

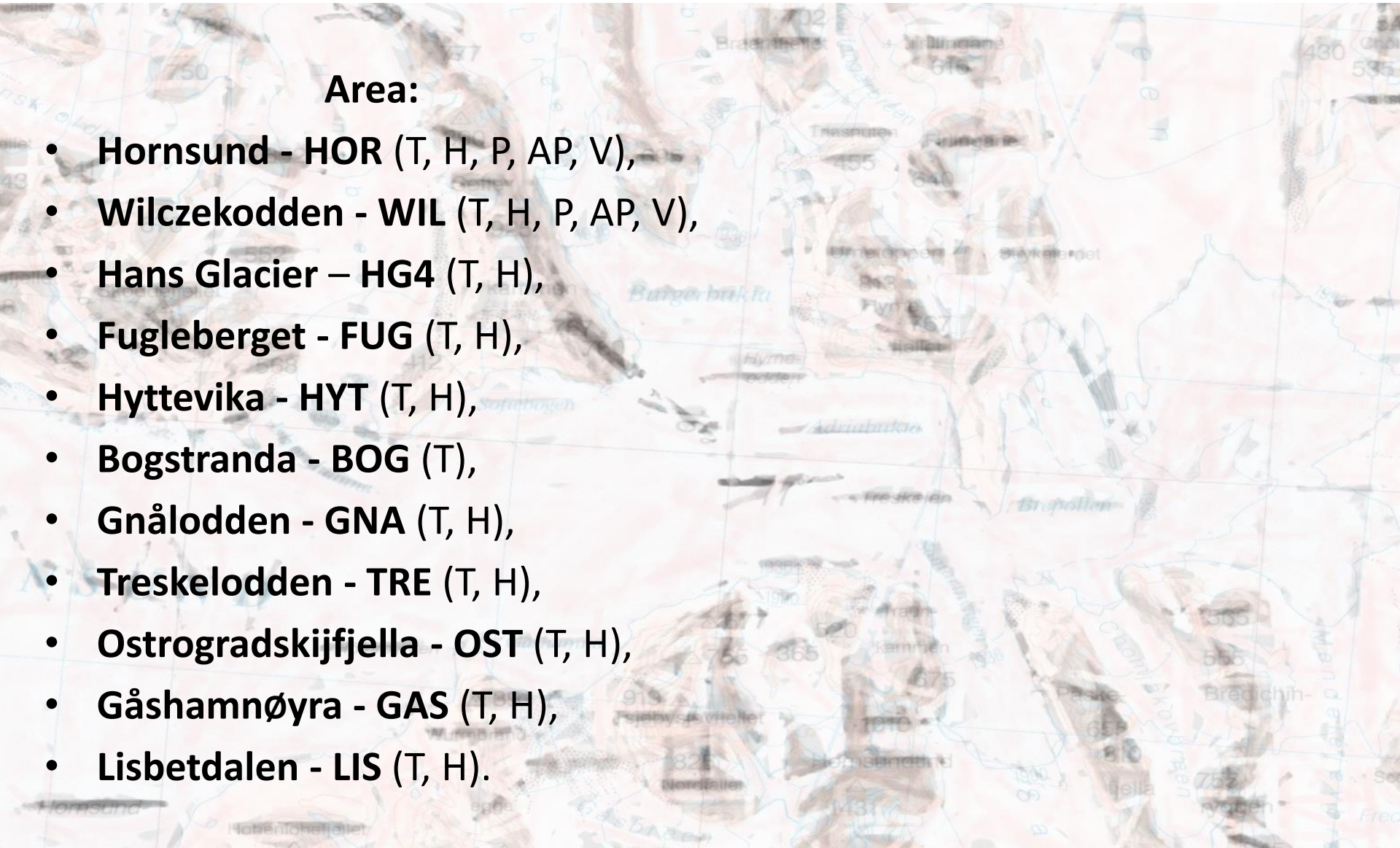
Atmosphere and climate change WP 6

- T6.1. To study climate changes in the early instrumental period, NCU
- T6.2. To establish a homogenized West Spitsbergen (Hornsund and Isfjord Radio) air temperature time series 1934-present, met.no, NCU
- T6.3. To study the north-south air temperature gradient on the Western Svalbard, met.no
- T6.4. Study the recent temperature anomalies on western Spitsbergen and its relation to circulation (e.g. strong mild southerlies, frequency of lows, periods of sustained along-shelf winds etc), sea ice, sea temperatures and ocean heat transport, met.no
- T6.5. To recognize radiation and heat budget changes, NCU
- **T6.6. To describe topoclimate data from different Hornsund regions based on historical sources and collected data, NCU**

