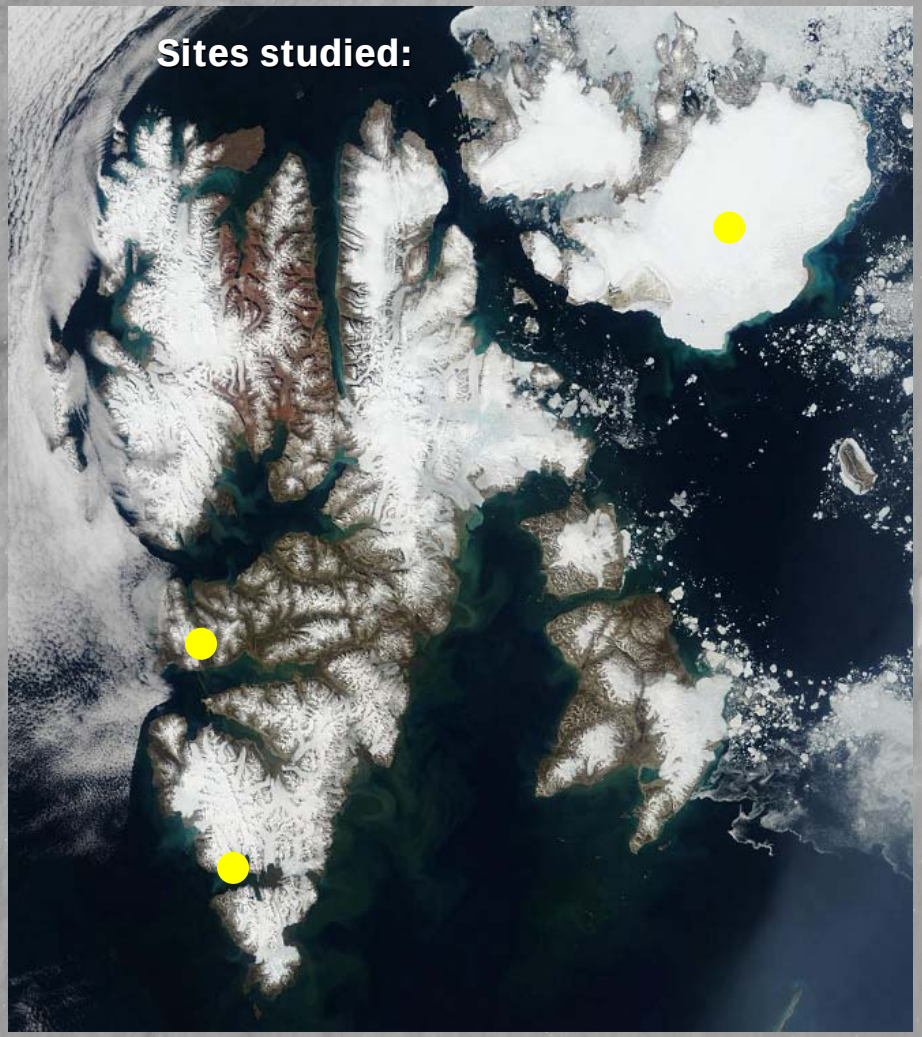
SvalGlac Scientific Steering Committee Meeting
Uppsala, 27th October 2012

Ground Penetrating Radar Working Group Report 2011

Teams involved:

- Department of Applied Mathematics, Technical University of Madrid
- Department of Geosciences, University of Oslo
- Institute of Geography, Russian Academy of Sciences
- Department of Geomorphology, University of Silesia



Fot. T. Budzik

Institute of Geography, Russian Academy of Sciences
Department of Applied Mathematics, Technical University of Madrid

