



Prospective **GRUAN** Site:

Ny-Ålesund
78.9° N, 11.9 ° E

Marion Maturilli
- Alfred Wegener Institute for Polar and Marine Research
Potsdam, Germany

GRUAN ICM-4, Tokyo, Japan, 5-9 March 2012

(1) Site Location

High Arctic → Svalbard → Kongsfjord



(1) Site Location Ny-Ålesund

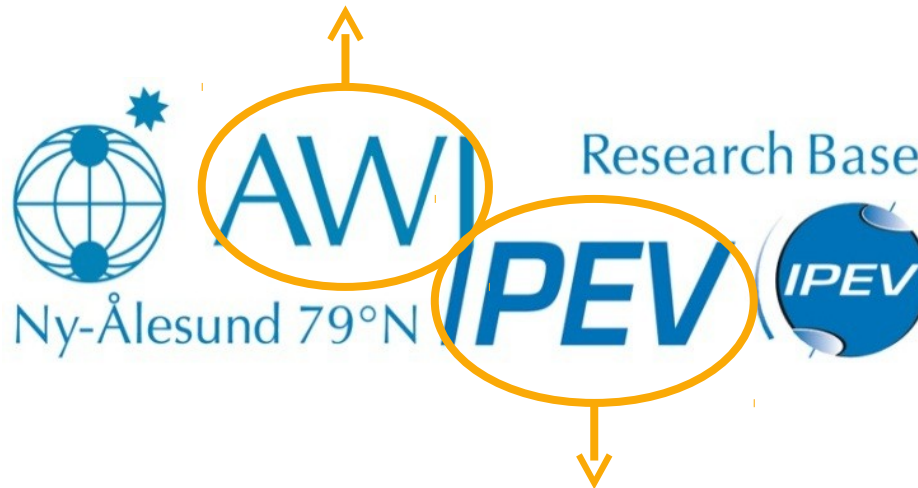
international center for various modern Arctic research activities

- glaciology
- biology
- atmospheric sciences



(2) Institution / Operator

Alfred Wegener Institute for Polar and Marine Research
(Germany)



Institut Polaire Français Paul Emile Victor
(France)

3 persons permanently based at the station
for routine measurements and logistic support

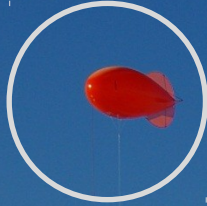
(2) Institution / Operator



- interdisciplinary research activities
- longterm observations + short-term projects
- glaciology • marine biology • atmospheric sciences