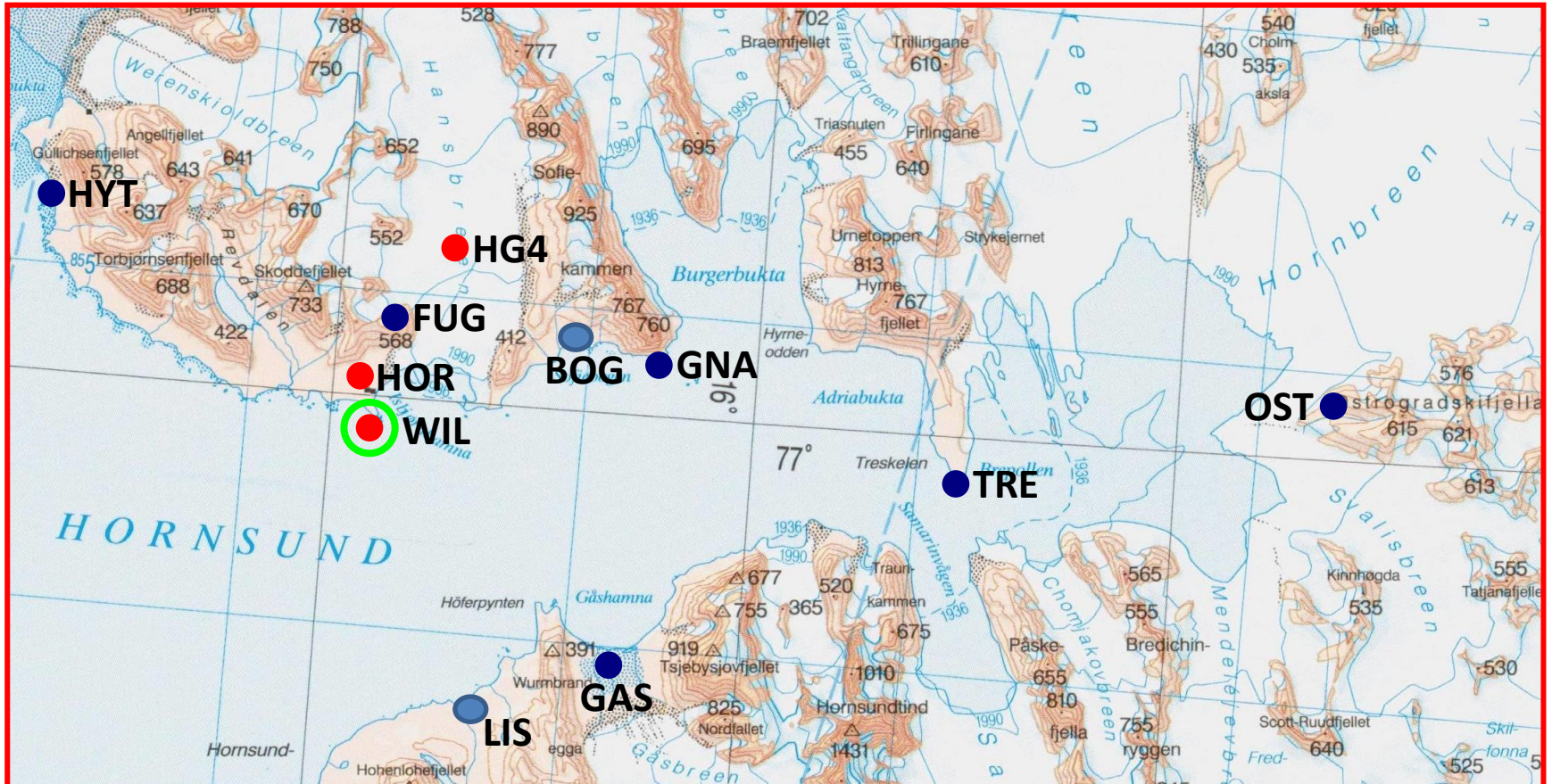
T6.6. To describe topoclimate data from different Hornsund regions based on historical sources and collected data, NCU

Area:

- **Hornsund - HOR** (T, H, P, AP, V),
- **Wilczekodden - WIL** (T, H, P, AP, V),
- **Hans Glacier – HG4** (T, H),
- **Fugleberget - FUG** (T, H),
- **Hyttevika - HYT** (T, H),
- **Bogstranda - BOG** (T),
- **Gnålodden - GNA** (T, H),
- **Treskelodden - TRE** (T, H),
- **Ostrogradskijfjella - OST** (T, H),
- **Gåshamnøyra - GAS** (T, H),
- **Lisbetdalen - LIS** (T, H).



HORNSUND AREA



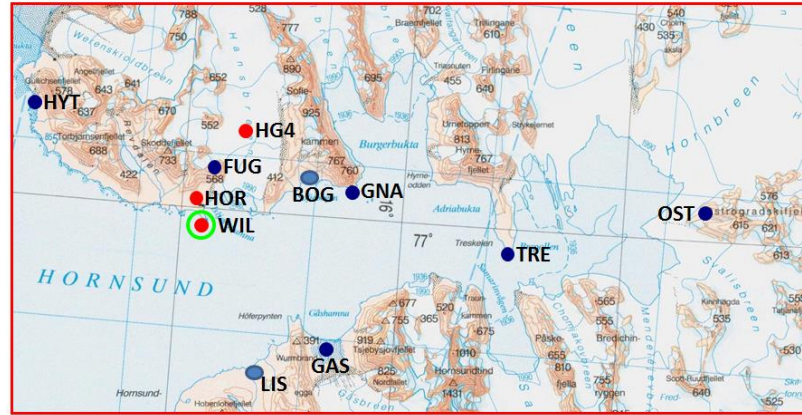
- AWS (meteorological elements: T, H, AP, V, P etc)
- Radiation and heat balance
- LM (meteorological elements: T, H)
- LM (meteorological elements: T)

HORNSUND (HOR)



