

## **Report – field campaign spring 2008 – climatology team**

**(May 12<sup>th</sup> – June 1<sup>st</sup> 2008)**

### **Participants on the spring 2008 field campaign:**

- Roman Finkelburg, TU Berlin
- Marco Möller, RWTH Aachen University
- Dieter Scherer, TU Berlin
- Christoph Schneider, RWTH Aachen University

### **Associated colleagues:**

- Matthias Braun, ZFL, University of Bonn
- Regine Hock, Geophysical Institute, University of Alaska, Fairbanks
- Fred Meier, TU Berlin

### **Objectives:**

- Investigation of mass and energy balance of Vestfonna and De Geerfonna
- Meteorological measurements
- Assessment of spatial variability in local and regional climate setting
- Documentation and analysis of snow stratigraphy
- Obtainment of ground truth data for DTM generation
- Preparation for future assessment of ice dynamic information

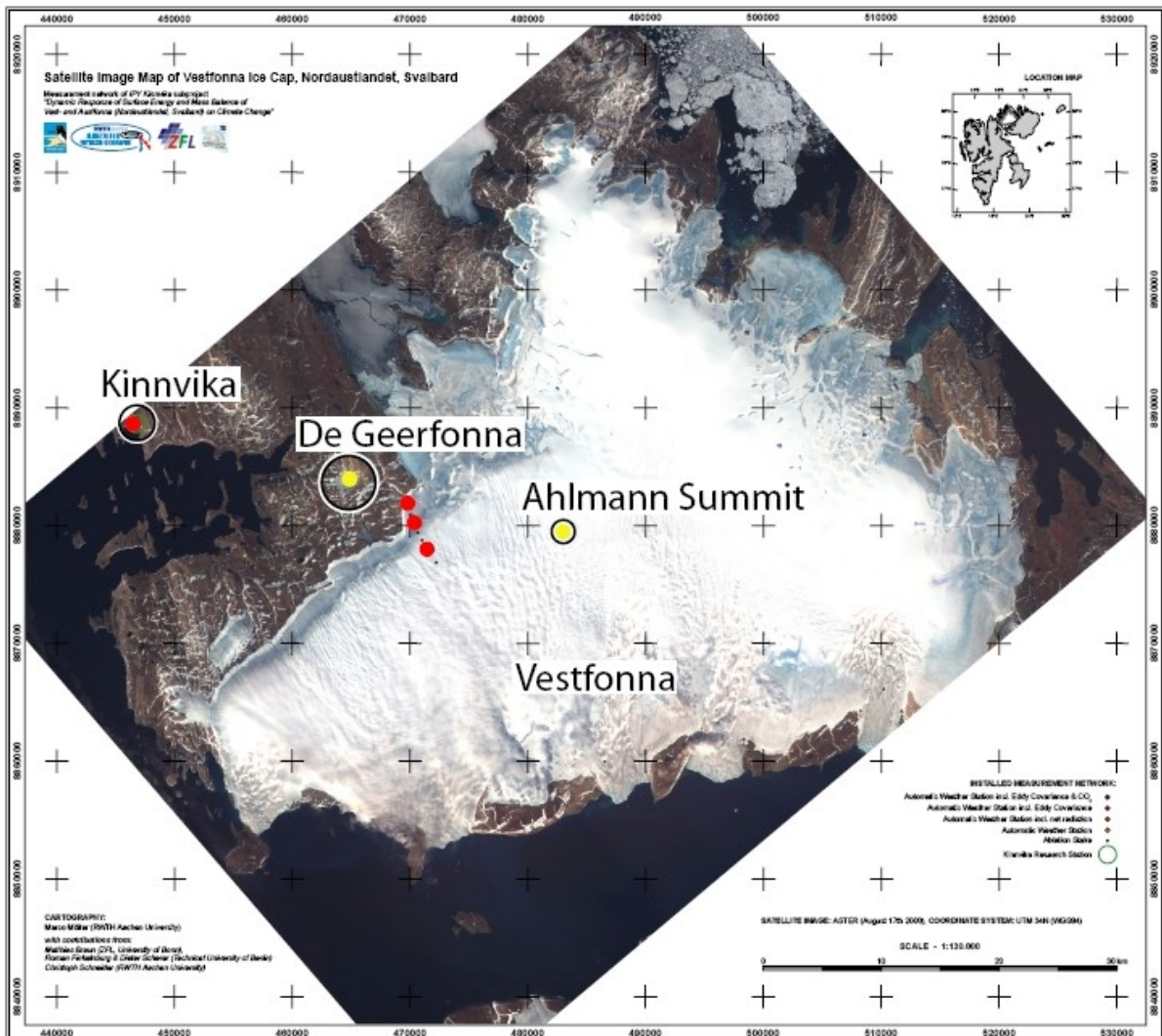
### **Conducted fieldwork:**

- Installation of 4 full energy balance automatic weather stations
  - 1 at the site of Kinnvika research station
  - 3 on the NW ramp of Vestfonna (~240, ~370 and ~500 m asl)
- Installation of 2 automatic weather stations
  - 1 on De Geerfonna (~240 m asl)
  - 1 on Ahlmann Summit (Vestfonna) (~600 m asl)
- Installation of an ablation stake network on De Geerfonna (6 stakes between ~210 and ~270 m asl)
- Installation of an ablation stake network on Vestfonna (15 stakes on the NW ramp between ~200 and ~550 m asl and 3 stakes on Ahlmann Summit at ~600 m asl)
- Differential GPS measurements
  - 1 ablation stake on De Geerfonna
  - 8 ablation stakes on Vestfonna
  - 2 kinematic profiles on De Geerfonna

- 6 kinematic profiles alongside the NW ramp of Vestfonna and up to Ahlmann Summit
- Digging of 6 snow pits (1 at each of the AWS sites) for snow profile assessment (Temperature, snow density, grain size and grain type, snow stratigraphy)

### Preliminary results:

- Snow pack thickness at the end of May on Vestfonna was 90-220 cm above the last summer surface (firn line altitude 2007 at the NW ramp has to be somewhere between 410 and 460 m asl)
- Snow pack thickness at the end of May on De Geerfonna was 90-160 cm above glacier ice (last summer surface was formed by bare ice all over the glacier)
- Clear positive correlation between the depth of the winter snow cover and elevation



### Satellite image map:

Measurement network installed on Nordaustlandet (Kinnvika, De Geerfonna and Vestfonna): AWS (yellow dots), full energy balance AWS (red dots)

