

## **First week of Austrian team at ZERO - ugebrev 11, 13. august, 2007**

Since one week a small Austrian team is now guest at the Zackenberg research station. This first week was full with learning the Zackenberg station rules, getting a feeling for the Zackenberg area and its monitoring programmes and getting an idea for the potentials for contributions from us. The IPY was the driving force which brought us to Greenland, although we originally planned to start research in the Franz Josef Land archipelago. This original plan on the one hand was based on history, as Franz Josef Land was discovered by the Austrian expedition of Julius Payer and Carl Weyprecht in 1872/73; on the other hand on Austria research activities in this archipelago in the 1990s. Because of problems with the Russian authorities (or in fact the military), however, we failed to get the permission for the planned research expeditions in summers 2007 and 2008. As it was already late in the IPY-period we quickly had to evaluate possible alternatives for moving our Franz Josef Land ideas to another Arctic region. Not only the scientific potential and very good logistics, but also the friendly welcome of the Zackenberg team made our decision very easy. Again we found a nice background of Austrian discoveries at Zackenberg, as it was Julius Payer again, who mapped the Zackenberg region during the "second German North pole expedition" under Karl Koldewey. Payer Land, Tyroler Fjord, Ortlerspitze, Pasterze Gletscher, Großglockner, and many other names still remind us on the former Austrian activities in Greenland.

Glacier research is one major target of our IPY activities. At the first moment Zackenberg does not appear to be a very favourable place for glacier research, as most glaciers are far away from the Zackenberg valley, making sophisticated logistics necessary for this type of research. A more detailed study of literature and maps, however, showed us that ZERO is indeed a good basis for starting such activities. We decided to start research at Fröya-Glacier at Clavering Öya, south of Tyroler Fjord. This glacier was studied in detail during the Swedish Expedition of H. Wson Ahlmann in the 1930s. He conducted a two-year monitoring of accumulation and ablation as well as measurements of micro meteorology to study relation between glacier mass balance and climate. Our idea therefore was to repeat accumulation and ablation measurements as a first step to analyse the difference of glacier mass balance with respect to the climate. Moreover, we will use the Fröya glacier as a sampling site for a comparative investigation of the microbiology and chemical/physical composition of cryoconite in the Alps and the Arctic.

Three members of our Austrian team now spent the last 5 days at Clavering Öya close to the Fröya glacier with a tent camp close to the sea. We benefited from the well organised support from ZERO with boat transfer to Clavering, tents, sleeping bags, food and everything else we needed to make our stay successful. From this base camp field trips were undertaken every day to the glacier to implement a network of ablation and accumulation measurements and to take ice- and cryoconite samples. Though we were very lucky with the weather the time table for managing all our work was quite dense. According to our plans we were picked up after a period of 4 very long days and short nights by the ZERO team.

The other part of the team stayed at the Zackenberg station. One of them, a vegetation ecologist, comes from the world-wide GLORIA team (Global Observation Research Initiative in Alpine Environments) from the University of Vienna. His work during the week aimed at finding summits, which would be suitable for installing long-term observation plots. The other two scientists started the pilot phase of a project that aims at getting a better understanding of the effects of Global Change on the carbon fluxes between arctic terrestrial and aquatic ecosystems. They started small experiments on microbial transformation

processes of terrigenous DOC (plant leachates and soil solution) in lake and stream water. This work occupied the lab space in house number 2 ("wet lab") from time to time, but as most work was done during the night (the weather was too good to stay inside during the days), and the GeoBasis scientist was very open to share her space with us, it was easy to avoid problems.

Considering the success of the first week of our stay at Zackenberg research station the Austrian team is very optimistic not only for the second week of our 2007 field trip but also for future cooperation with the base programmes as well as other scientific activities at ZERO.

/Wolfgang Schöner and Andreas Richter