



ESSReS-PEP-POLMAR, an international and interdisciplinary postgraduate education concept on Earth and Environmental Sciences

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Since more than four years, graduate and postgraduate education in the field of Earth System and Environmental Science has been established in Bremen and Bremerhaven, north-western Germany. Using the network and collaboration of experts and specialists on observational and paleoclimate data as well as on statistical data analysis and climate modelling from two Universities and the Helmholtz research institute on Polar and Marine Research, master and Ph.D. students are trained to understand, decipher and cope with the challenges of recent climate change on an highly interdisciplinary and inter-institutional level.

The existing research infrastructure at the Alfred Wegener Institute Bremerhaven (AWI), the University of Bremen, and the Jacobs University Bremen offers a unique research environment to study past, present and future changes of the climate system, with special focus on high latitudinal processes. It covers all kind 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 master and Ph.D. students.

On postgraduate level, the Postgraduate Programme Environmental Physics (PEP) at the University of Bremen (www.pep.uni-bremen.de) educates the participants on the complex relationship between atmosphere, hydrosphere (ocean), cryosphere (ice region) and solid earth (land). Here, the learning of experimental methods in environmental physics at the most advanced level, numerical data analysis using supercomputers, and data interpretation via sophisticated methods prepare students for a scientific career. Within cooperation with the Ocean University of China (OUC) students are participating one year in the PEP programme during their master studies since 2006, to get finally a double degree of both universities. Based on this successful cooperation a similar programme will start in winter term 2011/12 with the Lulea University of Technology (LUT), Sweden. Within this cooperation the students will stay 1-2 semesters at the LUT to have both the knowledge of environmental science from the University of Bremen and of space technology from the LUT, and to get finally a double degree of both universities.

Besides the topical training with a system of specialized basic and advanced courses, including practical lab work and work on research vessels, the Earth System Science Research School (ESSReS) (www.earth-system-science.org) and the Helmholtz Graduate School for Polar and Marine Research (POLMAR) (polmar.awi.de), both hosted at the AWI but cooperating with the Max Planck Institute for Marine Microbiology (Bremen), the University of Bremen, the University of Potsdam, the Bremerhaven University of Applied Science, and the Institute for Marine Resources (IMARE), provide a consistent framework for education and qualification for doctoral candidates in general. Developing all categories of skills needed for analysing complex climate and environmental systems and the development of integrated solutions in a supportive network of collaborating research institutions fosters outstanding career options. Special emphasis is laid on transferrable skills development during the whole time towards the Ph.D., including research skills and presentation skills training and career planning. The structured scientific training and a thorough supervision concept complements the scientific research programme, qualifying a new generation of excellent scientists for the challenging questions in Earth System Science and Polar and Marine Research.