

# Preface

Promoting young researchers is a major priority of the Helmholtz Association, Germany's largest scientific research organisation with 18 Research Centres in the fields of science, engineering and biomedicine. In the framework of the Initiative and Networking Fund several promotion instruments were set up with the aim to advance education and to attract excellent young people for science conducted by the Helmholtz Centres. School laboratories, doctoral training programmes, as well as Postdoc programmes support individuals at every stage of their education and career. Helmholtz Research Schools aim to prepare highly skilled doctoral students for a career in science and business. Each research school brings together up to 25 outstanding young doctoral students to conduct research on a specific topic and thus gain valuable experience working together closely in teams—an absolutely essential skill for topnotch research today. In addition, the Helmholtz Association works with distinguished partners such as the Imperial College London, enabling it to provide a curriculum that includes a range of courses that aim to foster professional qualification and personal development and to equip graduates for careers in management positions, both in science and the business world. Since 2006, 21 research schools have been set up at the different Helmholtz Centres. The research schools are complemented by 13 Helmholtz Graduate Schools which provide a roof for a varied number of curricula in different fields, or across disciplines.

At the Alfred Wegener Institute for Polar and Marine Research in Bremerhaven, a Helmholtz Research School on Earth System Sciences has been funded since 2008 in collaboration with the University of Bremen and the Jacobs University Bremen. Using the network and collaboration of experts and specialists from the different institutes on observational and paleo-climate data as well as on statistical data analysis and climate modelling, doctoral students from eight countries were trained to understand, decipher and cope with the challenges of global climate change. The Earth System Science Research School (ESSReS) covers all kinds of disciplines, climate science, geosciences and biosciences, and provides a consistent framework for education and qualification of a new generation of expertly trained, internationally competitive doctoral students.

The set-up of a structured doctoral programme like ESSReS combines both, strong scientific cutting-edge research and an interdisciplinary education that bridges the gap between the traditional disciplines. The young students are motivated to learn on an interdisciplinary and trans-institutional basis, guiding their way in modern research. The success and outcome of the first 3 years phase of ESSReS, which also served as precursor for the Graduate School for Polar and Marine Research (POLMAR), established at the Alfred Wegener Institute in 2009, is visible in this book. Both schools provide a new level with binding rules for doctoral education at the Alfred Wegener Institute, satisfying our enduring efforts on the improvement of doctoral education in the Helmholtz Association.

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Earth System Science: Bridging the Gaps between  
Disciplines

Perspectives from a Multi-Disciplinary Helmholtz  
Research School

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