Expedition Fund Report 2014: The Zillertal Alps, Austria
Student: Joshua Leigh, Undergraduate in BSc Physical Geography

Introduction

Being granted funding from the expedition fund assisted me in undergoing a month’s fieldwork in the Austrian Alps, as part of my final year Independent Geographical Study (IGS). My field work was based around Lichenometry which is the study of lichen and using them to date surfaces of an unknown age. For my research I was studying a species of crustose lichen called Rhizocarpon, (sub species Rhizocarpon Geographicum) to reconstruct glacier retreat of the Hornkees glacier, from its Little Ice Age maximum around 1850. The valley I was working within was situated between two other glacial valleys; the Schwartzensteinkees and Waxeggkees. These both fed into the Zemgrund valley.

I was part of a larger team consisting of four other students (Tom Howlin, Harry McMahon, Katherine Collins and Cianna Wyshnytzky) three undergoing research for their undergraduate dissertation and one for her PHD. We all worked together as a group to secure a large grant from the Royal Geographical Society (RGS) and the expedition fund individually helped in funding this project, as the costs of staying for a long duration in an isolated alpine environment are considerably higher than in areas of easy access.

The site of the Zemgrund valley was chosen as there is a considerable lack of well published research that has been undertaken within this area (the only English published paper is by Mahaney et al. 2011) and so provided a large research gap, which is ideal for my IGS. It also proved to be an area in which Lichen species are well established and cover a large surface area of all the old glacial moraines and other debris.

Field Word

My field work consisted of two different methodological approaches to Lichenometry, both of which required me to measure the longest axes of the Lichen that had grown on the glacial deposits. I took varying samples sizes at 50m intervals along each moraine and

Photo 1: Standing in a ice pocket of the Hornkees Glacier.

Photo 2: Measuring Lichen on the possible 1850 maximum, true right lateral moraine.
these made up data for both single largest, largest five, largest ten and size frequency methods of lichenometry. Along with this I had to attempt to construct a dating curve, which required me to find surfaces of a known age and measure the lichen growth on these surfaces. This then allowed me to gain an understanding of the relationship between lichen size and age, which is crucial if I am to accurately reconstruct glacial retreat.

The moraines were not always simple to access, as some were high on the valley sides and others were on steep gradients. Furthermore, all consisted of large boulders which made simply walking along them a challenge. To ensure that risks were minimised we had multiple people with first aid knowledge and training and when in the field the whole team used a buddy system so when tackling steep valley sides or large boulder fields we always had help. This ensured our safety throughout the trip and allowed us to go a whole month without any serious injuries.

Rest and Recuperation

Our home for the month was a large Austrian mountain hut, the Berliner Hütte. Built originally in 1878 and situated within the middle of the Zemgrund at 2057m above sea level and looking out over the three valleys in which we carried out our individual research. From here I was able to walk to my study site within ten minutes and I was able to reach the glacier snout within half an hour. This meant less of the day was taken up by travel to and from the field site and more time could be put into research, therefore it provided a great base camp for the duration. Having the luxuries of a mountain hut rather than camping proved to be invaluable on the days when we returned from fieldwork in the rain as we were able to leave all our wet gear in a drying room, so by the morning it was warm and dry.

On the rare occasion that we took a break from field work we rarely ended up resting. As we were surrounded by such amazing scenery we would end up on the numerous hiking trails that weaved through and over the valleys which allowed us to really take in all of what the mountains had to offer. The hiking trails ascended all the ridges. However we were unable to progress to the summits as specialist mountaineering equipment was required so we stayed in the lower valley paths which still offered amazing views across the Zemgrund and sometimes further out over the Zillertal Alps.
My Overall Experience

Staying in such an isolated yet beautiful landscape was an unforgettable experience and will provide me with many memories for years to come. While allowing me to conduct extensive research into the lichen growth within the Hornkees valley, which will in turn enable me to go forth and reconstruct glacial retreat, to form my IGS. It also allowed me to experience a mountain environment in a way I have never done before. Then whole month was spent without phone signal or internet connection which was a rather enlightening experience as it allowed me to completely switch off from the bombardment of everyday life and focus on my research and the landscape itself.

There was so much to do within the area that I barely scratched the surface of what the Zemgrund had to offer. I hope to return in the future to fully explore the hiking, mountaineering and climbing that the area has to offer and I am extremely grateful for the funding I received from QMUL that assisted me in undertaking the fieldwork.