

Ray Gildea Jr Award

Report by Ruth Hollinger, Tapton School, Sheffield

Project Title: A virtual fieldtrip to discover the Henderson Glacier in Antarctica

Abstract

To mark the 50th anniversary of the first crossing of Antarctica by Sir Vivian Fuchs, the Fuchs Foundation selected four geography and science teachers to travel to the Ellsworth Mountains in Antarctica to conduct scientific research. The main aim of the expedition was for the teachers to use their experiences to encourage more young people to take an interest in geography and science. Ruth Hollinger, a Geography teacher from Tapton School in Sheffield was awarded the Ray Y Gildea Jr Award to support her in this expedition. This report details the two aspects of her research, namely mapping the distribution and characteristics of cryoconite holes and measuring the ecological footprint of the expedition. In the build up to the expedition, Ruth involved students through two design competitions. While in Antarctica, Ruth made use of satellite technology to communicate with her students and share her experiences. She set up and ran a blog which she updated daily while on the ice and set up a phone link with school pupils. The expedition was highly successful and Teachers TV has made the expedition into six pupil and teacher programmes. This will help to inspire students and enable the geography of Antarctica to be shared with a much wider audience.

Introduction

The Fuchs Foundation Antarctic Expedition 2007 marked the 50th anniversary of the first crossing of Antarctica by Sir Vivian Fuchs. Four UK teachers (two geography and two science) were selected to travel to Antarctica to conduct research which would inspire their pupils. Ruth Hollinger, a Geography teacher from Tapton School in Sheffield was awarded the Ray Y Gildea Jr Award to support her in this expedition. Ruth trialled her research on the Jostedalbreen Glacier in Norway in August 2007. In November 2007 the team flew to Patriot Hills in Antarctica and after a short period of acclimatisation the team moved to the Henderson Glacier, fifty miles from Patriot Hills base camp to conduct their research. The original intention had been to conduct the research on the Union Glacier but this was altered on account of the weather.

Cryoconite Holes

Ruth's research drew on the research and experiences of Andy Hodson at Sheffield University Department of Geography. She investigated the distribution and characteristics of cryoconite holes which are formed by sediment on the surface of a glacier absorbing solar radiation, warming, and melting into the ice.



Image 1: Ruth and Phil collect cryoconite samples

Due to unusually high amounts of snow fall, the holes were difficult to locate. However, samples were collected at Patriot Hills, the Heritage Range, the Henderson Glacier and Connell Canyon and brought back to the UK. At present, the samples are being analyzed at Sheffield University Department of Geography. Full details of the research including a scientific report can be found at www.fuchsfoundation.org.uk under 'Educational Resources', 'Scientific Reports'.

Ecological Footprint

Ruth, working with Danny Chivers at Best Foot Forward investigated the ecological footprint of the expedition. An ecological footprint is the measure of consumption of resources. It is calculated in terms of the total land area required per person to meet their food, energy, raw material, water and wastewater disposal needs and is measured in global hectares. The results incorporated in the footprint were from departure at London Heathrow to return to London Heathrow. It is made up of the footprint of four teachers, three guides and a cameraman from Teachers TV. The total footprint for the expedition equated to 21.26 global hectares (gha). This equates to 0.078gha per person per day. The average ecological footprint person per day in the UK is 0.015gha. Almost 81% of the footprint of the expedition was as a result of passenger travel resulting from flights. This finding allows for a powerful educational message about our personal ecological footprint and will hopefully encourage students and adults to think about ways in which they can alter their own behaviour to reduce their own footprint. Full details of the research including a scientific report can be found at www.fuchsfoundation.org.uk under 'Educational Resources', 'Scientific Reports'.

Ways in which the project has been shared and communicated with others

Before

What?	Why?	Who?
Establish blog	To share the background of the expedition and promote the expedition to sponsors	Ruth Hollinger
Establish a link with Sheffield University Department of Geography	To encourage links between school Geography and educational establishments so that more students will consider Geography as a degree option	Ruth Hollinger, Andy Hodson Sheffield University Department of Geography
Expedition logo design competition	To encourage students to get involved in the expedition	Students
Design a sledging flag	So students could identify their teacher while in Antarctica as all four teachers would be dressed the same!	Students at Tapton School
Talks and assemblies	Raise the profile of the expedition to infant, primary and secondary schools and encourage their involvement	Ruth Hollinger



Image 2: Ruth in Antarctica with sledging flag designed by pupils

During

Updates on the blog from Antarctica via a satellite phone and laptop	To make use of new technology and encourage students to do the same. To enable students to share in the experience, to allow them to ask questions and find out more about Antarctica	Ruth Hollinger and students. The technical side was facilitated by Steve Bull, the expedition manager
Satellite phone link up with schools		
Weekly updates on Tapton School website and information leaflet sent to parents	Communicate with students and parents so they could share the experience	Selected students

School visit from Fuchs Foundation	To help sustain support for the expedition while the teachers were in Antarctica and shoot footage for Teachers TV documentaries	Steve Bull, expedition manager, Peter Fuchs and Richard Wylie, Teachers TV
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Image 3: Ruth communicates via satellite phone with her students back in the UK

After

Lesson plans, worksheets and scientific reports which are shared on the Fuchs Foundation website	Curriculum development which is of relevance to the new KS3, KS4 and KS5 Geography curriculums and to encourage thought and discussion about this vast continent	Ruth Hollinger with help from Fuchs Foundation
Six programmes – two documentaries and four pupil resource programmes which can be viewed and downloaded from the Teachers TV website		Teachers TV
Talks and lectures to various groups and organisations including the Geographical Association Annual Conference 2008, Cambridge University Department of Geography, Scott Polar Research Institute, National Science Week, Tipton School PTA, Longley Park Primary School, Ballyclare High School, Eccelshall Infant school, Totley AC	To communicate about the experiences on the expedition and to share research findings	Ruth Hollinger

Conclusion

Before, during and after the expedition there was significant coverage in local and national media which has helped to generate interest and enthusiasm about the expedition. The expedition has made a contribution to national research bodies as well as inspiring students and enabling the geography of Antarctica to be shared with a much wider audience.

Useful websites

- www.hollinger.edublogs.org
- www.fuchsfoundation.org.uk
- www.teachers.tv
- www.bestfootforward.com