Henry Kerrison (Physics/Earth Sciences) – Geological Mapping, Northern Spain, Summer 2016

During the summer break, I joined some fellow students in Northern Spain during their 6 week Part II Geological Mapping Project. I stayed with them for a week in the scenic village of Murillo de Gállego, which was the perfect location from which to go out each day and study the area's amazing and varied geology. There was a spectacular view from my accommodation which was dominated by the most prominent feature on the landscape… the Mallos de Riglos, a collection of thick conglomerate rock formations towering up to 300m over the surrounding terrain and forming part of the foothills of the southern Pyrenees.

*View of the **Mallos de Riglos**, with deformed/folded structures and vertical cliffs visible in the top left and on the right respectively.*

To beat the midday summer heat, my days began early and were spent out in the field with the other mappers. We stopped at important outcrops of rock to make detailed notes, including annotated field sketches and records of any measurements taken. In the evenings I discussed my findings with the other geologists gradually building up my understanding of the local and regional geology. However, navigating the rugged terrain was not always easy, once forcing us to wade through over a hundred metres of very spiky vegetation to get to a key outcrop, to only have to turn back and suffer again after the path beyond became completely overgrown above our heads.

The region's proximity to the Pyrenees, meant that it was in the frontal thrust zone of the mountains at the time of their formation (throughout the Late Cretaceous to the Tertiary) which caused the formation of the complex geological structures in the region. The weight of the mountain formation created a flexural sedimentary basin, later filling with alluvial sediment eroded off the Pyrenees, sloping southwards and covering the geological structures beneath. This event has left an exciting abundance of folds, faults and unconformities, amongst the alluvial sediment cover that followed, to discover and explore making for a great trip.

At the foot of the Mallos, there is a rapid transition from conglomerates to sandstones (possibly due to a fault), which are easily eroded by weathering. This leaves behind the more resistant conglomerates forming vertical southward facing cliffs at the contact. Later, a network of criss-crossing fractures developed throughout the area, creating areas of weakness that are more quickly eroded. This pattern of erosion has defined the shapes of the pinnacles we see today.

This trip provided the first real opportunity for me to think independently, without the aid of demonstrators or lecturers who were present on previous Earth Sciences field trips. This ensured that I thought more carefully about my interpretations and what explanations for the geology were plausible. In addition, it has allowed me to explore a completely different environment to the geology that I have previous looked at, providing valuable field experience and giving me a taste of what geology can be like outside of the UK. After studying Physics and Earth Sciences in Part IB, I am going on to do Part II Physics and plan to later specialise in Geophysics.