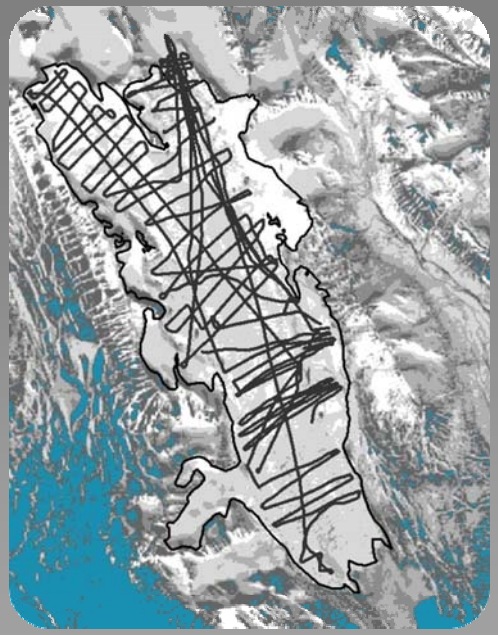
RES fieldwork 2012 western Nordenkskiöld Land

GLACIER	Equipment	Central frequency (MHz)	Profiling length (Km)
Fridtjovbreen	VIRL6 - VIRL7	20	180
Erdmanbreen	VIRL6	20	31
Dalhfonna	VIRL6	20	26



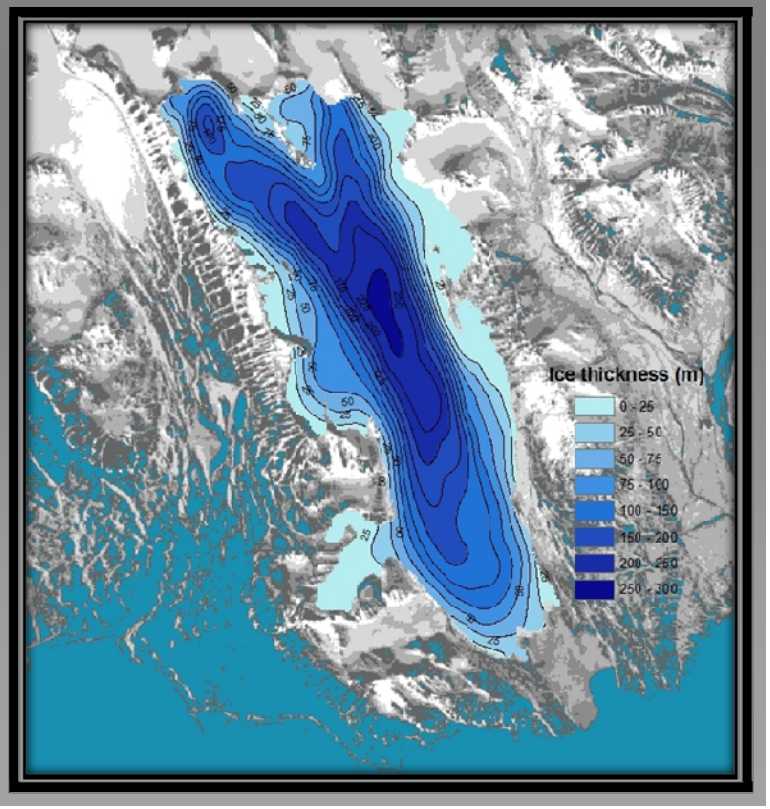
Fieldwork team:

- Lavrentiev
- Vasilenko
- Macheret
- Mikhalenko



Fridtjovbreen

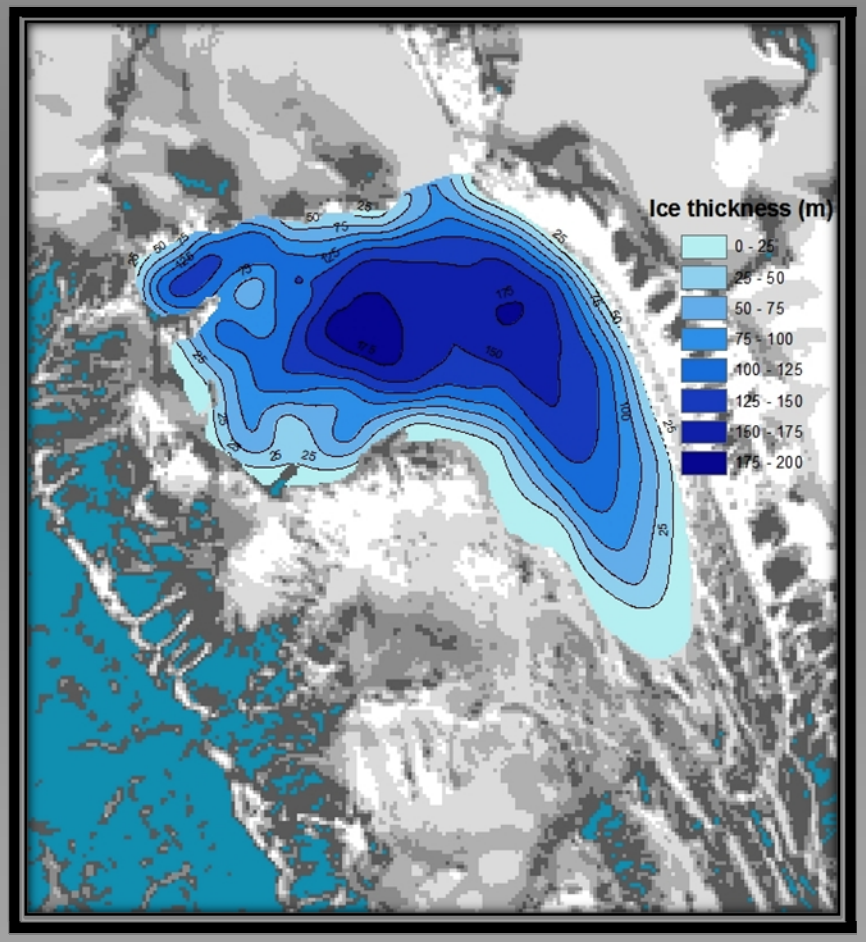
- Mean ice thickness: 108 m
- Maximum ice thickness: 265m