(3) Atmospheric Observations



campaign-based / short-term measurements

observatory

balloon preparation
+ launch platform

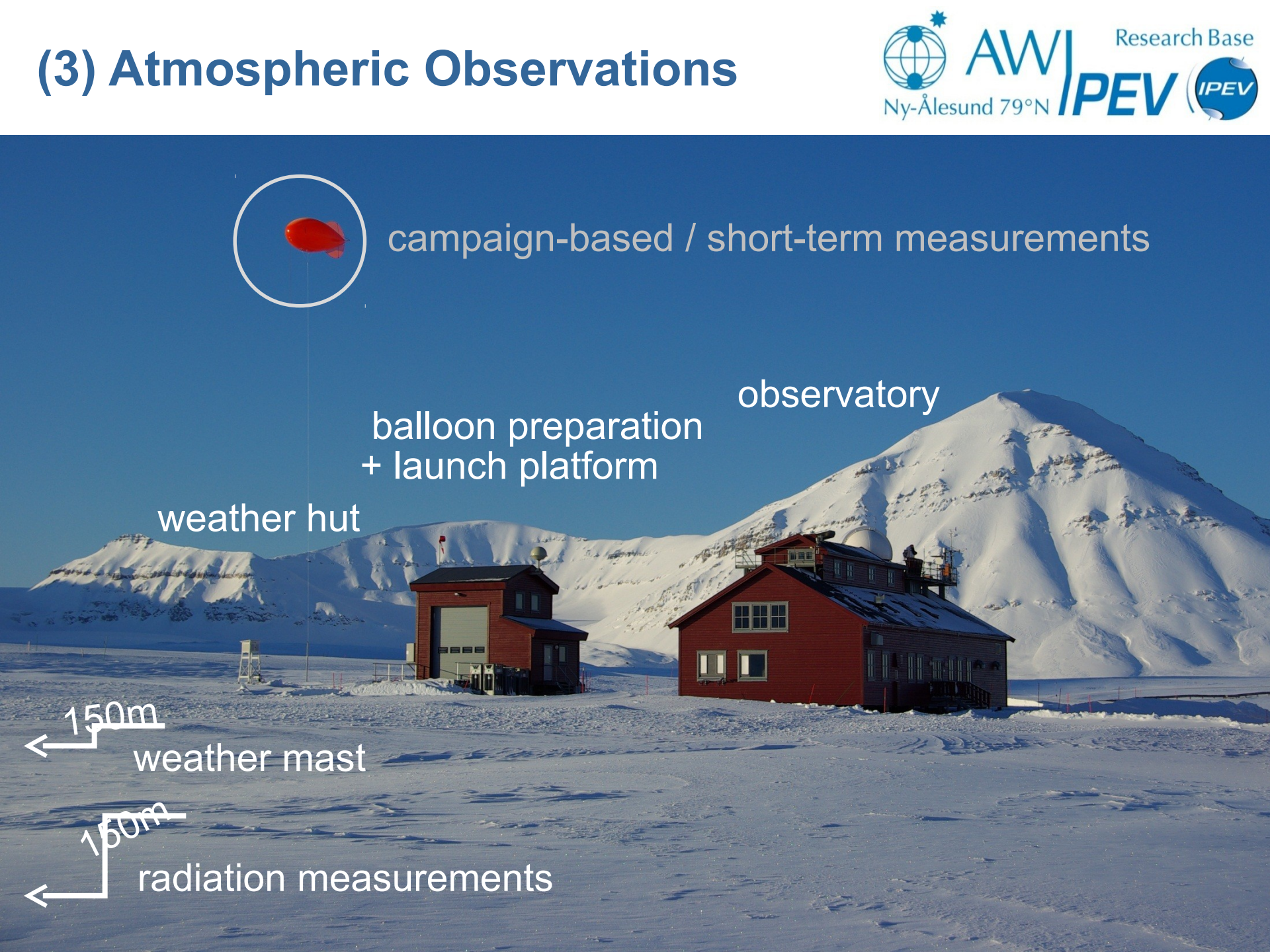
weather hut

150m
←

weather mast

150m
←

radiation measurements



(3) Atmospheric Observations

Surface Radiation



- global short-wave
- direct + diffuse short-wave
- reflected short-wave
- up-/down-welling long-wave

Surface Meteorology

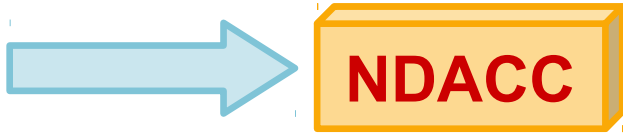


- temperature (2 m, 10 m)
- relative humidity (2 m)
- wind speed (2 m, 10 m)
- wind direction (2 m, 10 m)



