers from the UK universities of Southampton, Leeds and Plymouth studied the effects of massive volcanic eruptions on ocean chemistry. [...]

According to the results, the deposited volcanic rock released enough phosphorus to trigger a chain of events - starting with fertilization of the oceans, increased algae growth, global cooling and subsequent icing, low oxygen levels in large parts of the oceans and finally mass extinction.

The scientists conclude that large volcanic eruptions can heat the climate through their CO<sub>2</sub> emissions on short time scales, but that they can also trigger global cooling over longer periods of several million years. For Longman it is clear that existing theories about the cause of other mass extinctions need to be scrutinized. "Our study could lead to these events being re-examined," says the researcher. Huge volcanic eruptions occurred at the same time as three of the five largest extinction events in the history of the earth, including at the end of the Cretaceous period when the dinosaurs disappeared from the earth. [\[PR 214/21 – 02.12.21\]](#)

*Original publication: Jack Longman et al.: „Late Ordovician climate change and extinctions driven by elevated volcanic nutrient supply“, Nature Geoscience, 2. Dezember 2021, DOI: 10.1038/s41561-021-00855-*

- Funding of SFB on Roseobacter clade
- Humboldt fellow
- Guest on RV Heincke
- Citizen Science
- „42 – Die Antwort auf fast alles“
- MediaWatt project
- „Preis der Lehre“
- Best early career supporter
- „Highly Cited Researcher“

## Towards an increased carbon storage of coastal ecosystems

Coastal ecosystems, such as seagrass beds, salt marshes, mangrove forests, or kelp forests, absorb huge amounts of carbon dioxide (CO<sub>2</sub>) from the atmosphere. The storage of this so-called "blue carbon" is one of the most important services provided by coastal ecosystems. To improve the natural potential for carbon storage in vegetation-rich coastal ecosystems by developing innovative and socially accepted approaches is the goal of the new research consortium sea4soCiety. The partnership, under participation of researchers of the University of Oldenburg, amongst others, is coordinated by the Leibniz Centre for Tropical Marine Research (ZMT) in Bremen. [...]

The team aims at a high resolution molecular characterisation of the different organic compounds involved. In doing so, the scientists will investigate dissolved as well as particulate organic matter, taking into account that hardly biodegradable dissolved organic compounds form one of the most important carbon sinks on earth: the invisible mixture in the sea water is sequestering more carbon than the whole terrestrial vegetation. Main goal of the sub-project with the participation of ICBM is to identify the sites of formation of the hardly biodegradable compounds and which processes contribute to their large-scale spatial accumulation. [...] [\[ICBM – 24.08.2021\]](#)

## Hightech-Systems explore the seas

How is our sea doing? To investigate this question, numerous autonomous diving buoys are drifting through the oceans collecting data. In Oldenburg, researchers are working on the use of artificial intelligence and new types of sensor technology in order to be able to evaluate the amount of data in a more efficient way. [\[Bundesregierung – 15.10.2021\]](#)



Salt meadow with flowering sea lavender at high tide on the island of Norderney [Image: Markus Prinz, ICBM]

## Another success for Oldenburg's research on biodiversity

Food webs and biodiversity in constantly changing landscapes are the focus of the "DynaCom" research group at the University of Oldenburg. The German Research Foundation (DFG) is now funding the project, which started at the beginning of 2019, after positive assessment for three more years with around three million euros. [...]

The DynaCom research group is based on one of the most widely studied ecological concepts, the theory of island biogeography. With their help, researchers can analyze the role that the dynamic balance between immigration and extinction of species plays for the total number of species on an island-like ecosystem. "But the theory does not predict which species will settle and which properties successful species have," explains Hillebrand. DynaCom expanded the theory of island biogeography to include the questions of which species establish themselves on islands and what distinguishes successful species. [...] [\[PR 216/21 – 13.12.2021\]](#)

## Research in marine microbiology receives another year of funding

The Collaborative Research Center (SFB) at the University of Oldenburg on the marine bacteria of the Roseobacter clade can continue its work beyond the actual maximum duration of twelve years. [...] This allows researchers to compensate for restrictions caused by corona, for example doctoral students whose practical work in the laboratory and analyzes have been particularly delayed since the beginning of the. [...]

