



Leaving School — learning at SEA: Regular high school education alongside polar research

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Against the background of unsatisfactory results from the international OECD study PISA (Program for International Student Assessment), Germany is facing a period of intense school reforms. Looking back at a tradition of school culture with too few changes during the last century, quick and radical renewal of the school system is rather unlikely. Furthermore students are increasingly turning away from natural sciences [1].

The AWI aims at providing impulses for major changes in the schooling system and is offering solid science education not only for university students but also for a larger audience. All efforts towards this goal are interconnected within the project SEA (Science & Education @ the AWI).

With the school-term of 2002/03 the Alfred-Wegener-Institute for Polar and Marine Research started HIGHSEA (High school of SEA). The program is the most important component of SEA. Each year 22 high school students (grade 10 or 11) are admitted to HIGHSEA spending their last three years of school not at school but at the institute. Four subjects (biology as a major, chemistry, math and English as accessory subjects) are combined and taught fully integrated. Students leave their school for two days each week to study, work and explore all necessary topics at the AWI. All of the curricular necessities of the four subjects have been rearranged in their temporal sequencing thus enabling a conceptual formulation of four major questions to be dealt with in the course of the three-year program [2]. Students are taught by teachers of the cooperation schools as well as by scientists of the AWI. Close links and intense cooperation between both groups are the basis of fundamental changes in teaching and learning climate.

We are organizing expeditions for every group of HIGHSEA-students (e. g. to the Arctic or to mid-Atlantic seamounts). For each student expedition we devise a "real" research question. Usually a single working group at the AWI has a special interest in the data but no opportunity to collect them. Thus the data gathered by the students during "their" expedition contribute to ongoing research projects of different departments of the AWI.

Meanwhile five groups of students have finished their final exams — with outstanding results. We are providing excellent starting conditions for students with a strong interest in natural sciences who wish to take up university courses. Currently some students of the first groups of HIGHSEA are working on their bachelor or master theses at the AWI. HIGHSEA has gone through an external evaluation process by the University Duisburg Essen. By exploring and establishing new ways of teaching and learning we are contributing to the ongoing discussion about the renewal of the German school system.

[1] Q Schiermeier (2002): Lessons in research aim to win pupils over to science, *Nature* (418), p 714

[2] S Goodman (2002): Put your lab in a different class, *Nature* (420), p 12-14