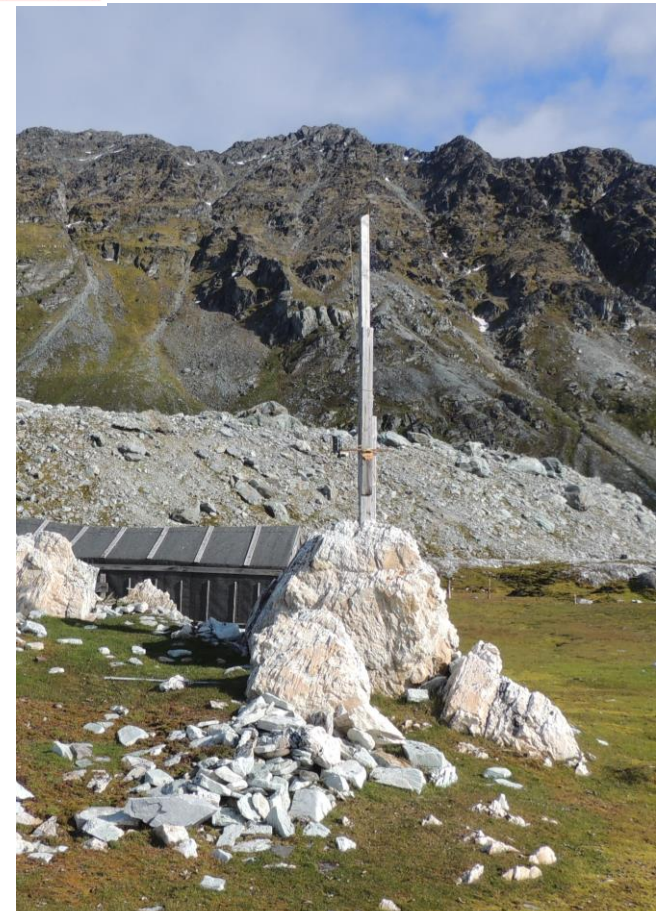
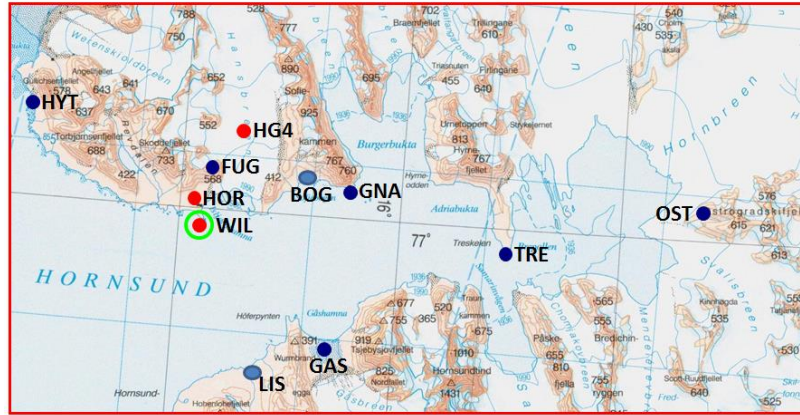
WILCEKODDEN (WIL)

HANS GLACIER (HG4)



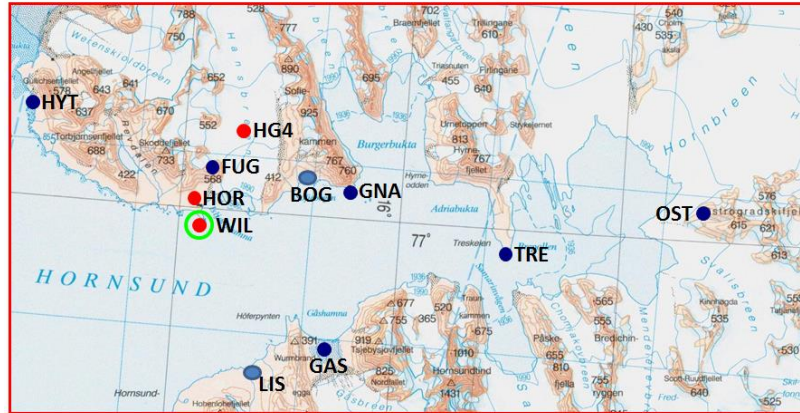
FUGLEBERGET (FUG)

HYTTEVIKA (HYT)