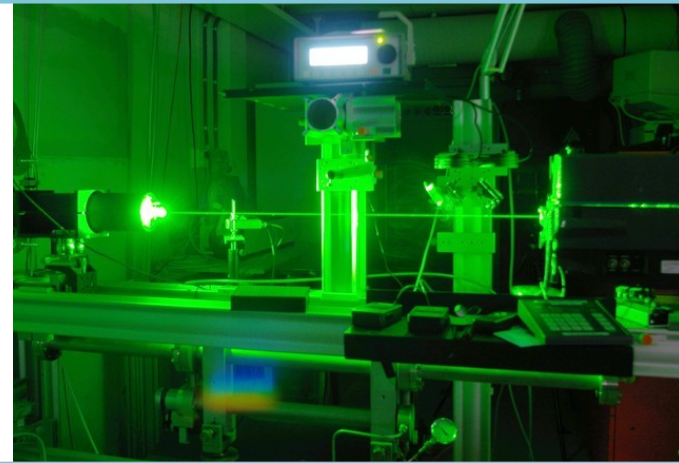
BSRN

(3) Atmospheric Observations



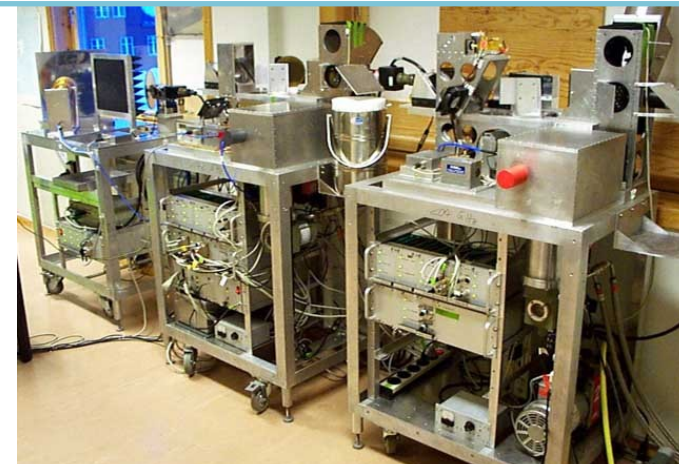
Tropospheric and Stratospheric Lidar

- water vapor
- aerosol
- temperature
- aerosol



Microwave Radiometer (*Univ. Bremen*)

- water vapor
- ozone



(3) Atmospheric Observations

NDACC (Column Measurements)

DOAS (*Univ.Bremen*)

Differential Optical Absorption Spectroscopy

- O₃, NO₂



FTIR (*Univ.Bremen*)

Fourier transform infrared spectrometry

- several trace gases



(3) Atmospheric Observations

Other Networks etc:

BSRN

NDACC

GAW

International GPS Service

Global Seismological Network

Various EU-campaigns

NASA and ESA satellite validations

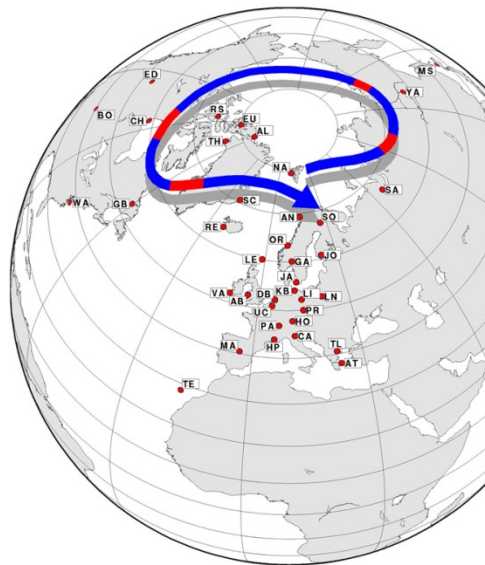
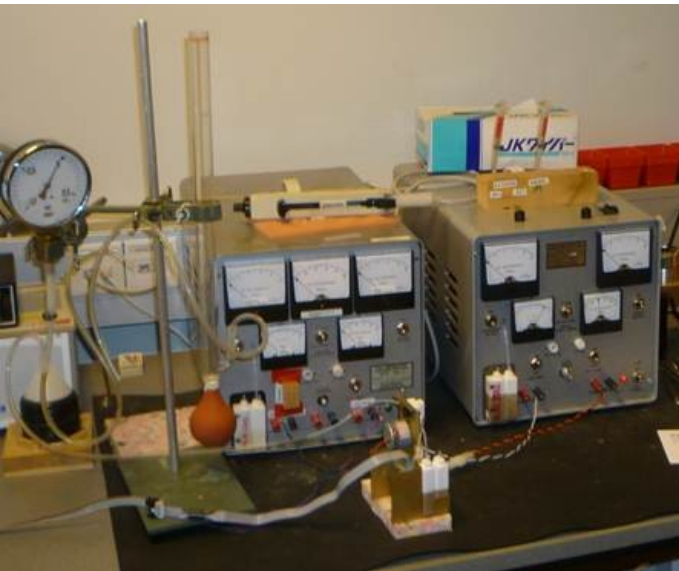
▲ **GPS-IWV (*GFZ Potsdam*)**
GPS integrated water vapor

