Winter Clothing

Principles, types, some advice, ”nice to have”, UNIS clothing for snow mobiles & sea
OBJECTIVE

Understand the basic principles of correct clothing in Arctic winter conditions

• Be able to choose the correct type of clothing to planned activity.
• Know the difference between the different fabrics and advantage and disadvantage among them.
• Demonstration of relevant clothing and “nice to have” small equipment for arctic field work.
What is determining the type of clothing we choose to wear?

- **Weather conditions**
  - Temperature
  - Wind
  - Precipitation (rain/ snow)
  - Ground conditions (Snow, soil, sea ice / wet or dry)

- **Type of activity**
  - Moving or stationary
  - Length of the activity
  - Need to use your fingers
  - Working with water
Weather

- Variable and often windy weather (maritime versus polar air)
- Hard to predict
- Big local variations
- Weather may change very rapidly
- Average temperature winter: -5°C to -20°C but with wind often -20 to -40.

- Often windy → wind chill, low visibility or whiteout with blowing snow
- Very exposed to weather

Weather is a major risk factor in Svalbard
## Windchill Chart

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Weather Meteogram

- Updates found by the reception daily

Check also: Weather forecast for Longyearbyen (Svalbard) – www.yr.no
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What do we expect from the clothing?

- Keep us warm and dry
- Windproof and waterproof
- Keep snow away from boots
- Easy to take on and off
- Small in volume
- Easy to use zippers with gloves on

We also expect clothing to have these qualities:

- Transport humidity from the body
- Be warm even when not totally dry
- Breathe air/humidity out
- Easy to dry (single layers)
Body heat loss

By air circulation (1)
- The heated air layer next to the skin leaks out and is replaced by cold air (convection).
- Cold wind major factor!

By contact (2)
- The contact between the body and surface you lie or sit on "steals" heat from the body (conduction).
- Very important on snow, ice, cold metal etc.

By radiation (3)
- The body releases heat to its surroundings when these are colder than the body.
- Little importance to a person who is correctly dressed for cold weather.

By evaporation (4)
- Sweat and water in the clothes evaporates.
  Evaporation requires heat to occur and heat is drawn from the body.
Important aspects

- Uncovered head and neck loose up to 50% of body heat production
- Hands, feet, ears, nose and genitals are the most exposed to frostbite.
- By using mittens instead of finger gloves it will be easier to keep the hands warm.
- Wind cools down faster than temperature – cover up + windproof
The different parts of clothing:

- Long underwear
- Isolation layers
- Outer wear (Shell clothing)
- Headwear
- Face protection
- Neck protection
- Hand wear
- Footwear
- Eye protection
Normal principles for clothing

- Inner layer of insulation
- Insulation between layers
- Wind /water-proof outer layer
- Ventilation
- More layers instead of one thick layer
- Never put on more clothing than just enough to keep you warm.
- Spare clothing.
- Size (Big enough)
Clothing

• Long underwear
  – Wool, merino wool (or in combination with synthetic fabrics)
  – **Fully covering** with long sleeves and back

• Isolation layers
  – Wool, Fleece, Primaloft etc. synthetic fabrics, Down

• Outer wear (Shell clothing):
  – **Windproof** (cotton, synthetic or Gore Tex etc.)
    – Long enough in the back
    – Good hood
  – Pants keep snow out from boots
  – Large enough (space for layers under it)
**Clothing**

- **Headwear**
  - *Windproof* most of the days
  - Woollen hat or fur hat (covers very well ears and cheeks)
  - Bring extra
  - Balaclava of wool, fleece to wear under

- **Face protection**
  - Different fabrics (neoprene/wool)
  - Windproof – especially when driving snow scooters
  -> Cover your nose, cheek bones
  - Ski goggles
  - Good, dark sun glasses later in season

- **Neck protection**
  - Wool / fleece / Buff etc.
Clothing

• Hands
  – **Always windproof shell + warm insulation layer** (good if loose inner glove → easier to get dry)
  – **Mittens warmer than gloves**
  – **Thin liner gloves or separate working gloves**
    • in case you need to do precise tasks → no bare fingers on -20 degree metal, wood, ropes etc.
    – Extra warm mittens + gloves as back up
    → gloves, mittens get easily wet when working in snow, water etc.

• Footwear
  – Socks: thinner and thicker **wool socks** or mixture wool+synthetic – **never cotton!**
  – **Shoes big enough**: space for 2 pairs of socks + not tight around toes and feet
  – Thick sole and thick, loose insulation around foot (wool, Thinsulate etc.) → loose inner shoes easier to dry
  – Higher to keep snow out
• Face, hands and feet are most exposed

• Windproof

• Big enough size – especially shoes

• Spare extra clothing. Especially mittens and a warm hat!

• Always bring clothing suited for extreme weather conditions.
• You must be able to cover your face totally
Recommended things to have/buy

• Warm windproof hat or fur hat
• Windproof mittens/gloves
• Thin liner gloves
• Neck warmer / Buff
• Thick woollen socks
• Long wool underwear
• Thermos bottle of steel
• Face mask + thin balaclava
• Goggles
• Sunglasses (March →)
UNIS clothing for scooter driving and fieldwork in cold

Clothing for scooter driving:

- Scooter overall:
  - Warm & insulated, windproof, good hood, many pockets
- Warm boots
- Face mask
- Mittens
- Helmet
- Basic goggles
UNIS clothing for scooter driving and fieldwork in cold weather

Under UNIS clothing you need to wear your own layers of:

– Long underwear 1-2 layers
– Warm wool socks 1-2 layers
– Insulation layer 1-2:
  • wool pullover, thick fleece, thin down jacket
  • Fleece pants, soft shell pants
– Neck warmer
– Bring with you liner/working gloves + warm hat + extra insulation

Amount depends on the weather, time outside and activity level
Clothing for working at sea / sea ice

Regatta floating suit

- Splash proof + windproof floatation overalls
- Insulated
- Used on cruises, work on sea ice, small boat transportation
Clothing for travelling & working at sea

Rescue suits

• Waterproof insulated floatation suits with boots and neoprene gloves
• Used on small boat transportation when needed
• Also evacuation suit from ships
How do we keep warm?

• Correct clothing suited to the situation and work load.

• Movement & activity (whole body, toes, fingers)

• Snacks and warm drink, food – have snacks and thermos easily available and eat often
  – Remember that snacks and food can freeze solid very fast

• Avoid exhaustion and sweating – adjust clothing
Doing fieldwork on Svalbard we need to accept:

- Cold fingers and toes
- Some lack of comfort
- Some unpleasantness
- To work in cold, dark, new and sometimes rough situations
- Situations with some stress
- To cross some mental borders
- Some long working days
- The need of taking care of not just ourselves, but also group members
At the same time we need to keep in mind, recognize and understand:

• When situations start to change from unpleasant to potentially dangerous.
  – Getting cold – mildly hypothermic – hypothermic – unable to do anything
  – Getting tired, loosing visibility …
  – Start to get frostbites in face
  – Start to loose feeling in fingers, toes

→ Be honest and tell others early if you start to have problems and do something before it is too late

→ STOP, think, change plans if needed
OPENING HOURS TODAY

Open until 20:00

20% discount on all clothing
15% on everything else

Open until 20

20% discount on ordinary prices.
Valid out 2017
Thank You!
Have a nice and active first week!