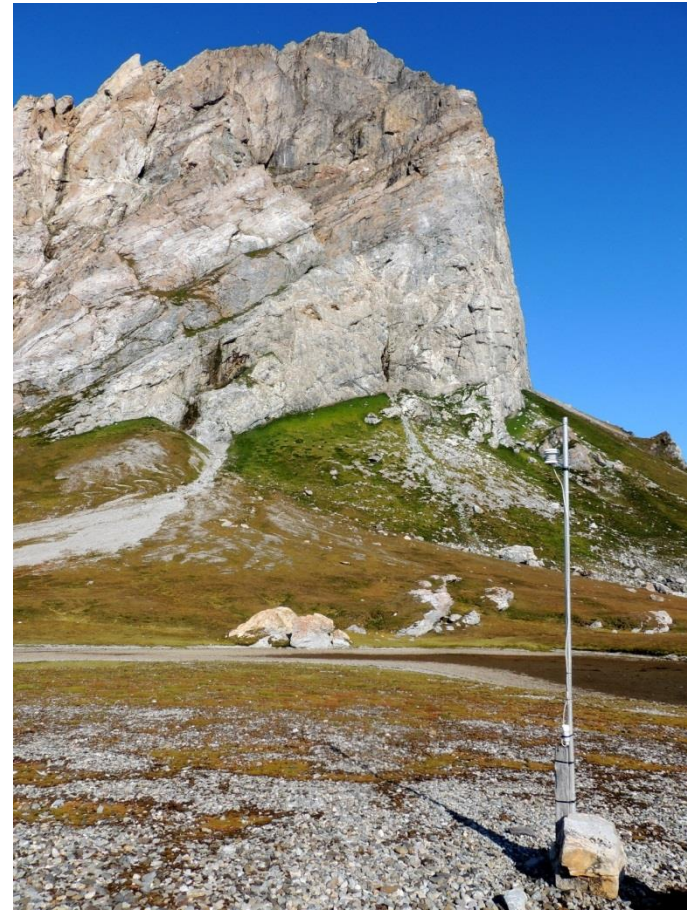
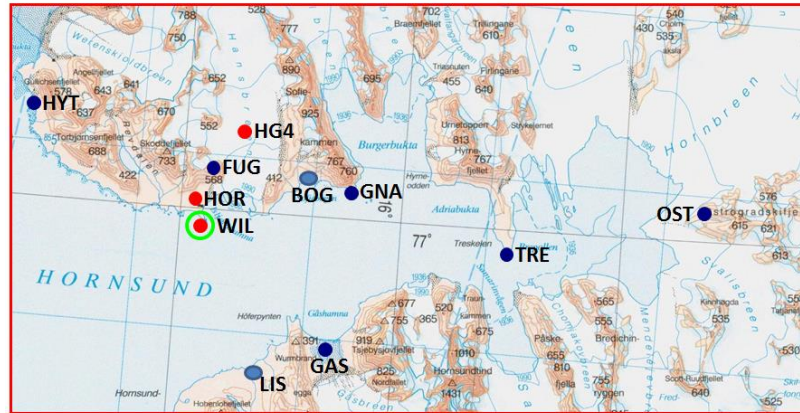
OSTROGRADSKIJFJELLA (OST)

TRESKELODDEN (TRE)



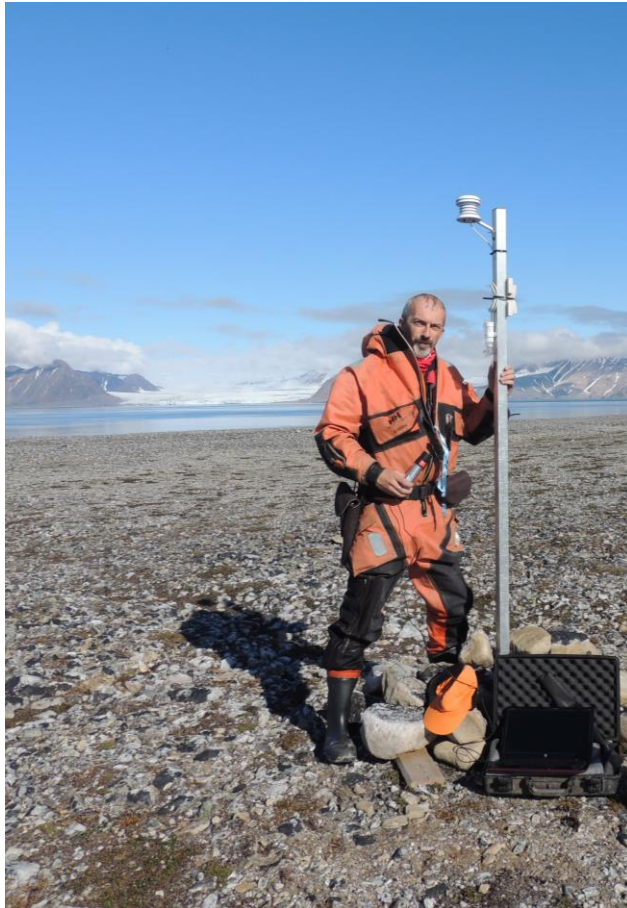
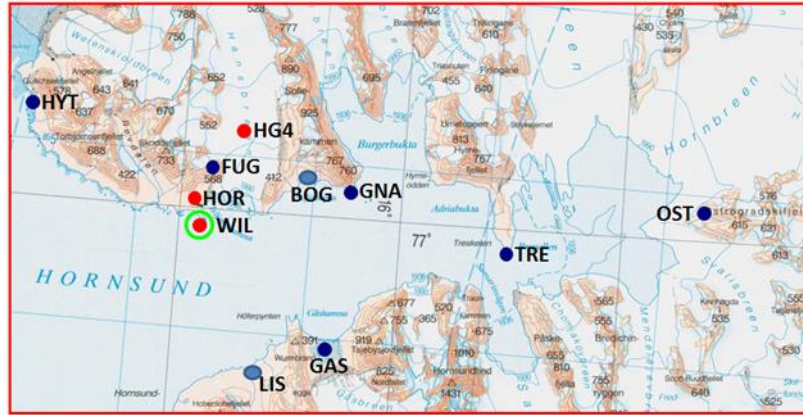
BOGSTRANDA (BOG)