The focus of the SFB with the official title "Ecology, Physiology and Molecular Biology of the Roseobacter Clade: Towards a Systems Biology Understanding of a Globally Important Clade of Marine Bacteria" are single-cell organisms with an unusually diverse metabolism, which are an important part of the microbes in



Artificial island in the Wadden sea [Image: Oliver Zielinski, ICBM]

almost all marine ecosystems. The researchers are investigating how their genetic and physiological properties have developed. [...]

During the current final phase of the project, the focus is on the interactions between representatives of the Roseobacter clade and microscopic algae, so-called phytoplankton. The researchers want to find out how different representatives of the Roseobacter clade interact with phytoplankton algae, which representatives are found where in the world's oceans, and which ecological functions they fulfill. To do this, they use data that they have collected on research trips in the Pacific and Atlantic or obtained through experiments. [...] [\[PR 158/21 – 03.09.2021\]](#)

### **Humboldt scholarship holder is doing research at the ICBM**

Dr. Ignacio Pedre, fellow of the Alexander von Humboldt Foundation, is currently researching at the ICBM at the University of Oldenburg. The Georg Forster research grant from the foundation enables the environmental chemist from Buenos Aires, Argentina, to spend two years researching in the marine isotope geochemistry group of Prof. Dr. Katharina Pahnke-May. The scientist also works with the geochemist Prof. Dr. Andrea Koschinski from Jacobs University Bremen. [...]

His research focuses on environmental chemistry and environmental analysis. Among other things, he is developing inexpensive and easy-to-use sensors to measure trace elements in river, sea and drinking water samples. In Oldenburg, the environmental chemist is developing sensors to determine the content of the trace metal manganese in natural waters. [...] [\[PR 167/21 – 29.09.2021\]](#)



Dr. Ignacio Pedre [Image: Daniel Schmidt, University of Oldenburg]

# OUTSIDE THE BOX

## A day on the research vessel – the press as a guest

The two week long research and training cruise “HE586” of the research vessel HEINCKE under the direction of ICBM scientist Dr. Thomas Badewien ended a few weeks ago. Imke Kluth, editor of the Ostfriesen-Zeitung, was on board as a guest for a day. What she experienced, she described in the OZ and in the video channel of the daily newspaper from October 28, 2021. [[SR – 05.11.2021](#)]

## Citizen scientists welcome!

Oceanographer Thomas Badewien from the Institute for Chemistry and Biology of the Marine Environment (ICBM) is receiving a lot of calls from tourists and beach walkers at present. He explains in an interview what this is all about and what role the participation of members of the public plays in research. [[Lara Schäfer – 11.08.2021](#)]

## The question of life, the universe...

Last year in July, Prof. Dr. Oliver Wurl had the two documentary filmmakers Martin Koddenberg and Alexander Lahl as guests to make film recordings for a video project on the subject of slime. It was about a - they still kept a low profile - project for the dissemination of scientific content via the public media sector. In September, the premiere of the ARTE-based series started: [„42 – Die Antwort auf fast alles“ \(42 – The answer of almost everything\)](#).

In the first episode of the documentary series, Professor Wurl, head of the working group Processes and Sensor Technology of Marine Interfaces at the ICBM, speaks about the wafer-thin surface films of the



RV Heincke [Image: ICBM]



Thomas Badewien [Image: ICBM]



Prof. Dr. Wurl filmed from the documentary crew in July 2020 [Image: Sibet Riexinger, ICBM]

oceans, slime-like structures that significantly influence the exchange of substances and energy on the ocean surface. [...] [\[SR – 08.09.2021\]](#)

### **MediaWatt project: film in film**

It is a very fine film on the surface of the sea that Lisa Gassen is interested in at the ICBM in Wilhelmshaven. More precisely, she investigates the water balance of this membrane and the one to two meters of the sea surface below it on an extended laboratory scale. It is mainly about how rainwater enters this area - depending on the intensity of the precipitation - how much it mixes with the salt water and how quickly it evaporates again at the border with the atmosphere. One key to determining the climatically significant processes is the salinity under the different conditions.

To do so, Gassen carries out sprinkling tests on a specially set up covered test basin at the Wilhelmshaven site of the ICBM. Her colleague Judith Ewald, also a doctoral candidate in the working group of Prof. Dr. Oliver Wurl, who heads the ICBM working group for processes and sensors at marine interfaces, will use the knowledge gained from Gassen for her work with the large-scale conditions in the open ocean.