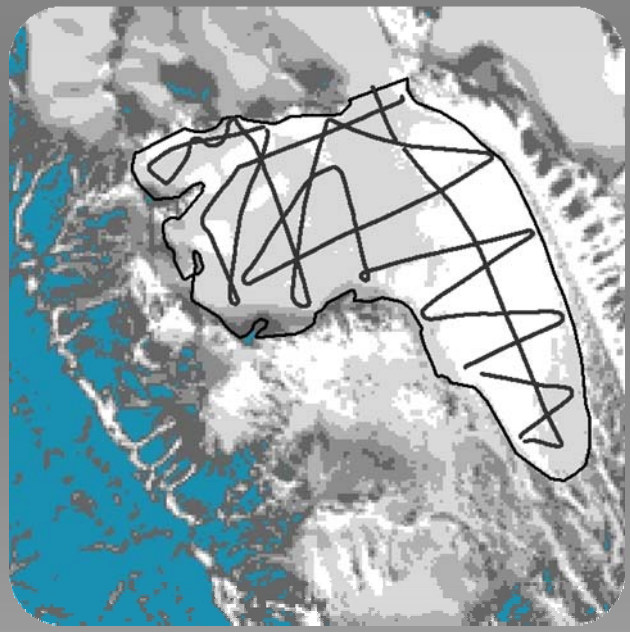


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Erdmanbreen

- Mean ice thickness: 96 m
- Maximum ice thickness: 190 m