GNÅLODDEN (GNA)



LISBETDALEN (LIS)

GÅSHAMNØYRA (GAS)



Meteorological conditions in Hornusnd

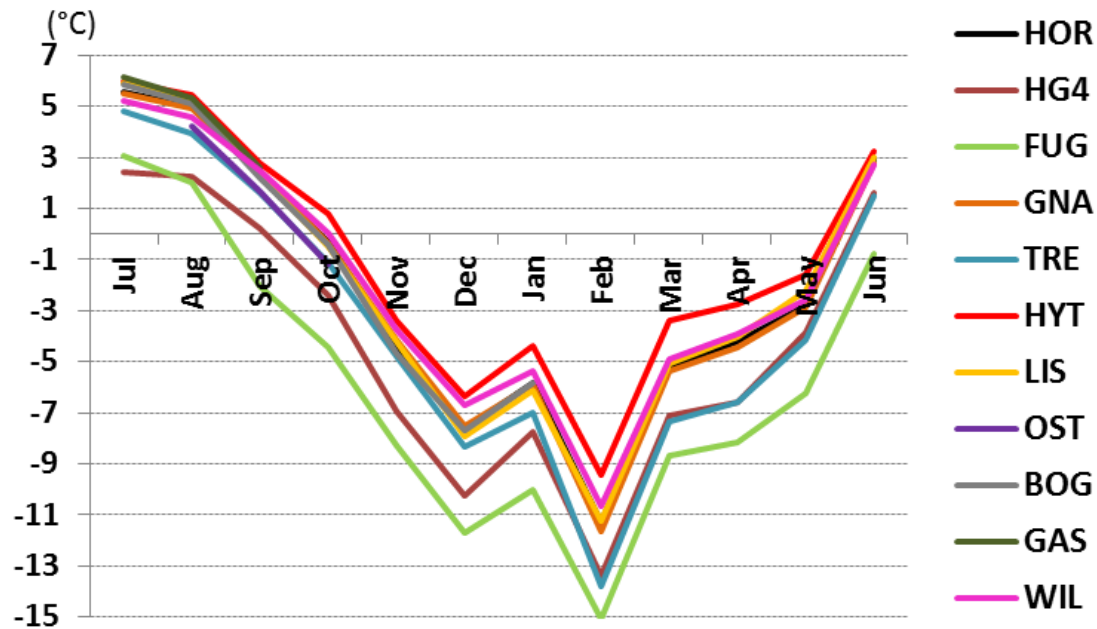
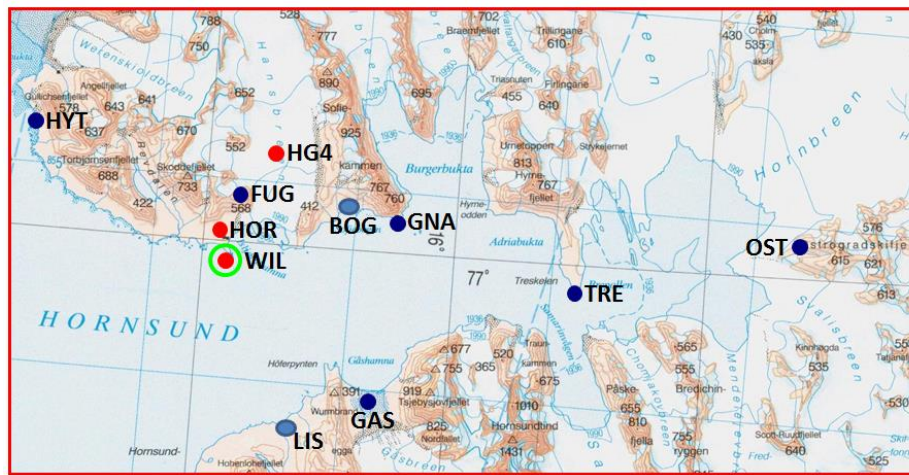
2014

