TRIPS TO THE MOUNTAINS, THE PLATEAU AND THE COAST



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This weekend, Alain Hubert, Jacques Richon and Jos Van Hemelrijck accompanied Denis Lombardi on several trips to the mountains to check up on and service his seismometers. Later this week, they will take another trip to the plateau before heading to the coast to meet up with the IceCon and BENEMELT scientists. We also celebrated Antarctica Day!

A change in weather

The weather changed this past Sunday. The temperature went up to about -12°C or so. But a harsh wind from the east began to howl, blowing loose snow over the rocks of Utsteinen Ridge and making life difficult for those working outside.

The wind is still blowing hard today. We still have a trip to the plateau scheduled before departing for the coast on Thursday or Friday. Let's hope the wind has calmed down by then!

News from the coast

Things are going well for the IceCon and BENEMELT scientists who left for the coast on Friday. It took them 27 hours to get there, a bit longer than expected. The snow is deep and soft at the coast, and the heavily loaded Prinoth tractors had some difficulties getting up the Derwael Ice Rise. They set up the base camp, and their scientific work is progressing nicely.

Nicolas Bergeot dug out the autonomous GPS station he installed last year for the IceCon project. He had to raise it one metre higher to account for snow accumulation. Meanwhile, Kristof Soete dug a five metre wide trench with the snow tractor to clear access to a 120 metre-deep bore hole drilled last year. Jean Louis Tison and Morgane Philippe will inspect the hole with a probe camera to study the ice layers in the walls of the borehole. Meanwhile, Frank Pattyn and Brice Van Liefferinge are busy taking images of the ice below the Derwael Ice Rise with ice radar to find two ideal sites for this season's planned ice core drillings, which hope to extract 30 metre-cores.

While the weather held, field guides Raphy Richard and Christophe Berclaz did a reconnaissance trip to choose the site for the second base camp that will be set up on King Boudouin Ice Shelf.

A trip to the mountains

Meanwhile your veteran reporter had the time of his life (who can say that at 67?) going on two field trips to the mountains with seismologist Denis Lombardi. Alain Hubert and doctor Jacques Richon came along as our field guides. The first site we visited was on Vesthaugen Nunatak, some 30 kilometres north of the Princess Elisabeth station; the second day we went to Borchgrevink Fjellet, a mountain range 35 kilometres to te west.

The skidoo rides were quite an experience I must say. The snow in this part of Antartctica is not as soft and fluffy as you might think. The surface is often scarred. The harsh winds create a lot of sastrugi (dips in the snow surface), which make it a really rough terrain to ride a skidoo over. You get thrown around a lot even going as slow as 20 km/h. When the snow surface is smoother, you can open up the throttle (it's a lever that is activated by your right thumb) and go as fast as 40 km/h or more. Some powerful skidoos like Alain's can go up to 100 km an hour. I haven't managed to reach that speed myself!

Super sensitive seismometers

Denis Lombardi is a Frenchman working for the Royal Observatory of Belgium. Last season, he installed a series of seven very sensitive seismometers at different locations around the Princess Elisabeth station and in the Sør Rondane Mountains. Each seismometer is fitted with its own data logger, battery pack and solar panel.

> *"I could not use wind generators," Denis told me, "because the vibrations would disturb the measurements. These seismometers are so sensitive they can measure movements of 1 billionth of a metre."*

Most of the seismometers are fixed on a rocky base and on into the ice itself. They help scientists understand the dynamics of the glaciers and the ice sheet as they flow towards the coast. Every quake or mini-quake in the ice is recorded, including the opening of a crevasse, or the calving of an 50 km-wide iceberg like the one that made headlines last year. The vibrations of that iceberg as it scraped the floor of the ocean were picked up by Denis' instruments, 200 km from the coast.

Disappointment for Denis

As soon as we reached the instrument set up on Vesthaugen Nunatak, Denis eagerly unscrewed the lid of the black insulated box next to the seismometer to check the data-logger. The instrument was not working. Apparently it had stopped recording sometime during the month of August. Denis was silent for a while as he digested his disappointment.

> *"It happened on two other sites," he admitted. "I still had some hope that it was a freak coïncidence. We had these instruments tested in a deep freezer," he explained. "I'm sure it's not the cold that causes this. But what could it be?"*

The next day, at the site in Borchgrevink, we discovered that the logger for the seismometer Denis installed there last year had stopped working in April.

Denis took some time to investigate exactly what went wrong before setting up new seismometers for this season. It looks like three years of hard work have been jeopardised faulty electronics.

Not all is lost, however. A lot of useful data have been collected. But Denis would have liked to have collected seismic data over a complete cycle of 365 days.

Celebrating Antarctica Day

December 1st is Antarctica Day, the anniversary of the signing of the Antarctic Treaty in 1959. The treaty, which currently has 50 countries as signatories (including Belgium, which was one of the first countries to sign), forbids military action in Antarctica and preserves the continent for scientific research.

Every year the Princess Elisabeth station celebrates Antarctica Day. This year, we received a lot of drawings from children around the world, which Polar Quest laureate Roger Radoux and engineer Johnny Gaelens spent an afternoon hanging up. We took some photos of their efforts. It wasn't easy with the windy weather, but they managed to do a good job!

I also joined Roger Radoux and InBev-Baillet Latour Laureate Jan Lenearts as we Skyped with high school students in Belgium. They were excited to receive a call from Antarctica. It was a wonderful experience speaking to young and curious minds! Maybe one day some of them will visit the Princess Elisabeth station...