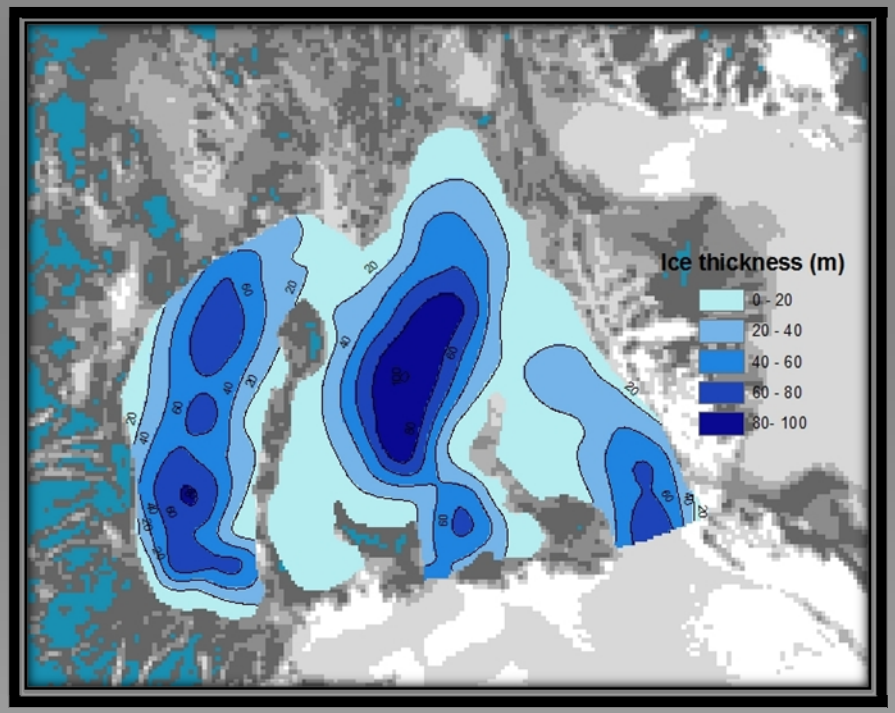


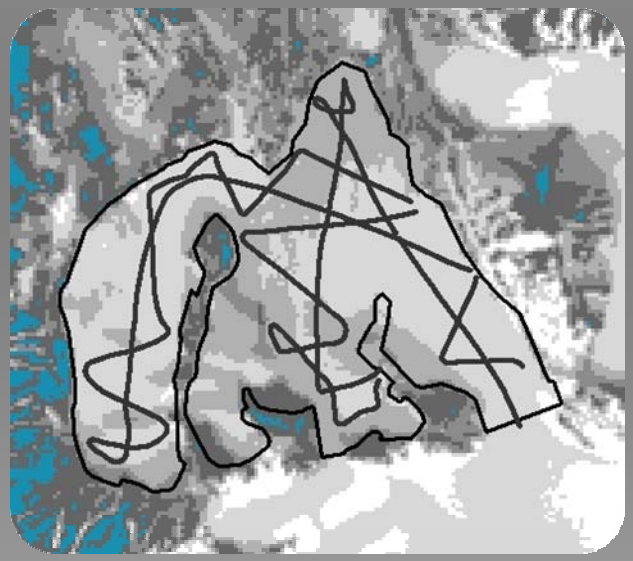


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Dalhfonna