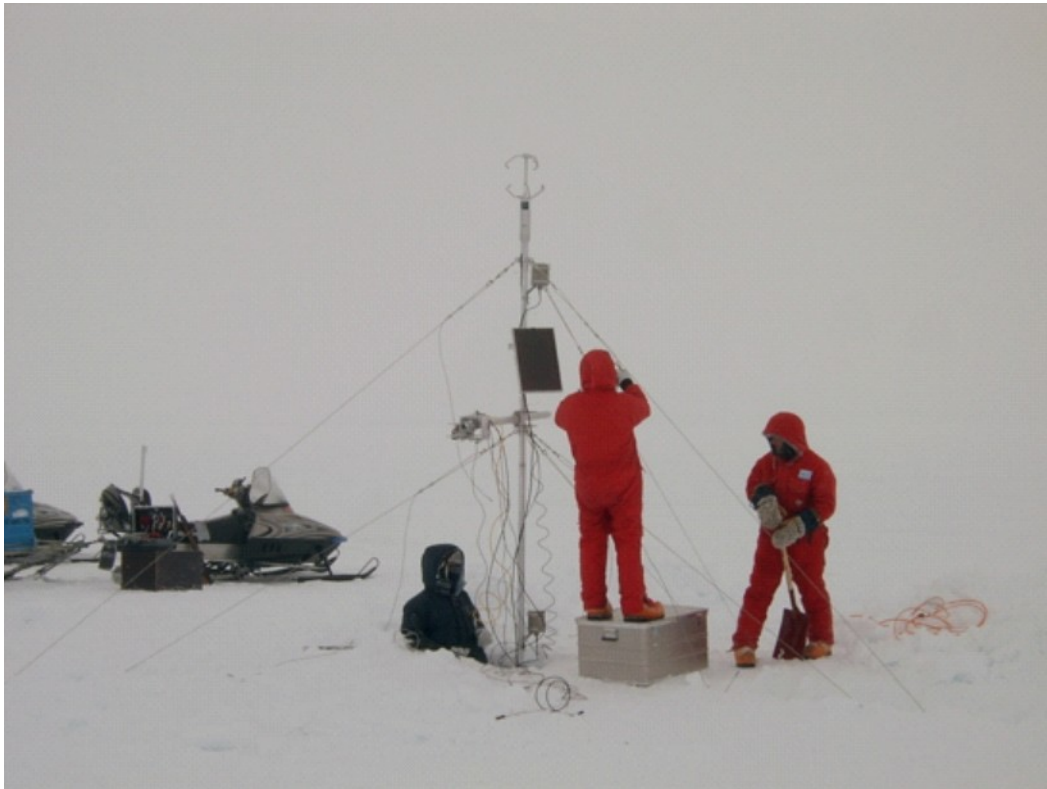
**LOG of activities:**

<b>Date</b>	<b>Workings</b>	<b>Weather</b>	<b>Site</b>
10.05.08	Arrival in LYR	Light wind, sunny, some clouds	LYR
11.05.08	2 Heliflights to Kinnvika: Christoph, Roman, Equipment	Cloudy and foggy in LYR, sunshine in Kinnvika	Kinnvika/LYR
12.05.08	2 Heliflights to Kinnvika: Marco, Dieter, Equipment; Skidoo exploration trip: Christoph, Roman	Sunny weather	Kinnvika
13.05.08	Checking of transported equipment	Low clouds, completely overcast	Kinnvika
14.05.08	Beginning of installation of the weather station in Kinnvika (LAND); preparations for the ride to Ahlmann Summit	Cloudy in the morning, temporarily breaking-up in the afternoon	Kinnvika
15.05.08	Further setup work on the weather station (LAND); preparations for the ride to Ahlmann Summit	Windy and snowy	Kinnvika
16.05.08	Finishing the weather station setup (LAND); preparations for the ride to Ahlmann Summit	Sun in the evening	Kinnvika/Ahlmann Summit
17.05.08	Arrival of additional Skidoo fuel with Helicopter; ride to Ahlmann Summit	Sunny, wind and snow in the evening	Ahlmann Summit
18.05.08	Setup of the weather station at Ahlmann Summit (AWS2)	Sunny weather	Ahlmann Summit
19.05.08	Beginning of installation of the weather station in the north west ramp of Vestfonna near Wieselob (ECS1)	Sunny weather	Ahlmann Summit
20.05.08	Setup of weather station at the upper edge of the north west ramp of Vestfonna (ECS3)	Sunny, deterioration in the afternoon, storm at night	Ahlmann Summit
21.05.08	Recovering (sleeping, etc.)	Strom	Ahlmann Summit
22.05.08	Dismounting of the Camp on Ahlmann Summit; finishing setup of weather station ECS1; return to Kinnvika	Storm weakens	Ahlmann Summit/Kinnvika
23.05.08	Contact with polar bear; recovering (sleeping, etc.)	Cloudy and windy	Kinnvika
24.05.08	Recovering (sleeping, etc.)	Cloudy and windy	Kinnvika
25.05.08	Recovering (sleeping, etc.)	Cloudy and windy	Kinnvika
