PhD Vlog Week 2: Andy Pearson Transcript

TIME	SPEAKER	AUDIO
0:00:01		[MUSIC/TITLES].
0:00:05	Andy Pearson	Hi, so this video will be about my fieldwork, and fieldwork aspect of my PhD project. But before I get into that, I should probably explain a bit more about what my project is actually about. So, the idea of the project is to understand the relationship between temperature, and the release of dissolved or organic carbon from soil. Soil is a really important store of carbon, it actually stores more carbon in the atmosphere, than all of the vegetation in the world combined.
0:00:35		So, any loss of dissolved organic carbon from the soil, is actually really important, and can have, potentially, large, and currently, unqualified effects on the climate, as a whole. So this is a really quite prevalent issue, globally, at the moment. So you might wonder how caves actually come into this, how do they relate in any way to the release of dissolved organic carbon from soil. Well, the idea is that speleothems, which is the generic term for any calcium carbon that deposits in caves.
0:01:06		So, stalagmites and stalactites, and flowstones can provide a detailed archive, a detailed annual archive of dissolved organic carbon, in terms of the amount of dissolved organic carbon, and the characteristics, the chemical characteristics of the dissolved organic carbon, through time. And because these speleothems can be deposited over, potentially, hundreds of thousands of years, the fact that we know that they can,
0:01:36		you can then build up an extremely long record of dissolved organic carbon, which has been released through time. And try and link the release of the dissolved organic carbon to temperature change. So, because we want to understand the effects of temperature on the release of dissolved organic carbon from soil, we're using the thermal grading of New Zealand, to understand that effect. So, we've sampled, previously, the Waipuna caves,
0:02:05		in the central North Island. I was involved in

		removing the speleothems from that site. Previously, before I arrived, my supervisor, and a couple of other academics, removed speleothems from a couple of caves in the South Island. And as part of my recent fieldwork, we visited those caves, to learn more about the hydrology in those areas. So, in total, in the South Island, we visited three caves. One in the Nelson region,
0:02:35		on top of Mount Arthur, and then two caves in Fjordland National Park, which is on the southwest of the South Island, as well.
0:02:45		So, today, we're in a Calcite Cave, which is in [unclear 0:02:51] in Fjordland National Park, in New Zealand. And we're collecting water samples, that have been collecting over the past couple of days. And we're also collecting drip loggers, which have been left here since February last year. So, a full 12 months, now. And the reason for doing this is to provide, sort of, information on hydrology of the cave. And in terms of the water sample, that will give us a good indication
0:03:15		of the geochemistry, and it will allow us to compare the carbon in the water sample versus the soil, and in the speleothem. So, as you can see here, we have some speleothems, and we also have - I hope you can see - a drip logger, as well.
0:03:38		So, visiting those caves was really useful for me to see the field sites that are an integral part of my PhD. So, although we probably only spent, maybe, two or three hours in each cave, it was really great to explore them, and get a feel for the place, before we crack on with lab work, and analysing samples of the cave system. So, after my fieldwork in the caves, I travelled up to Lake Ohau, which is in Canterbury. I was invited by one of my supervisors, who works
0:04:08		for GNS Science, which is a [unclear 0:04:12] Institute of New Zealand. And they had a climate, they had a very large project called the Lake Ohau Climate History project. And essentially, they were removing sediment from the bottom of the lake, up to a depth of 80 metres. And they expect to be able

		to reconstruct 17,000 years of climate history to almost , with an almost annual record.
0:04:38		This is a really interesting project for me, because I'd never seen such a large scale project in action. And to see the amount of people involved in that project, to see a 27,000 kilogramme barge in action, was really, really cool as well. And it was a beautiful place, too. So that was really enjoyable for me, and it's worth checking out, just search on the internet for the Lake Ohau Climate History Project. They got quite a lot of media attention, and it was really great for me to go and see that.
0:05:08		If they can reconstruct 17,000 years of past climate, they can potentially understand what the climate may do in the future, and this is obviously important for a lot of different stakeholders in New Zealand, from the agricultural industry, to the energy sector, as well. So it's a really, really valuable project.
0:05:28		So after my three works of fieldwork in the South Island, I was pretty tired, and it was a great experience, but I'm sort of glad to get back to Hamilton, and be able to crack on with some lab work. Fieldwork is an important part of my project, but I've now collected quite a large number of speleothem samples. So it's important to get on with lab work, and get on with analysing those samples. And in my next video, I'll talk about the ways in which I'll go about doing that.
0:06:02		And I'd just like to finish this video off with a few nice pictures from when we got the helicopter up to Fjordland, up to the top of Mount Luxmore, for Calcite Cave, and Dave's Cave. And I'd also like to leave a picture of Lake Ohau, as well.
0:06:18		[MUSIC/PICTURES/CREDITS].

END OF TRANSCRIPT