I CONVEGNO ISTITUTO DI SCIENZE POLARI

La composizione chimica del manto nevoso e le interazione neve-atmosfera nelle regioni Polari

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From a chemical point of view, annual snow is a sink for an impressive amount of chemical compounds

NATURAL

- Major ions
- Trace elements
- Biogeochemical compounds

ANTHROPOGENIC

- Organic contaminants
- Radionuclide
- Heavy metals

Their abundance in the annual snow layer can change from a temporal and a spatial point of view

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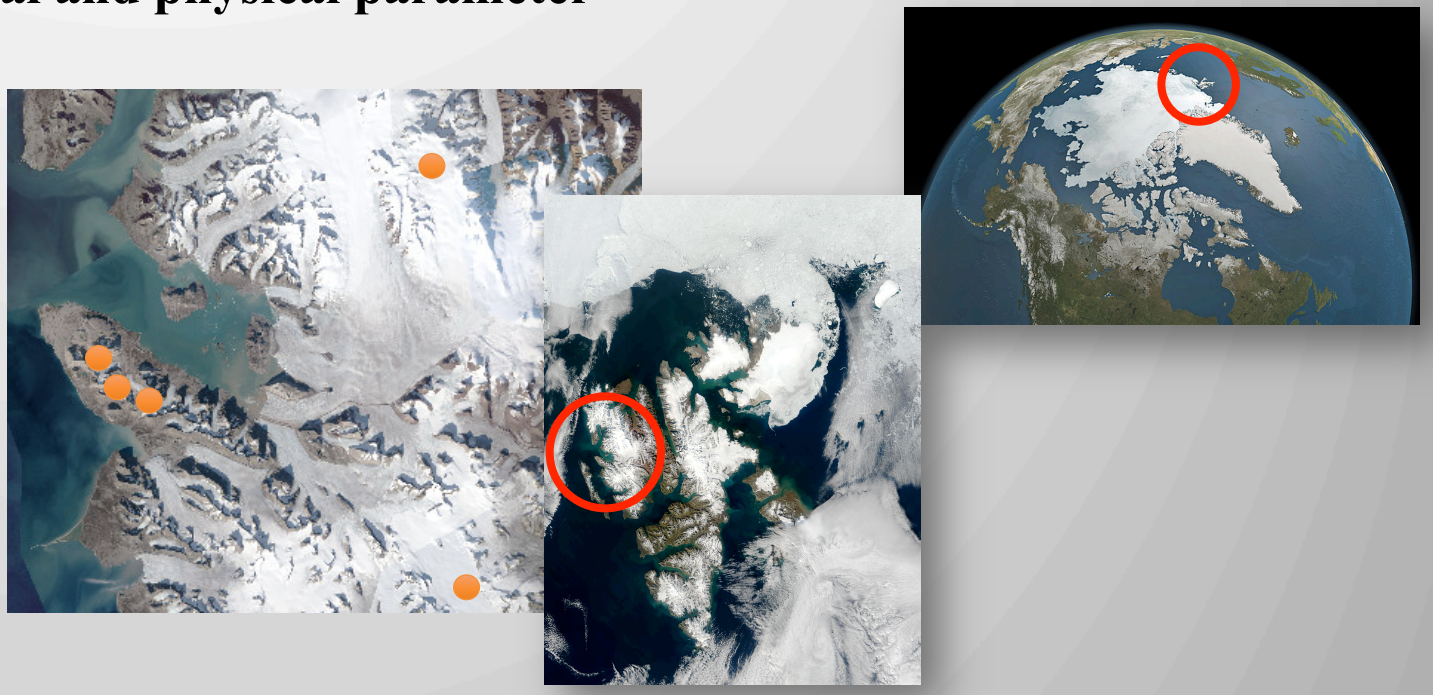
Annual and Seasonal depositional flux

The **monitoring program** for the annual snow chemical composition is on-going from 2011 including **chemical and physical parameter**

The monitoring program investigate the elemental composition of the annual snow layer in 5 glaciers in the Ny-Alesund area.

BroggerBreen (BRG - from 2011)
Midtre Lovenbreen (MLB - from 2011)
EdithBreen (EDB -from 2015)
Kongsvegen (KNG -from 2011)
Holtedhalfonna (HDF - from 2012)



Investigate the changes in the chemical load of the annual snow layer connected with the rapid Arctic changes