2015

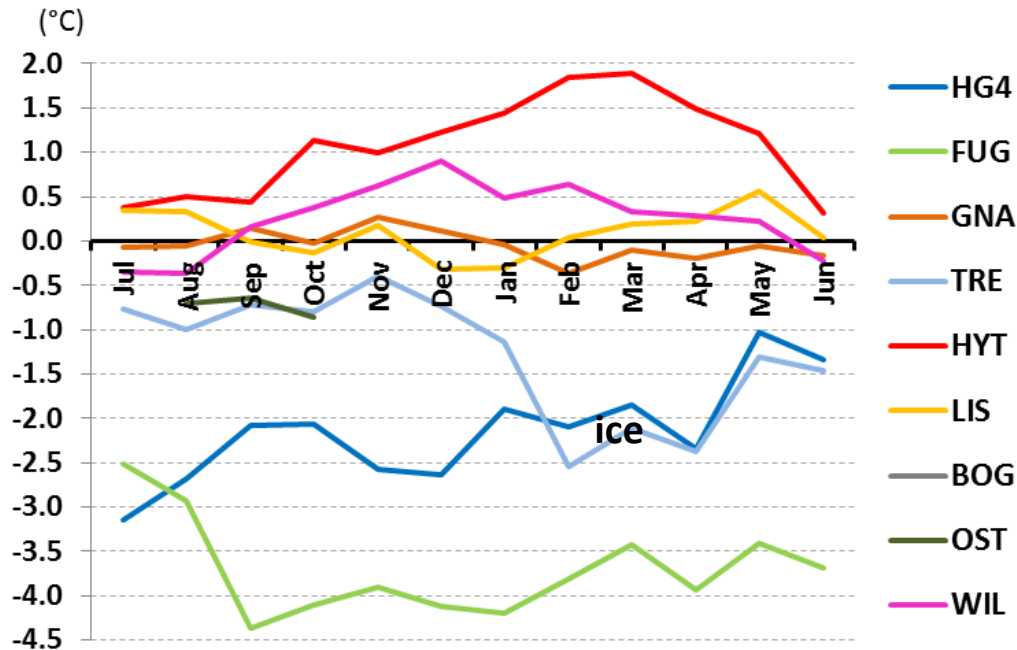
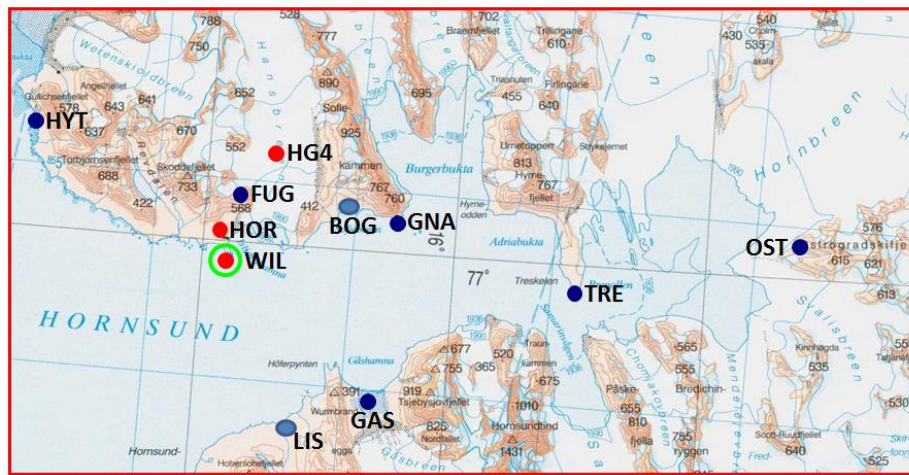
Variable	Period	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Ti (°C)	a	4.4	4.1	1.5	-3.2	-6.3	-9.2	-10.5	-10.5	-10.5	-8.3	-2.7	1.9
	b	1.2	0.9	0.9	2.9	1.9	1.6	4.6	-0.8	5.2	4.1	-0.1	1.0
SS (hr)	a	155.4	124.9	73.7	22.8	-	-	-	6.1	95.0	187.5	205.4	171.0
	b	8.5	87.8	-13.3	-9.1	-	-	-	1.5	-24.2	-15.7	-32.1	-50.0
C (0-8)	a	6.5	6.5	6.5	5.9	5.6	5.1	5.4	5.4	5.3	5.4	6.0	6.4
	b	1.8	0.9	1.8	2.2	2.2	-0.2	-0.5	0.0	1.2	1.3	0.2	0.3
Pa (hPa)	a	1012.2	1011.9	1008.6	1007.5	1005.6	1004.0	1003.3	1006.3	1007.9	1013.1	1016.3	1013.4
	b	4.6	1.0	-2.2	6.2	4.5	-7.7	1.6	-10.8	-9.4	-6.3	-3.3	-4.8
V (ms ⁻¹)	a	4.0	4.1	4.5	5.3	6.1	6.4	7.0	7.2	7.0	6.2	4.9	3.9
	b	-0.3	-0.4	0.7	-1.6	-0.8	0.8	0.8	0.1	0.1	-0.1	0.0	-0.4
f (%)	a	86	86	82	77	76	76	77	78	77	77	79	83
	b	1	-5	-3	4	4	-1	1	-4	7	6	3	0
P (mm)	a	41.2	53.6	68.3	47.3	38.1	32.1	33.6	29.1	29.1	23.3	20.1	27.7
	b	-1.8	-37.0	23.7	18.1	-0.3	-23.4	-15.0	19.5	10.9	-10.0	-12.6	-18.3

Explanations: a – 1978-2012 (Marsz, Styszyńska 2013), b – anomaly -Jul 2014 – Jun 2015