▲ **Sounding Activities**

(3) Atmospheric Observations

Sounding Activities

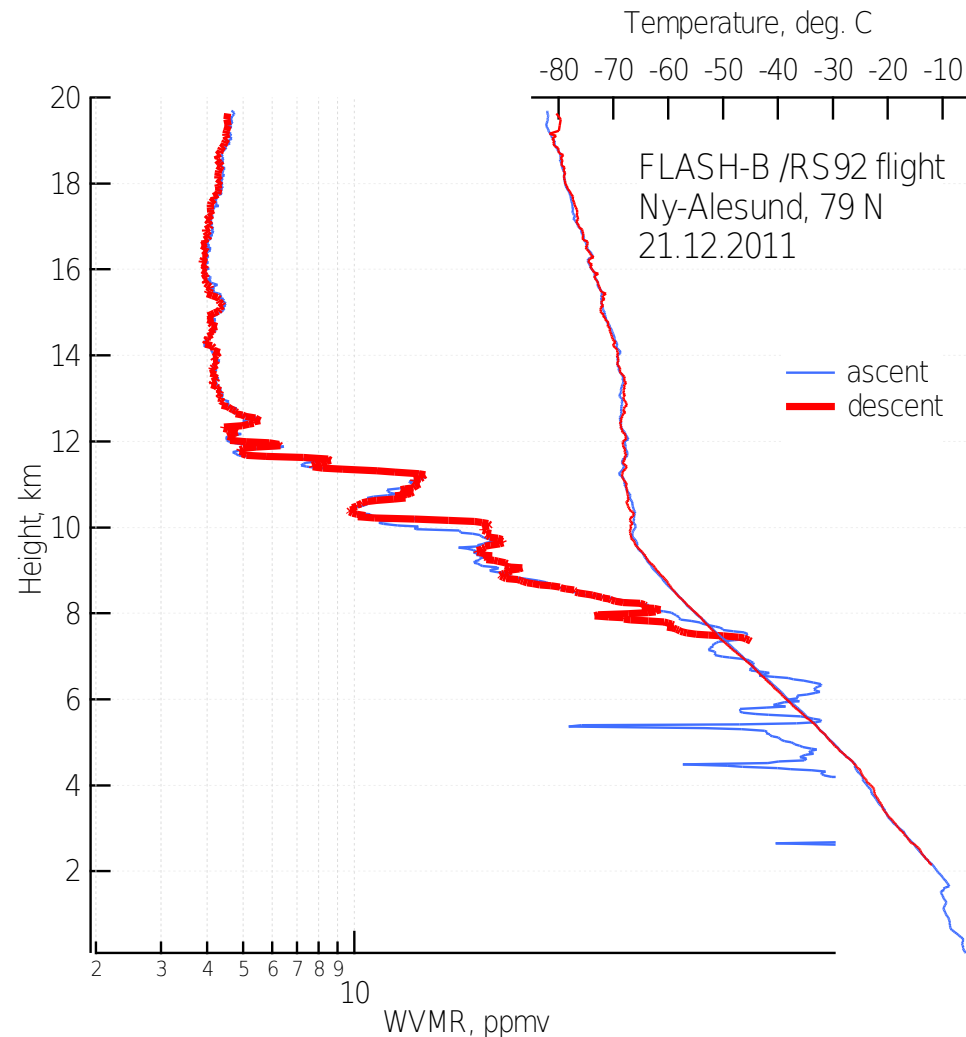
- ozonesondes
ECC6A, Vaisala/ENSCI
1x weekly or more



(3) Atmospheric Observations

Sounding Activities

- **FLASH-B**
stratospheric water vapor
1x per wintermonth
(darkness required)



(4) GRUAN Product: Radiosonde RS92

daily 12 UTC radiosonde

RS92_SGPW since Nov 2005

launch preparation
includes 100% rel.humidity



(4) GRUAN Product: Radiosonde RS92



Vaisala ground check GC25

(4) GRUAN Product: Radiosonde RS92



100% relative humidity
checked in SPRH100

(4) GRUAN Product: Radiosonde RS92

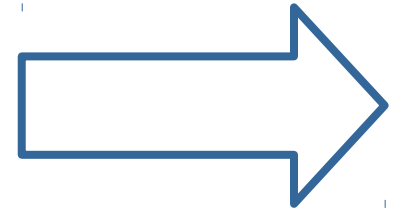
current status: surface data from BSRN weather mast