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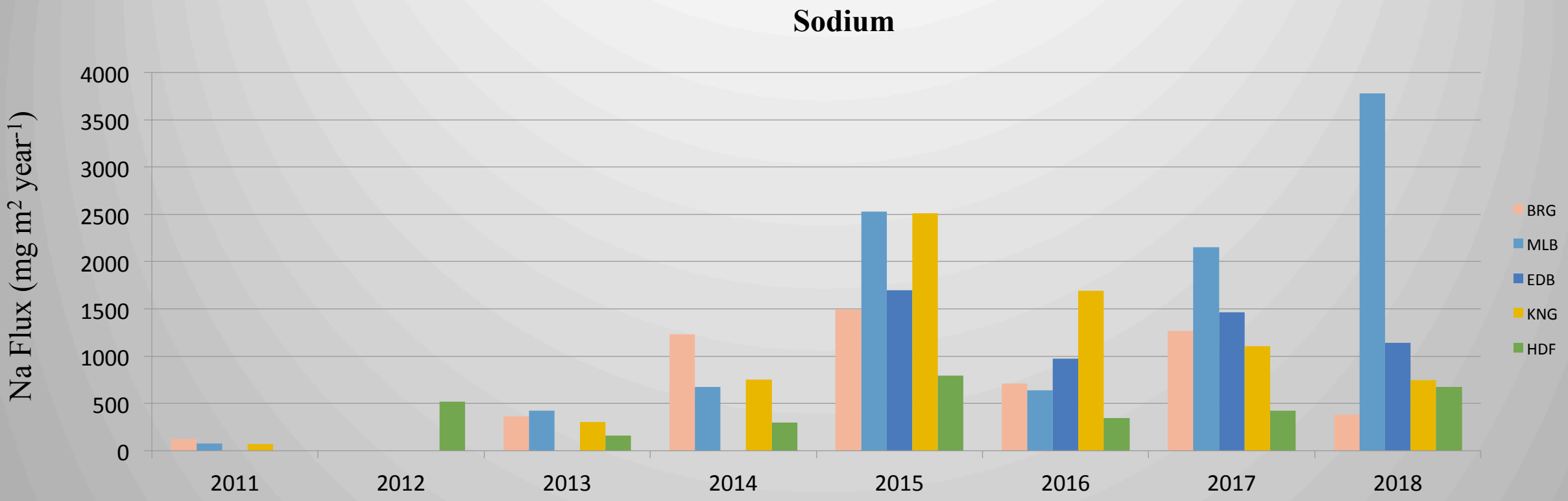
Annual and Seasonal depositional flux

The changes in the annual snow chemical composition from 2011 to 2018



Significant increase from 2011 - last year of Kongsfjord close by sea ice

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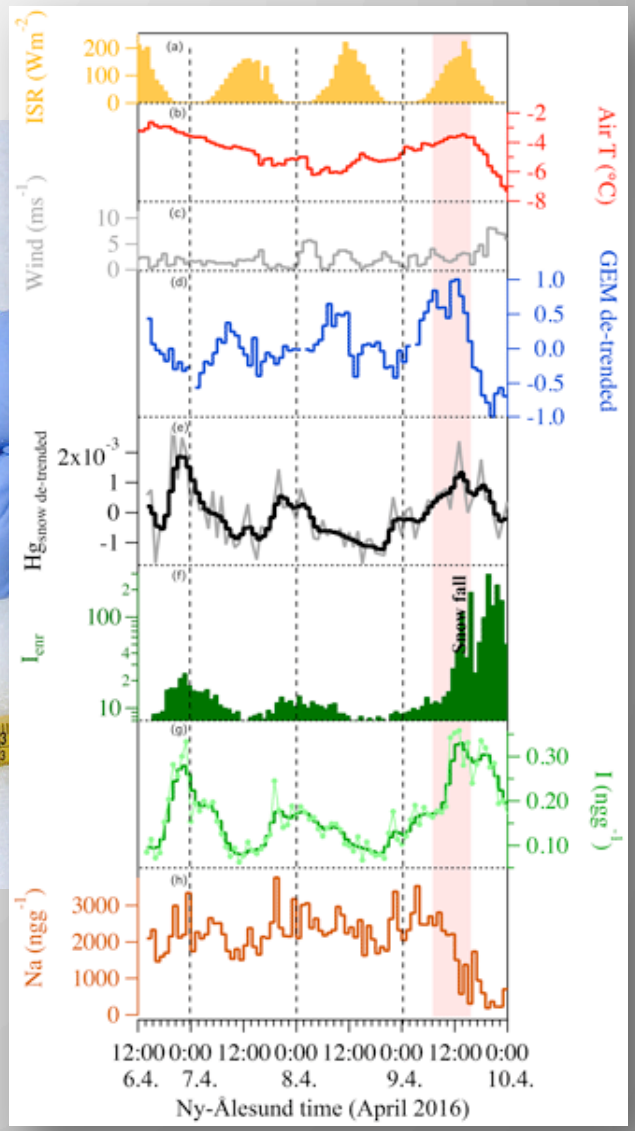
Surface snow experiment

Snow-atmosphere interaction

- High temporal-resolution experiments (1 hour)
- Sampling only the snow skin layer (3 cm)
- Experiment repeated under different irradiation conditions
- Durnal cycel determined only during the night\day cycle