26.05.08	Ride to De Geerfonna; setup of the weather station on De Geerfonna (AWS1); ride to the north west ramp of Vestfonna; setup of the camp	Overcast, foggy in places, increasing breaking-up or translucence of sun	Kinnvika/north west ramp of Vestfonna
27.05.08	Beginning to install a weather station in the middle of north west ramp of Vestfonna (ECS2); trip to ECS3 and Ahlmann Summit: Christoph, Roman	Cloudy and overcast	North west ramp of Vestfonna
28.05.08	Finishing setup of ECS2	Cloudy and overcast	North west ramp of Vestfonna

29.05.08	Dismounting of the camp; trip to Franklinbreen; return to Kinnvika	Cloudy and totally overcast	North west ramp of Vestfonna/Kinnvika
30.05.08	recovering (sleeping, etc.); round trip to Celsius Berget at midnight	Sun in the evening	Kinnvika
31.05.08	Cleaning up Kinnvika Station	Sunny	Kinnvika
01.06.08	Cleaning up Kinnvika Station; Heliflight to LZR: Roman, Marco, Christoph, Dieter	Sunny with some clouds	Kinnvika/LZR
02.06.08	Recovering (sleeping, etc.)	Low clouds, temporary breaking-up in the late afternoon	LZR
03.06.08	Recovering (sleeping, etc.)	Sunny	LZR
04.06.08	Departure from LZR	Sunny	LZR

**Photos:**

Mai 21<sup>st</sup> 2008, 01:06 a.m.



*Whiteout during installation of full energy balance AWS at 500 m a.s.l. on NW ramp of Vestfonna (from left: Roman Finkelburg, Dieter Scherer, Christoph Schneider)*

May 28<sup>th</sup> 2008, 01:29 a.m.



*Cable spaghetti at sensor mast of full energy balance AWS during installation and configuration process (from left: Roman Finkelburg, Dieter Scherer)*

May 18<sup>th</sup> 2008, 06:17 p.m.



*Christoph Schneider doing snow density measurements in snow pit on Ahlmann Summit*



May 26<sup>th</sup> 2008, 10:19 p.m.



*Marco Möller doing steam drilling work for installation of an ablation stake on De Geerfonna*

May 31<sup>th</sup> 2008, 01:52 a.m.



*The team at Kinnvika station (from left: Dieter Scherer, Christoph Schneider, Marco Möller, Roman Finkelburg)*