Three young women, who are currently doing a voluntary ecological year at two institutions in Wilhelmshaven, were recently interested in what the two young scientists are doing and why. As part of the MediaWatt project, they met the doctoral students to portray their work in a video clip. [...] [\[SR – 03.11.2021\]](#)



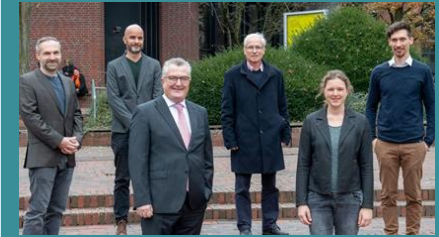
Lisa Gassen [Image: MediaWatt]



# CONGRATULATIONS!

## "Preis der Lehre" (Teaching Award) to ICBM employees

The teaching award at the University of Oldenburg went to Dr. Sara Billerbeck (2nd from right), Prof. Dr. Meinhard Simon (3rd from right) and Dr. Helge-Ansgar Giebel (left) from the ICBM. In the “Practical Course in Biological Oceanography”, the lecturers gave their students digitally supported access to scientific work on a research vessel. [...] [[ICBM – 29.11.2021](#)]



This year's award winners

[Image: University of Oldenburg]

## Maren Striebel awarded for training early career researchers

Private lecturer Dr Maren Striebel was given the Award for Excellent Doctoral Supervision in the context of the new event format “Sound of Science” of the University Society Oldenburg (UGO) on 25 November. The UGO promotes academic education at the University of Oldenburg and cultivates the university's relations with the surrounding community. The Award for Excellent Doctoral Supervision, endowed with 2,000 €, was conferred this year for the first time and will henceforth be granted on an annual basis. It “is meant to recognise outstanding supervisory work and exceptional commitment to the guidance of young academics.” [...] [[SR – 29.11.2021](#)]



Maren Striebel [Image: private]



## Marine researcher Thorsten Dittmar among the world's most cited scientists

For the third time, the Oldenburg geochemist Prof. Dr. Thorsten Dittmar was represented in the citation ranking "Highly Cited Researchers". [...] Dittmar's research group for marine geochemistry has been in cooperation with the Max Planck Institute for Marine Microbiology for 13 years and is based at the University of Oldenburg. The focus of his research is the so-called "dissolved organic matter" - a puzzling mixture of the most diverse substances in the sea, that play an important role in the global carbon cycle and for life in the oceans. Dittmar's research ranges from microbiology to geochemistry to mathematical modeling. [...] [[PR 203/21 – 16.11.2021](#)]



Prof. Dr. Thorsten Dittmar  
[Image: Daniel Schmidt,  
University of Oldenburg]

## ALUMNI – PAST & PRESENT

### New category of the Newsletter: „Alumni – past & present“

Have you ever wondered what your former peers from the ICBM are doing now? To develop our ICBM-Alumni network a bit further, we would like to introduce and present YOU in the upcoming Newsletters! What did you do at the ICBM? Where are you now and how did you get there?

Please let us know when you want to participate at [icbm-alumni@uol.de](mailto:icbm-alumni@uol.de), so we can introduce you to your former peers! [TH]

### **If you have comments:**

Please contact us if you have questions or further suggestions: [ferdinand.esser@uol.de](mailto:ferdinand.esser@uol.de) or [icbm-alumni@uol.de](mailto:icbm-alumni@uol.de)

Join the ICBM-Alumni-Network: [icbm.de/alumni](http://icbm.de/alumni)

### **Data protection**

The use of this newsletter is voluntary. You can unsubscribe at any time without stating reasons. Just send an e-mail to [icbm-alumni@uol.de](mailto:icbm-alumni@uol.de).

### **Imprint**

Institute for Chemistry and Biology of the Marine Environment (ICBM)

University Oldenburg

Dr. Ferdinand Esser und Tabea Hildebrand

Carl-von-Ossietzky-Straße 9-11

26129 Oldenburg

Tel: +49 (0)441-798-5342

E-Mail: [icbm@uol.de](mailto:icbm@uol.de)

Internet: [www.icbm.de](http://www.icbm.de)

Text: [FE] Ferdinand Esser, [PR] Pressemitteilung UOL, [SR] Sibet Riexinger, [TH] Tabea Hildebrand

Layout: TH