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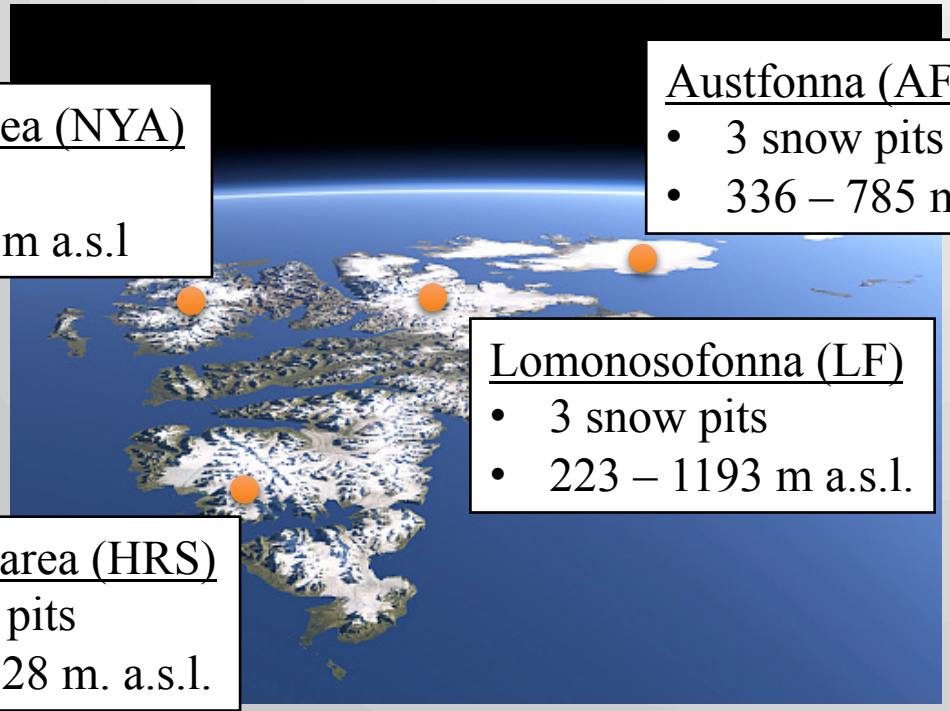
Spatial variability

Investigate the **SPATIAL VARIABILITY** of the chemical impurity content of the annual snow as well the influence of the elevation (The C2S3 and SnowNET project)

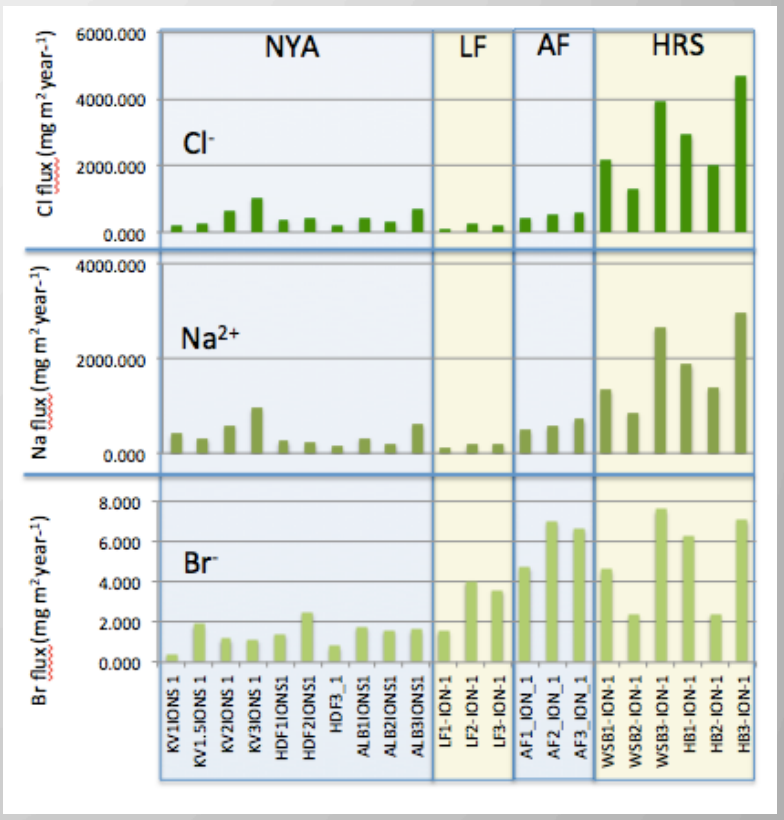


Ny-Alesund area (NYA)
- 9 snow pits
- 100 – 1120 m a.s.l

Austfonna (AF)
- 3 snow pits
- 336 – 785 m a.s.l

Lomonosofonna (LF)
- 3 snow pits
- 223 – 1193 m a.s.l.

Hornsund area (HRS)
- 6 snow pits
- 102 – 528 m. a.s.l.



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Grazie per l'attenzione

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