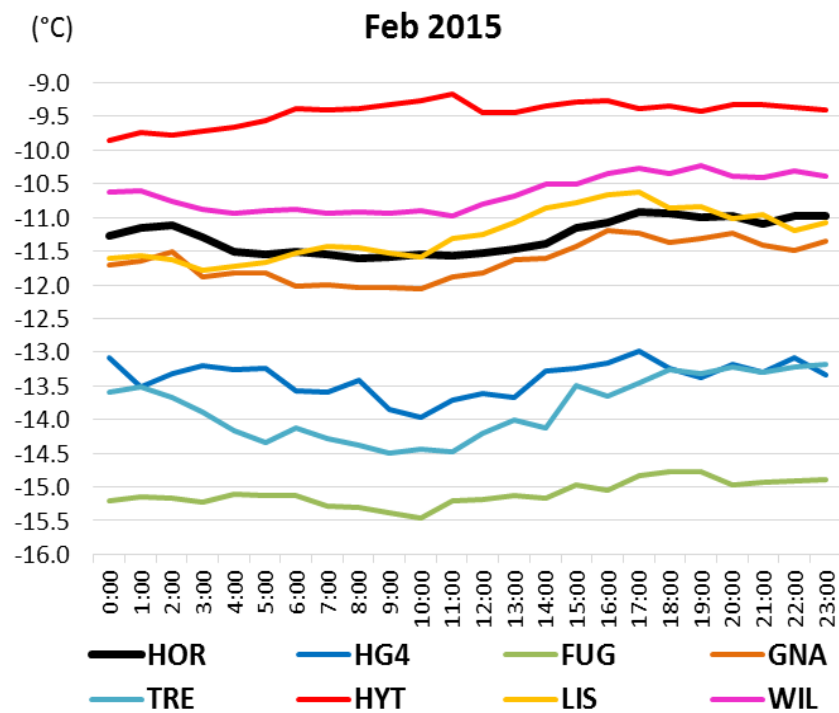
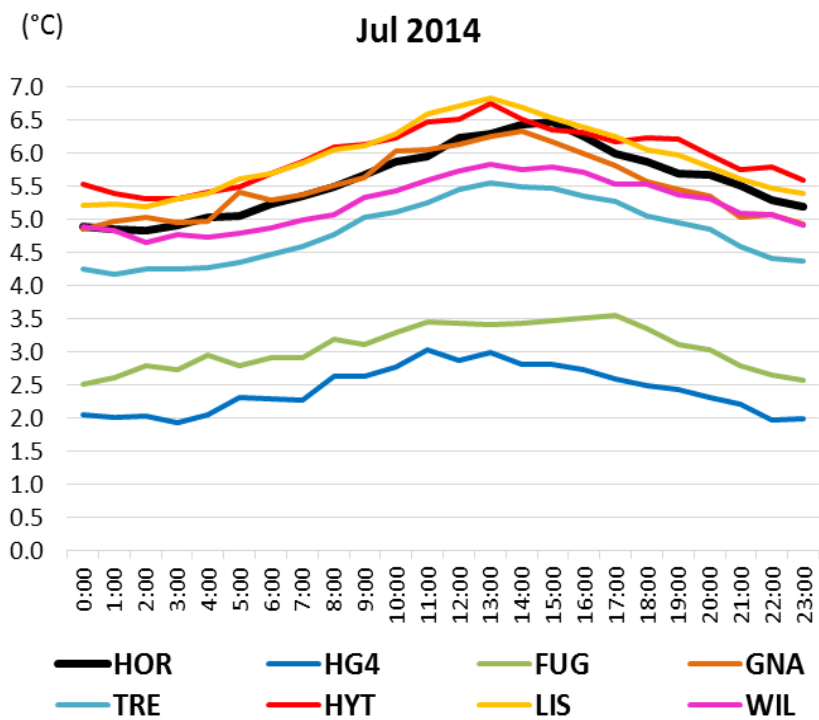
Ti - air temperature; SS - sunshine duration; C - cloudiness; Pa - air pressure at 0 m a.s.l.;
V - wind velocity at 10 m a.s.l.; f - relative air humidity; P - atmospheric precipitation



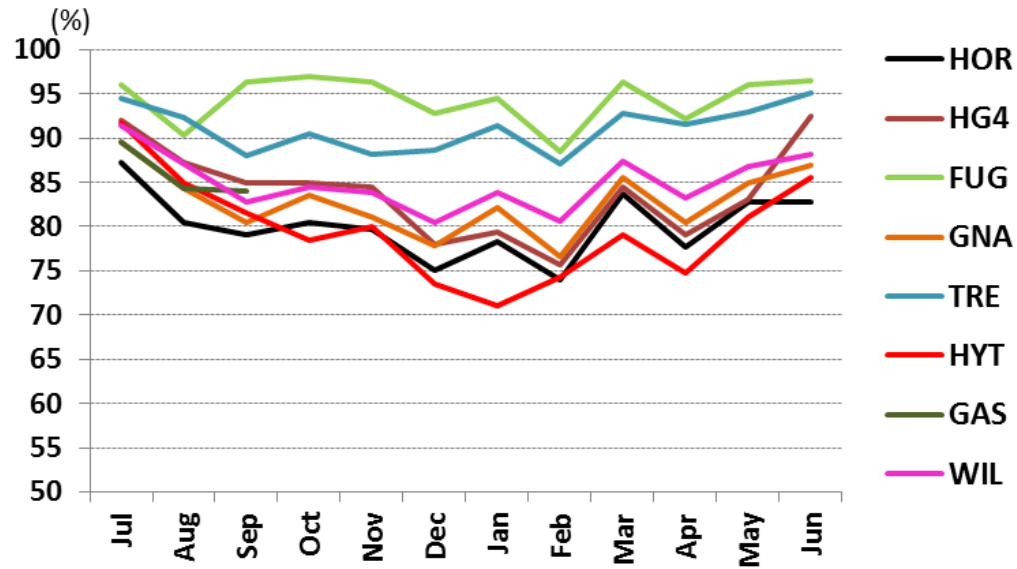
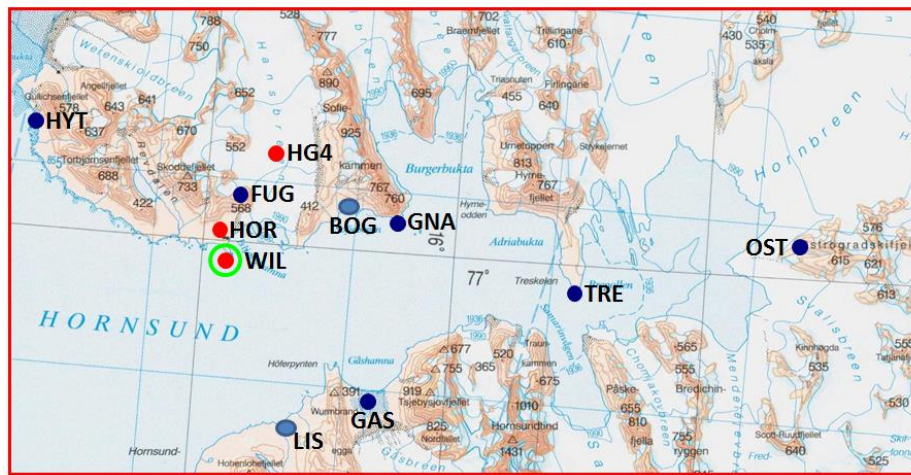
Annual course of air temperature in the Hornsund area
in the period from Jul 2014 to Jun 2015