- Mean ice thickness: 36 m
- Maximum ice thickness: 103 m

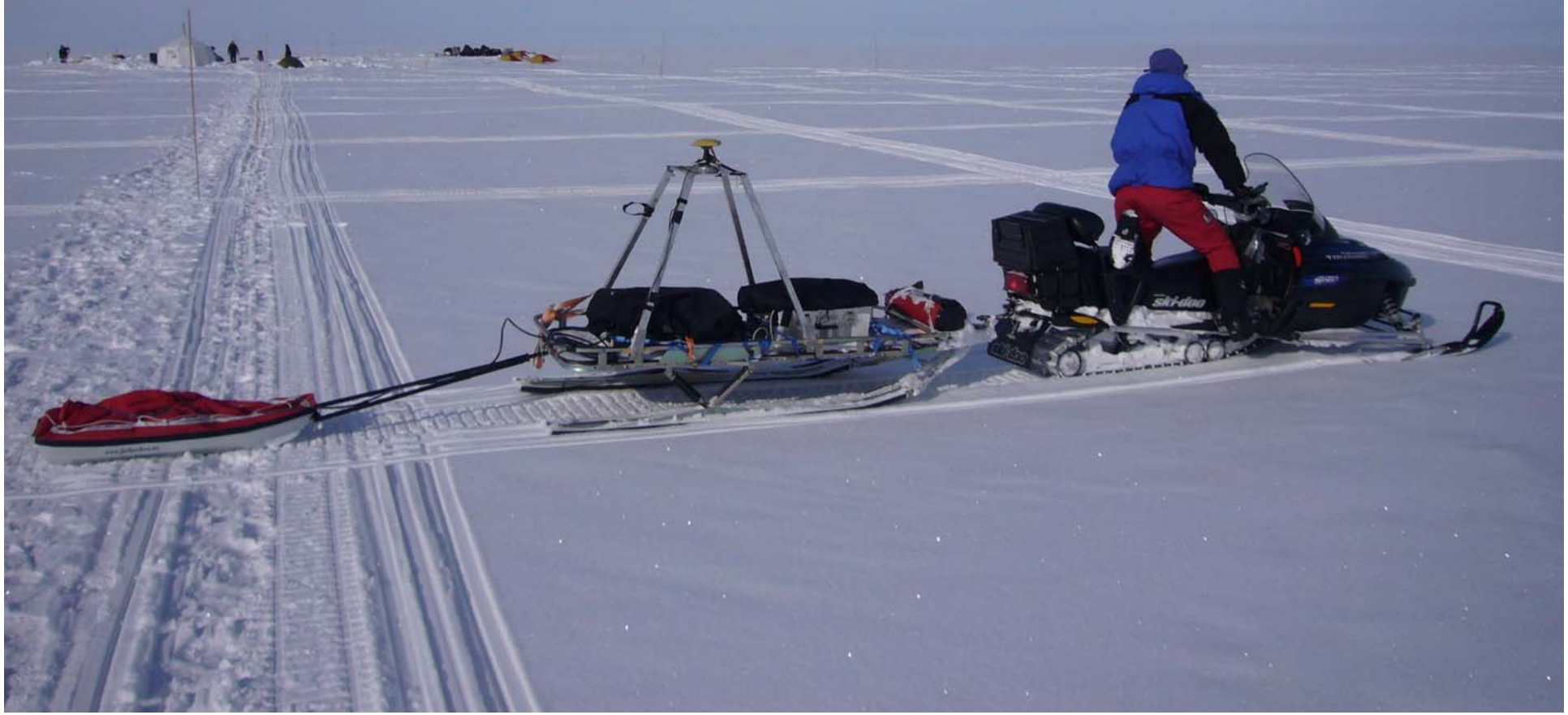


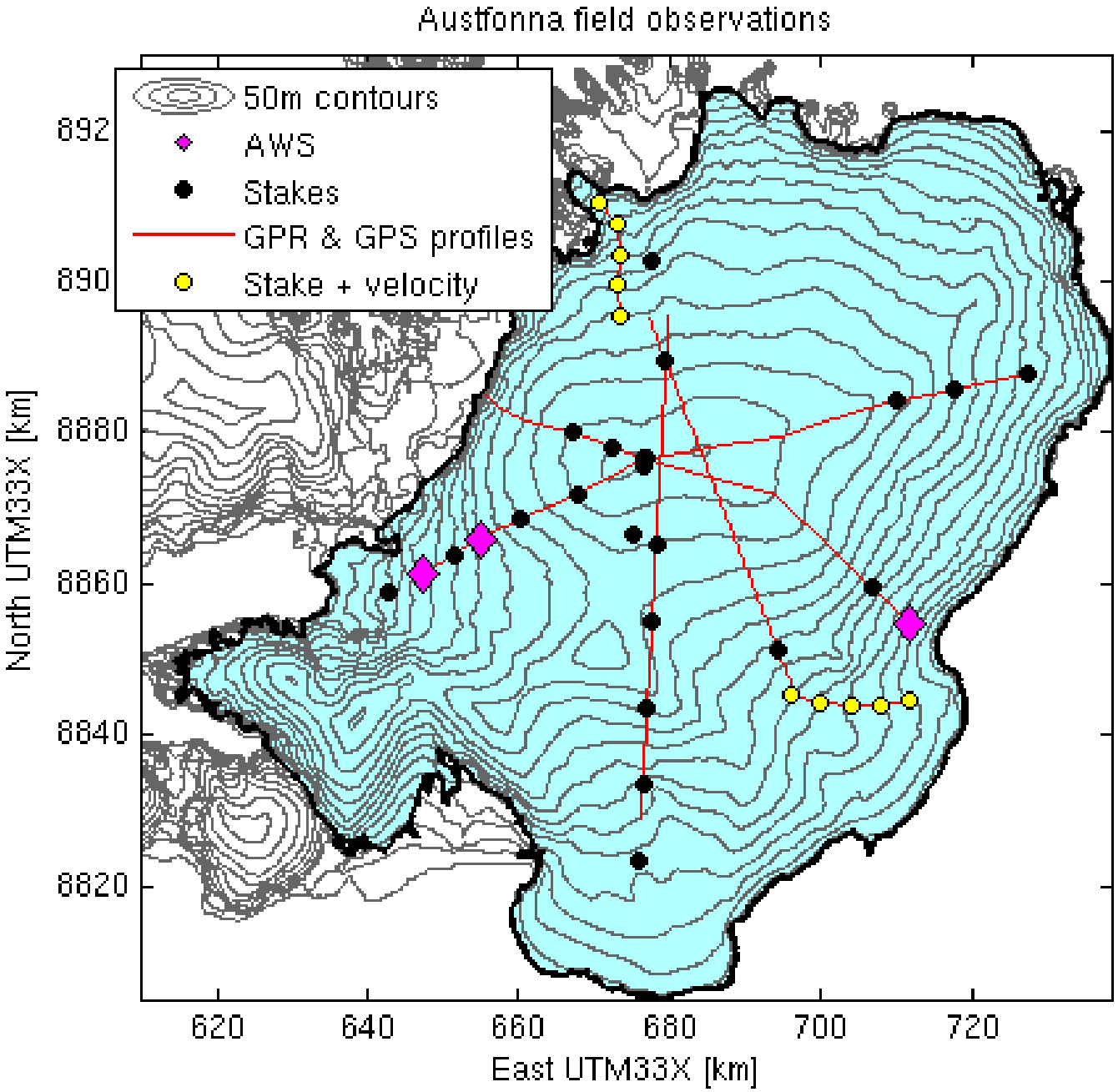


Department of Geosciences, University of Oslo