balloon preparation

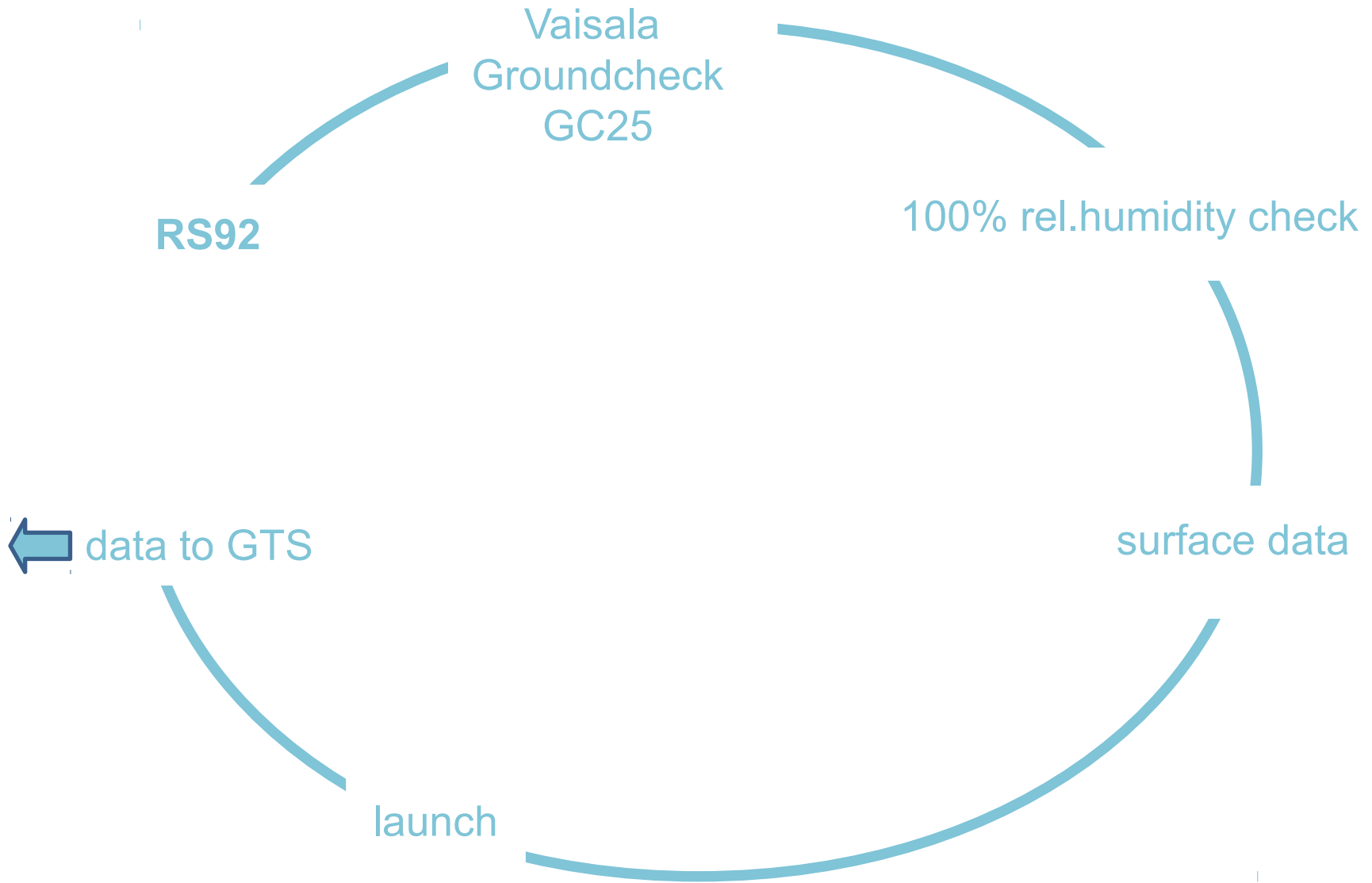


launch...

