

RISE Germany 2017 - Final Report

Name of intern: Matthew Sutton
Home university: University of Oxford
Subject: Earth Sciences
Guest university / institute: Heidelberg University
Name of supervisor: Carolina Catunda

What is your impression of research in Germany?

Prior to coming to Germany I had the impression that German research was meticulous, innovative and world leading. These ideas have been entirely validated by my stay in Heidelberg. Without exception, the researchers I met put in long hours to make sure their data was accurate and comprehensive and that their interpretations were backed to the fullest by the data which had been collected. I cannot speak for areas other than Earth Sciences, but in this field I was very impressed.

What is your impression of German universities?

Obviously I've only had exposure to Heidelberg University so I cannot speak for anywhere else – but I found the university to be well organised and equipped for all of my needs. The department had all of the machines needed to conduct our study although I learnt of other students in the Earth Sciences department who had to travel to other universities to do this. Presumably this implies there is a culture of collaboration between universities although I cannot really speak on the truth of this.

What did you find particularly interesting about your research?

I was impressed by the sheer volume of data which must necessarily be collected before it is possible to confidently publish results and conclusions. It made me appreciate that every time I read a research paper on the topic of palaeoceanography, months of work from the author/s and also from various interns must have gone solely into that single project.

It was also fascinating to realise how much of our understanding of the ancient ocean is determined only on a few species of tiny calcareous zooplankton. If we didn't have forams preserved in the fossil record then our understanding would be either speculative or non-existent.

Describe a typical day of your internship.

In the morning I would travel in on the tram to get to the geosciences institute for around 9.30. For much of my internship my time would be spent at the microscope. Here I would sort through a sample vial of foraminifera (mm-sized, calcium-rich sea shells) and pick out two morphologically distinct species – *G. crassaformis* and *G. truncatlinoides*. During my internship I must've sorted through over 100 such samples. Some days would consist exclusively of this but on other days I would work in other areas of data collecting and processing. For example, I might use the scales upstairs to determine the weights of the separated forams. On other occasions I would very carefully crush the shells and separate the crushed material into fractions of the appropriate size for whatever machine analysis was required.

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We would have a lunch break around 12.30 in which we might discuss what people in neighbouring offices were currently working on, recent papers related to palaeoclimate studies or just talk about the latest episode of Game of Thrones! This was the main social point in the day and I made connections with various PhD students working on the same floor during these hours.

Before leaving, at the end of each day it was important to note down all of the work which had been done. Carolina, my supervisor, entrusted me to properly modify the master excel document on her computer, which meticulously detailed every important piece of information for the 900+ samples which were being used in this particular study.

Highlights of your stay (both personal and academic).

In order to make the most of my stay, I would often travel to locations near Heidelberg on the weekends. These places included Munich, Strasbourg and Schwetzingen, but my favourite weekend was in Switzerland. I travelled with a friend to Zürich and from there we travelled south, into the Swiss Alps at a place called Engelberg. From Engelberg we ascended to the top of a nearby mountain called Titlis, which is topped by a small glacier which creeps onto the neighbouring peaks. I had never seen, let alone climbed, a 3000m mountain before, and I was absolutely awestruck by it.

My personal academic highlight was the chance to use the scanning electron microscope (SEM) to take highly detailed pictures of the tiny forams I had been working with throughout the internship.

What is your impression of Germany in general?

Germany seems to be an internationally-minded country with a friendly culture. It does seem that bureaucracy can be a significant obstacle to the running of everyday affairs which are handled more smoothly and with less paperwork in other countries. At the same time, I recognise that my experiences were only of a very narrow group of Germans and German institutions and I would be exaggerating if I were to draw excessive conclusions based only on this.

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