800 MHz Ramac **GPR** system & kinematic **GPS**

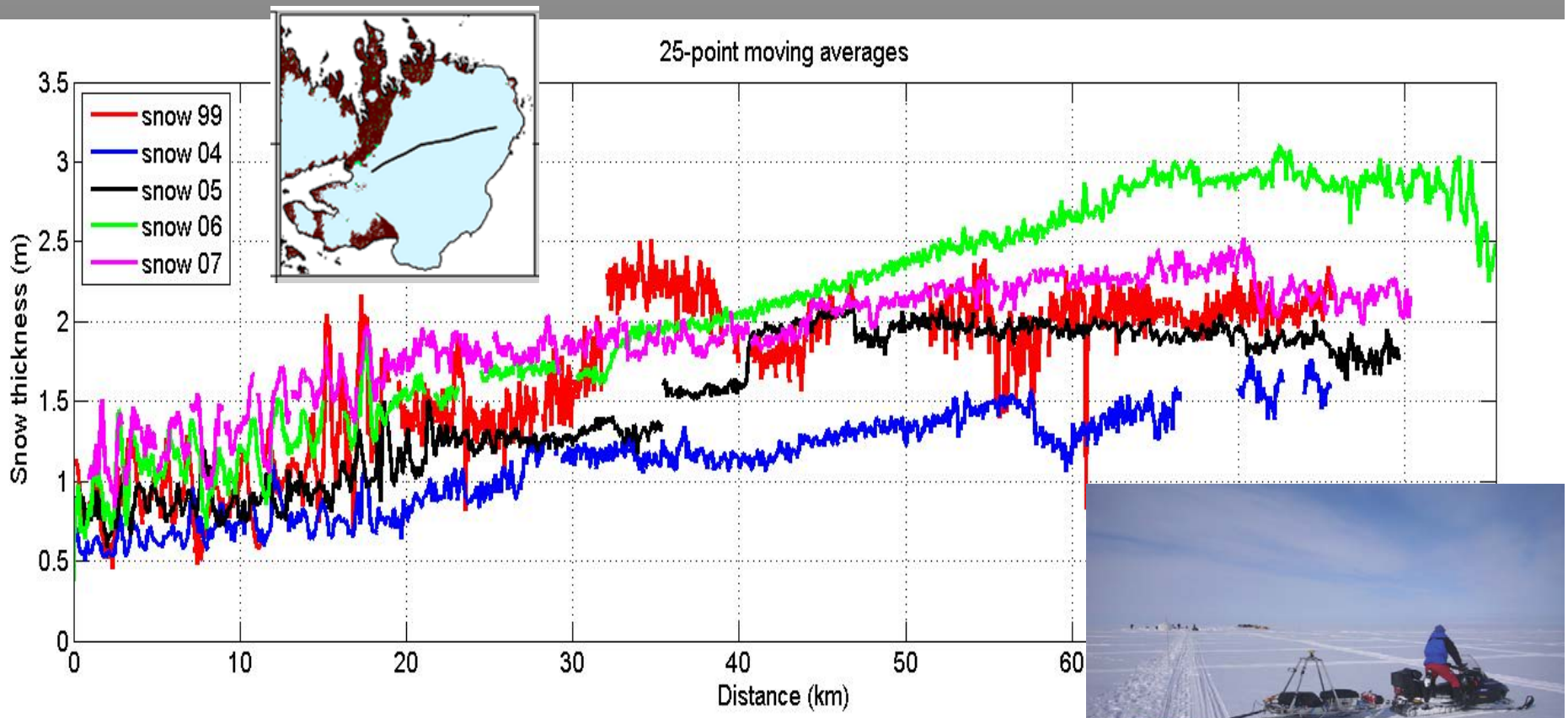
- snow accumulation distribution
- glacier facies