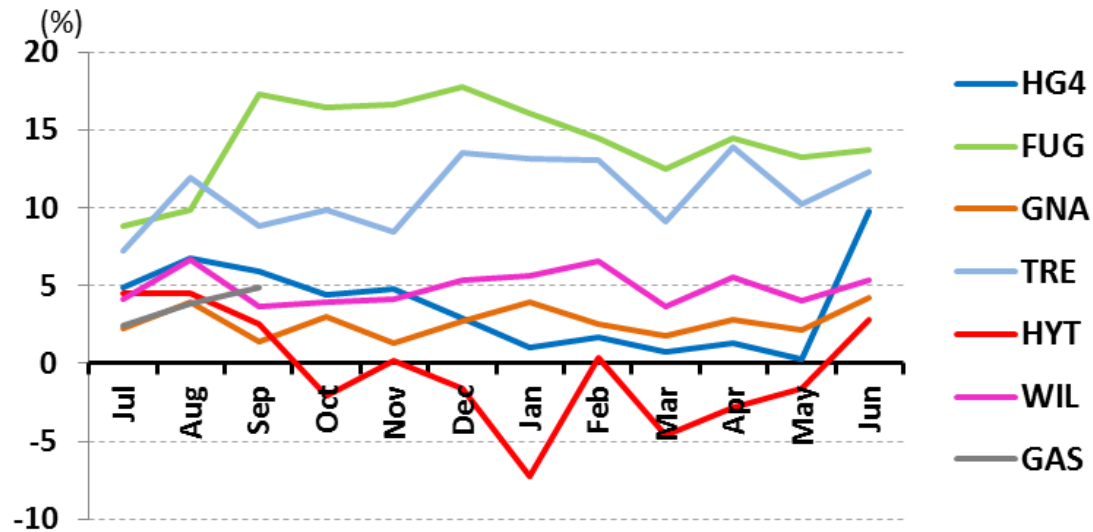
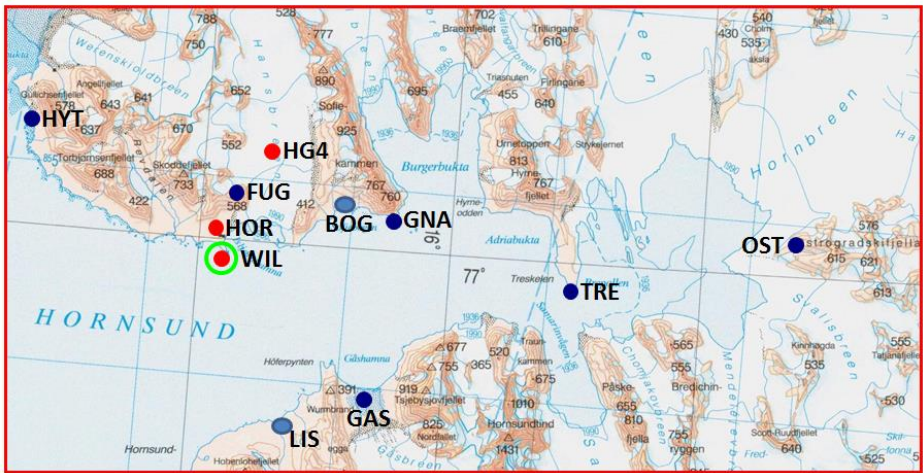
Annual course of the differences of air temperature between the sites situated in the area of the Hornsund and the Hornsund Base Station (HOR) in the period from Jul 2014 to Jun 2015



Mean diurnal course of air temperature in the Jul 2014 and Feb 2015
in the area of the Hornsund



Annual course of relative humidity in the Hornsund area in the period from Jul 2014 to Jun 2015



Annual course of the differences of relative humidity between the sites situated in the area of the Hornsund and the Hornsund Base Station (HOR) in the period from Jul 2014 to Jun 2015

Thank You!



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Tomasz Budzik², Tomasz Wawrzyniak³



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