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**GEOMAR Helmholtz Centre for Ocean Research Kiel
Leibniz Institute for Baltic Sea Research Warnemünde**

How storm surges affect the coastal marshes of the Baltic Sea – Bachelor graduate Denise Otto receives Otto Krümmel Prize 2023

September 20, 2023 / Kiel, Germany. For her bachelor's thesis, Denise Otto studied the biogeochemical effects of floods on the soils of a coastal marsh. Today, the young scientist receives the Otto Krümmel Award 2023 in Kiel. Endowed with 1,500 euros, the prize is awarded annually by the "Society to Support GEOMAR Helmholtz Centre for Ocean Research Kiel" for outstanding bachelor theses in marine research.

They form a unique interface between sea and land: Coastal peatlands characterise the landscape of the southern Baltic Sea in many places. Here, saline water from the Baltic Sea and low-salinity groundwater as well as surface water from the marsh can be exchanged and mix above and below ground. In her bachelor's thesis, Denise Otto investigated how fluctuating water levels in the Baltic Sea and flooding influence the biogeochemical composition of a bog. With a focus on carbon and sulphur compounds, she carried out isotopic geochemical investigations of soils and pore water in the Hütelmoor, a nature reserve near Rostock, after a severe storm surge. For her outstanding degree in geology at the University of Greifswald, she is being honoured today in Kiel with the Otto Krümmel Award endowed with 1,500 euros, which is donated in equal parts by the "Society for the Promotion of GEOMAR Helmholtz Centre for Ocean Research Kiel" and the Briese shipping company. Denise Otto carried out her research at the Leibniz Institute for Baltic Sea Research Warnemünde (IOW) in the working group Geochemistry & Isotope Biogeochemistry, where she was supervised by IOW biogeochemist and deputy section head Professor Dr. Michael E. Böttcher.

"The bachelor's degree still receives little attention, especially in the natural sciences, and is often seen as a stepping stone to a master's degree," says Dr. Peter Gimpel, Chairman of the Society for the Promotion of GEOMAR Helmholtz Centre for Ocean Research Kiel e.V. "However, the students have already acquired a solid basic knowledge and had to show in their thesis that they are able to work scientifically." The prize-winning theses often indicate particularly talented and qualified students early on. The Otto Krümmel Sponsorship Award is intended especially honour these young scientists, Gimpel adds.

"The award is a wonderful acknowledgement of the young scientists' abilities," says GEOMAR Director Professor Dr. Katja Matthes. "To experience how relevant one's own research can be, is a great motivation for one's further scientific career." Therefore, she is particularly pleased that the Otto Krümmel award will be presented within the GEOMAR Science Day from this year on, thus giving greater attention to the award and thus also to the laureates.

"I am delighted that Ms Otto is receiving this award, as she has worked with great motivation and commitment," says Michael Ernst Böttcher, Denise Otto's supervisor at the IOW and also Professor of Marine Geochemistry at the University of Greifswald. "Her work is a valuable contribution to the DFG

Research Training Group Baltic TRANSCOAST at the University of Rostock, which carries out fundamental research into the matter fluxes in re-naturated peatlands under seawater influence ". The results will help to better assess the future development of ecosystems at the transition from land to sea under conditions of rising sea levels, Böttcher added. "I wish Denise every success in her further studies in marine geosciences, which she will continue at the University of Bremen," Böttcher concluded.

About the Otto Krümmel Award:

The "Society to Support GEOMAR Helmholtz Centre for Ocean Research Kiel" has been awarding the "Otto Krümmel Promotional Award" since 2016. Awarded annually, the prize honours outstanding bachelor's degrees (including FH degrees) in the field of marine research, including the interaction of the ocean with the seabed and the atmosphere. Scientists can apply if they have completed their bachelor's degree at a German university no more than one year ago and received a grade of "excellent" or "very good". All disciplines of marine research, including marine technology, are qualified. The winners are selected by an independent committee. The award is endowed with 1,500 euros, half of which is donated by the GEOMAR Supporting Society and half by the shipping company Briese.

About Otto Krümmel

Professor Dr. Otto Krümmel (1854-1912) is regarded as the founder of general oceanography in Germany. He taught and worked mainly in Kiel. Krümmel's ideas about the shape of the seafloor were ground-breaking. With around 100 publications, his work covers almost all areas of general geography, oceanography and hydrographic surveying. He was internationally recognised for his interdisciplinary research and, together with other researchers, advocated the case that the open seas can only be understood and utilized in international cooperation. His persuasive lobbying led to the establishment of the International Council for the Exploration of the Sea in 1902 as a government-coordinated scientific association.

URLs with further information:

Society to Support GEOMAR Helmholtz Centre for Ocean Research Kiel:
<https://www.geomar.de/en/centre/support-geomar>

IOW Geochemistry & Isotope Biogeochemistry Group:
<https://www.io-warnemuende.de/geo-ag-geochemie.html>

DFG Research Training Group Baltic TRANSCOAST:
<https://www.baltic-transcoast.uni-rostock.de/en/>

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