Austfonna field observations
50m contours
AWS
Stakes
GPR & GPS profiles
Stake + velocity
892
890
8880
8860
8840
8820
North UTM33X [km]
620
640
660
680
700
720
East UTM33X [km]

Large interannual variations in snow accumulation

800 MHz GPR-data



Department of Geosciences, University of Oslo

GPR on Austfonna 800 MHz and Ku-band
CryoSat CalVal activity



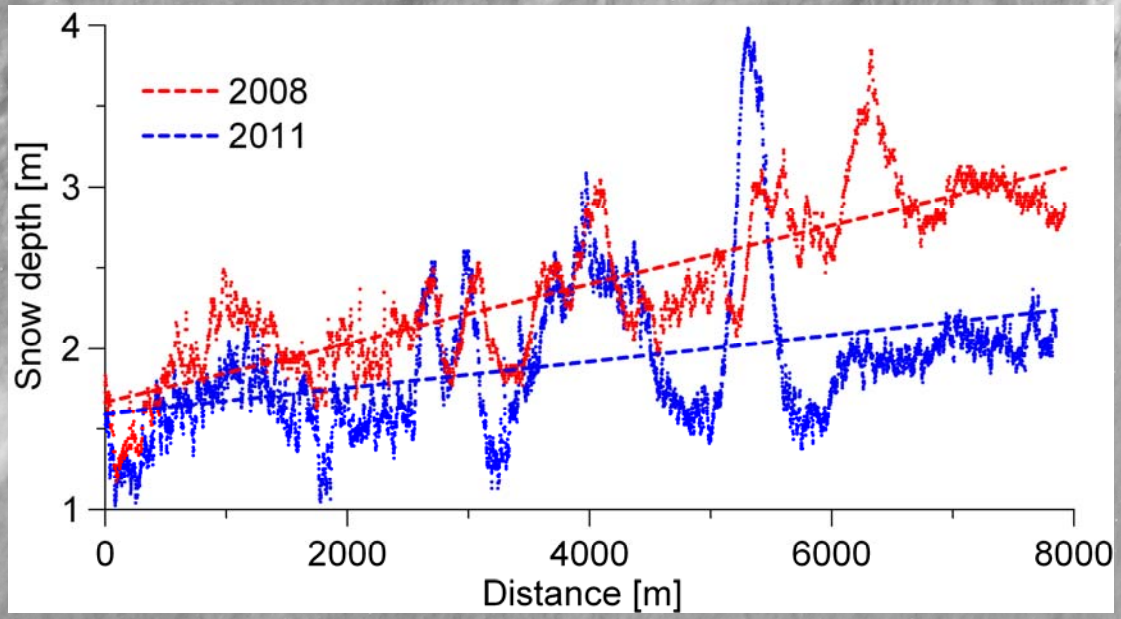


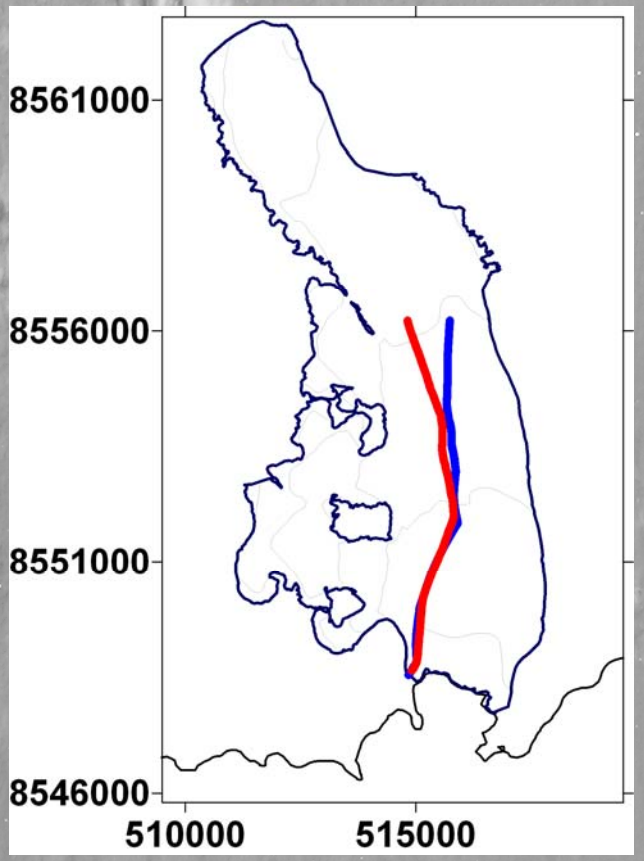
Department of Geomorphology, University of Silesia

Hansbreen:

• Medium range soundings with 100 MHz central frequency in frontal part of the glacier – monitoring of the drainage system.

• Processing of archival GPR data for snow accumulation (see below), water content and hydrothermal structure.





Inventory of GPR/RES equipment (http://www.klima.tu-berlin.de/KB/)

Ground-Penetrating Radar equipment available within SvalGlac project

Nr.	Institution	Radar system	Max. No. of data channels	Display/ rec. system	Data acquisition/ visualization software	Center frequency of the antenna [MHz]	Antenna type	GPS support	GPS protocols	DGPS availability	Odometer
1	University of Silesia	RAMAC CU II	1	laptop	GroundVision	25	us	built in	Any NMEA-0183 GPS	Leica 1230	Wheel, 150 mm diamete
						50	us				Hip chain
						100	us				
						200	us				
						500	s				
						800	s				
2	echnical Univ. of Madri	RAMAC ProEx	2 (optical fibre)	ged DELL lap	GroundVision	25	us	built in	Any NMEA-0183 GPS	Leica 1200	Wheel, 300 mm diamete
						200	us				Hip chain
						100	us(RTA)				
3	echnical Univ. of Madri	VIRL7	1	built in	built in	20	us(RTA)	built in	Idem	Idem	Wheel, 155 cm perimete
						75	us(RTA)				
4	echnical Univ. of Madri	VIRL6	1	built in	built in	20	us(RTA)	built in	Idem	Idem	Idem
5	echnical Univ. of Madri	VIRL2	1	built in	built in	20	us(RTA)	built in	Idem	Idem	Idem
6	Uppsala University	UU-Impulse Mk1	1	built in	Laptop	5	us(RTA)	built in	Any NMEA-0183 GPS	Trimble R7	N/A
						10	us(RTA)				
						20	us(RTA)				
7	Uppsala University	UU-Impulse Mk2	2	built in	built in	5	us(RTA)	built in	Idem	Idem	N/A
						10	us(RTA)				
8	Uppsala University	UU-FMCW	2	built in/Laptop	built in	80-4500	Logperiodic	built in	Idem	Idem	N/A
						300-1200	Horn				
9	University of Oslo	Ramac CU	1 or 2	asonic tought	GroundVision	800	s	built in	Any NMEA-0183 GPS	Topcon Legacy E+	
						500	s				
						200	s				
						100	s				
						50	us(RTA)				
						200	us				
						100	us				
						50	us				
						25	us				
10	University of Oslo	Ramac Proex		XV-monitor	built in	as above (point 9)					