

English version of our article in the “Bündner Woche”, November 4, 2020

## Research in Graubünden

### **Frozen in the arctic ice**

MOSAiC expedition part I



*The traces of the extreme climate are clearly visible in the face of SLF researcher Amy Macfarlane. Photo: Delphin Ruché*

Snow physicist Amy Macfarlane is one of about 500 researchers who have participated in the largest expedition to date to explore the Arctic on board the research vessel “Polarstern” since September 2019. Ten years of preparation have gone into this project with a budget of 140 million euros. The MOSAic\* expedition is led by the Alfred Wegener Institute (AWI) based in Bremerhaven / Germany.

In September 2019, the AWI research vessel left the

Norwegian coastal city of Tromsø and set course for the North Pole. At this time of year, the sea ice begins to freeze. The key idea of the project was to freeze the “Polarstern” in the sea ice and then drift with the ice masses from the polar ice cap towards the Atlantic Ocean. The goal of the one-year research trip was to investigate the consequences of Arctic climate change from various perspectives. The different teams were assigned to five main research topics: Atmosphere, ocean, sea ice, biogeochemistry and ecosystem.

Macfarlane returned from the MOSAic expedition a few weeks ago. For the English native Macfarlane, the Arctic adventure began over a cup of coffee in Davos. In 2018 she took a vacation to visit friends in Switzerland, whom she had met in 2015 during an internship year at the WSL Institute for Snow and Avalanche Research SLF. “I called my then supervisor Martin Schneebeli to meet him for a cup of coffee. We started talking about the MOSAic expedition and he asked me if I was interested in doing a doctoral thesis at the SLF.” Still a little surprised, she adds, “I was never top of my class neither at school or at university. After completing my masters thesis on the influence of small cyclones on the Arctic Ocean at the University of Sheffield, I worked for a year

and a half as a technical consultant for a software company in the British healthcare sector. And now here I am, after returning from a crazy expedition to the Arctic.”

At the end of January 2020, Macfarlane travelled first to Tromsø by train. From there, the Russian icebreaker “Kapitan Dranitsyn” was to take her and 48 other researchers to the “Polarstern”. “The ice was so thick that it took us a whole month instead of two weeks. At times it was questionable whether the fuel would be enough to make it to “Polarstern”. The voyage was in complete darkness and we fell into a kind of hibernation. Although there are enough supplies on the “Polarstern”, there was much joy that our icebreaker finally delivered a supply of fresh fruits and vegetables.”

“When we reached the “Polarstern” on March 3rd, we experienced the first sunrise. This allowed us to carry out the handover with the departing researchers with a little light, which made orientation easier. The various measuring and research stations were distributed within a radius of up to 50 km on the ice around the “Polarstern”. In the beginning it was very cold with -40 degrees Celsius. It required thorough preparation to go outside. We protected our faces from frostbite with a special type of grease. Outside we constantly checked each other for frostbite on our faces. On excursions we wore a special suit that was supposed to provide flotation in case we fell into the ocean!”

On November 4, the sequel “Polar bears, et cetera” will report on what exactly Macfarlane is exploring in the Arctic ice and how the Corona Virus Pandemic has presented the expedition with unexpected challenges.

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\*MOSAIC = Multidisciplinary drifting Observatory for the Study of Arctic Climate. MOSAIC expedition: <https://mosaic-expedition.org>.

Image 1: The traces of the extreme climate are clearly visible in the face of SLF researcher Amy Macfarlane. Photo: Delphin Ruché

Find out more about research in Graubünden: [www.academiaractica.ch](http://www.academiaractica.ch), [www.graduateschool.ch](http://www.graduateschool.ch).



Daniela Heinen. Image: N. Willi