# BELARE TEAM MEMBERS BUILD SOLAR POWER UNITS FOR SCIENTISTS WORKING IN THE FIELD



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Ever since the first teams of scientists from the CHASE, MASS2ANT and POPE projects arrived on the first ever intercontinental flight to Perseus Airstrip on 22 November, all have been acclimating to life in Antarctica and getting started on their research.

After being welcomed to Antarctica with an evening ride to the Princess Elisabeth Station on modified Toyota Hiluxes, the scientists had a good meal and got a good nights' sleep in the newly expanded station. The following day, a logistics team that hauled the scientists' equipment and supplies for the station from Perseus Airstrip the morning of 23 November arrived in the late afternoon. Everyone lent a hand to unload the tractors when they arrived.

Now that the scientists had their equipment, they could get started on their work for the season.

## Field training

But before any field work can be carried out, all scientists and crew must partake in a two-day field training exercise so they can handle emergency situations in Antarctica.

First and foremost is the usual crevasse training, which involves being lowered into a crevasse and then pulled out by your colleagues. This training is essential to have in case you or a colleague fall into a crevasse. As the ice sheet is slowly but surely moving, this creates cracks in the surface of the ice called crevasses, which can be several tens of metres deep and a few meters wide. They are often covered over by a thin layer of snow and can be undetectable to the unaided eyes and usually form where the bedrock underneath the ice imposes constraints on the moving ice. However, it remains vital to be prepared to know what to do in case a person or a vehicle falls into one.

All scientists are also given first aid training. While a certified field guide knowledgeable in first aid always accompanies every field team, it's important for everyone in the field to know how to handle medical emergencies until help arrives.

And of course, scientists are trained on how to use skidoos and other equipment they might need to use in the field, such as a GPS device so they don't get lost. Antarctica can be a vast, white, barren landscape in all directions in many places, so having a GPS at all times to get your bearings is essential.

## Getting down to work

With the two-day mandatory field training taken care of, the three scientific teams began their work on their various scientific projects.

***CHASE***

Scientists from the CHASE project (Stefania Gilli from the Université Libre de Bruxelles and Preben Van Overmeiren from Ghent University) start to work which consist on the replacement of the filters of the project's air particle samplers around the station.
In the coming week, the two of them will also take a short field trip to the coast in order to change other filters and retrieve samples of air particles that have been collected since last season.

The purpose of the CHASE project (which is sponsored by the Belgian Federal Science Policy - BELSPO) is to collect samples of air particles in Antarctica to see to what extent organic and inorganic airborne particles from the rest of the world reach Antarctica. Every year researchers collect filters that have accumulated particles over the course of a year, and replace them with fresh filters.

How much of the pollution in the mid-latitudes from human activity ends up in Antarctica? We'll find out once the project releases its results.

***MASS2ANT***

Jean-Louis Tison and Frank Pattyn from the Université Libre de Bruxelles have already started their field research for the MASS2ANT project (also sponsored by the Belgian Federal Science Policy - BELSPO), which is studying surface mass balance variability in the Princess Ragnhild Coast, 200 km from the station.

Frank and PhD student Thore Kausch left for the coast on Saturday 30 November to visit the same regions of ice shelves that the team visited in previous seasons. Along for the ride this time is another PhD student from the US named Eric Keenan, and of course, a field guide, Raphael Richard.

Their goal this year will be to collect the two meteorological stations that had been set up at Frank Kenny Ice Rise along with radar and GNSS measurements. They will also take teh temperature and optical televeiwer (OPTV) measurements at last year's ice core borehole. The OPTV is a kind of camera that films and analyses the snow and ice layers inside of the borehole that was drilled at a record 260 metres at T-Ice Rise last season.

The MASS2ANT team will be at the coast for three weeks, and will return to the station on around the 19th of December, before heading home on the 22nd and arriving in time for Christmas a few days later.

This will be the last season for the MASS2ANT project. Will their research be able to determine if human activity has influenced surface mass balance in the Princes Raghnild Coast Region? To what extent is surface mass balance in the area influenced due to variability in atmospheric and ocean circulation? We'll find out these questions and more when the results of their research are published.

***POPE***

Scientists from the Polytechnic School of Lausanne (EPFL) in Switzerland, including Alexi Bern and Alfonso Ferrone, are continuing their study of snow accumulation in Antarctica under the Princess Elisabeth Station Orographic Precipitation Experiment (POPE).

The scientists from the POPE project are trying to determine where and how precipitation in Antarctica forms, and how much of this precipitation, once deposited on top of the Antarctic Ice Sheet, eventually gets transformed over time into ice.

This season the POPE team is installing additional equipment, including a large dish that detects the movement and quantity of snow fall. At the moment, they're analyzing different options to determine the best locations in the vicinity of the station to install their sampling equipment.

Knowing this rate of accumulation and loss of ice will help glaciologists such as those working in the MASS2ANT project get a better idea of the mass balance of the East Antarctic Ice Sheet in the region of the Princess Elisabeth Station.

***JARE***

For a few days earlier this week, the Princess Elisabeth Station also hosted five Japanese scientists from the Japanese Antarctic Research Expedition (JARE) as they prepared for a mission to in the northern part of the Sør Rondane Mountains. They will set up a camp close to Brattnipane nunatak to perform a geological study of the area.

They are expected to be in the field for one month, returning to the station around Christmas.

We'll provide more updates on all of the scientific teams as they make progress with their research.