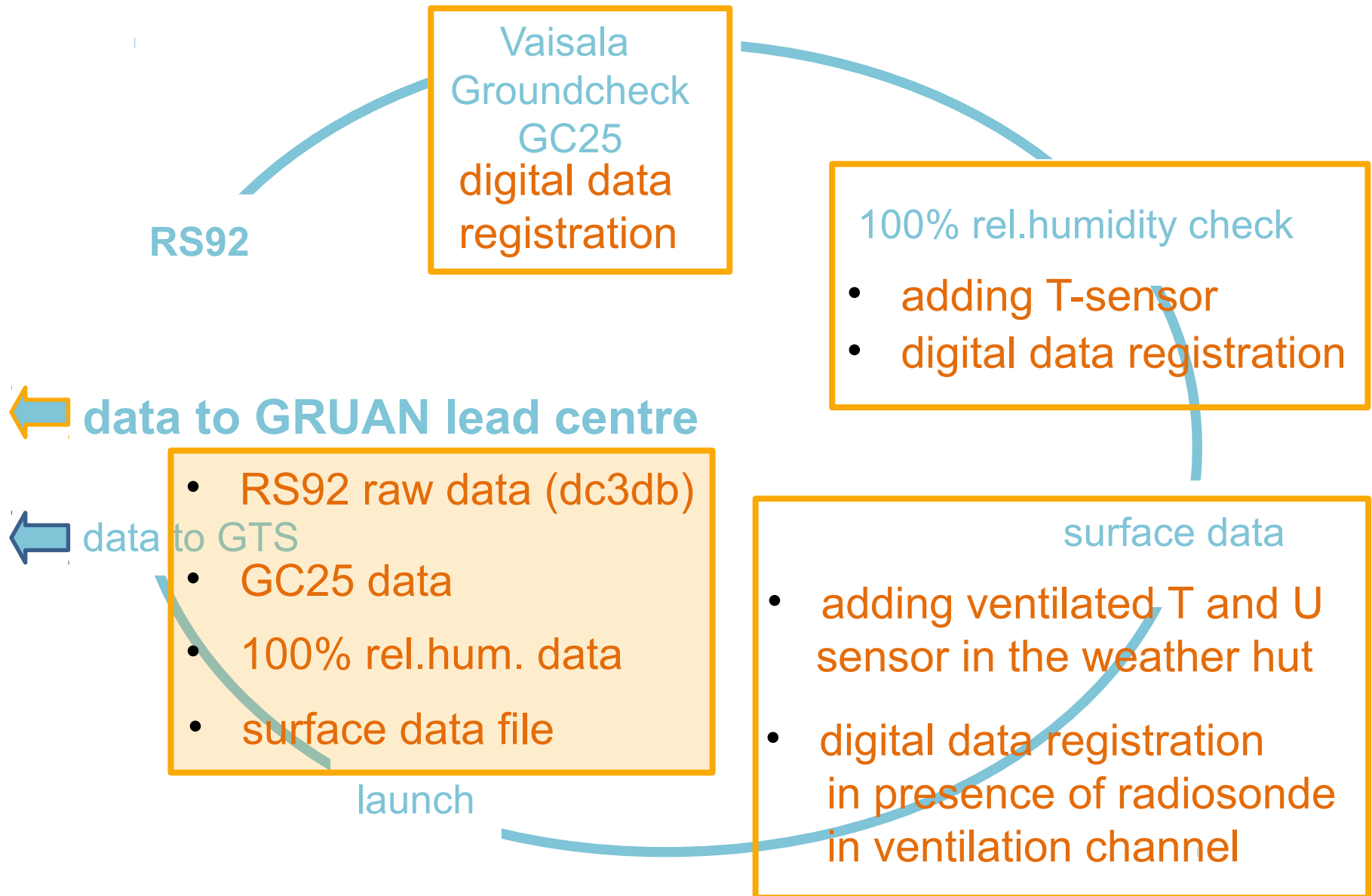


data to GTS
(via DNMI)

(4) GRUAN Product: Radiosonde RS92 *Current Status*



(4) GRUAN Product: Radiosonde RS92 *Next Steps*



SUMMARY

Ny-Ålesund (78.9° N, 11.9° E)



daily RS92 radiosonde

weekly one or more ECC6A ozone sonde

1x per wintermonth FLASH-B sonde

surface meteorology

tropospheric + stratospheric lidar [NDACC]



Current GCOS Reference Upper-Air Network

Prospective GRUAN Site:

Ny-Ålesund



Surface Data

currently from BSRN weather mast
(150 m distance, some meters altitude difference)

upcoming

ventilated T and U measurements
in the weather hut

