



GeoBus: bringing Earth science learning to secondary schools in the UK

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GeoBus (www.geobus.org.uk) is an educational outreach project that was developed in 2012 by the Department of Earth and Environmental Sciences at the University of St Andrews, and it is sponsored jointly by industry and the UK Research Councils (NERC and EPSRC). The aims of GeoBus are to support the teaching of Earth Science in secondary (middle and high) schools by providing teaching support to schools that have no or little expertise of teaching Earth science, to share the outcomes of new science research and the experiences of young researchers with school pupils, and to provide a bridge between industry, higher education institutions, research councils and schools. Since its launch, GeoBus has visited over 160 different schools across the length and breadth of Scotland. Almost 35,000 pupils will have been involved in experiential Earth science learning activities by April 2015, including many in remote and disadvantaged regions.

The challenge with secondary school experiential learning as outreach is that activities need to be completed in either 50 or 80 minutes to fit within the school timetables in the UK, and this can limit the amount of hands-on activities that pupils undertake in one session. However, it is possible to dedicate a whole or half day of linked activities to Earth science learning within the Scotland Curriculum for Excellence, and this provides a long enough period to undertake field work, conduct group projects, or complete more complicated experiments. GeoBus has developed a suite of workshops that all involve experiential learning and are targeted for shorter and longer time slots, and the lessons learned in developing and refining these workshops to maximise the learning achieved will be presented.

A key aim of GeoBus is to incorporate research outcomes directly into workshops, and to involve early career researchers in project development. One example that is currently in progress is a set of hydrology workshops that focus on the water cycle, groundwater flow and aqueous geochemistry arising from a 3rd year PhD student's research. One workshop will include some fieldwork which is an important part of the Scottish curriculum, and hydrology provides the ideal platform for pupils to develop their investigative skills, and collect and manipulate field data. Our presentation will provide examples of these hands-on GeoBus activities that introduce basic concepts in hydrology and hydrogeology.