



WMO/IOC/UNEP/ICSU  
GLOBAL CLIMATE OBSERVING  
SYSTEM (GCOS)

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**7th GRUAN Implementation-  
Coordination Meeting (ICM-7)**

Session 8

Matera, Italy

23 February – 27 February 2015

## GRUAN Station Report for Ny-Ålesund

*(Submitted by Marion Maturilli)*

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### **Summary and Purpose of Document**

Report from the GRUAN station Ny-Ålesund for the period Mar 2014 to Jan 2015.

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## GRUAN Station Report for Ny-Ålesund

Reporting for the period Mar 2014 to Jan 2015

Date: 23-Jan-2015

Primary author: Marion Maturilli  
(email: marion.maturilli@awi.de)

### **Overview**

The Ny-Ålesund dataflow for RS92 soundings is settled and certified, providing 1x daily radiosonde data to the GRUAN Lead Centre. During 6-25 September 2014, there has been an intensive radiosounding campaign at the station, with 4 launches per day.

In 2014, bi-monthly CFH launches have been established, providing profile data for 19 January, 19 March, 15 May, 5 July, 10 September, and 6 November 2014, as well as 21 January 2015. While the payload set-up and launch procedure are settled, we are aware that the CFH dataflow to the Lead Center needs to be improved.

The Ny-Ålesund GNSS station is one of two test sites to implement the GNSS dataflow in GRUAN. Ny-Ålesund GNSS data are now processed by GFZ without gaps since October 2014, and reprocessing of earlier data is ongoing. The GNSS data product transfer to the GRUAN Lead Centre (and NCDC) is in preparation.

### **Change and change management**

Operators have changed with the arrival of the new overwintering team in April 2014. The new team has been introduced to GRUAN at the GRUAN Lead Centre in Lindenberg, and has adopted the GRUAN procedures on site in Ny-Ålesund.

Concerning the daily radiosondes, data are transferred to GTS in FULL BUFR since 29 Oct 2014.

We are not aware of any other relevant changes.

### **Resourcing**

The financing of CFH launches currently depends on the annual scientific budget of our working group. By shifting these measurements to the long term monitoring program of the research base, the resource situation may become more stable. Defining CFH measurements a formal GRUAN data product will be helpful in this context.

### **Site assessment and certification**

- already certified -

### **GRUAN related research**

In June 2014, scientists of the MeteoMet project operated their mobile calibration unit at the AWIPEV research base in Ny-Ålesund, calibrating various sensors of surface meteorological equipment related to our GRUAN measurements.

Currently, we are working on the homogenization of the 22-year Ny-Ålesund radiosonde dataset. This includes GRUAN-processing of early RS92-rawdata by the GRUAN Lead Centre. A scientific publication of the Ny-Ålesund radiosonde climatology is planned, accompanied by the publication of a doi-referenced homogenized dataset.

Concerning GNSS, Ny-Ålesund data processing by GFZ is operational. The GRUAN product transfer to NCDC is in preparation by GFZ.

**GRUAN-related publications:**

- Musacchio C, Bellagarda S, Maturilli M, Graeser J, Vitale V, Merlone A (2014) Metrology Activities in Ny-Ålesund (Svalbard), submitted to *Meteorological Applications*
- Heinkelmann R, Dick G, Nilsson T, Soja B, Wickert J, Zus F, Schuh H (2015) Atmospheric gradients from GNSS, VLBI, and DORIS analyses and from Numerical Weather Models during CONT14. Abstract to EGU 2015: EGU2015-12670

**WG-GRUAN interface**

Eventually, promoting CFH measurements as important GRUAN product could help us in redefining the financial sources for CFH launches (see above).

**Items for ICM-7 plenary discussions**

- Time schedule for RS41 data stream and data product
- Requirements for change management RS92 → RS41

**Future plans**

- First (hardware) tests with RS41 and new Digicora software
- Potentially first period with multi-sensor launches (RS92 / RS41)
- Publication of homogenized Ny-Ålesund radiosonde dataset



# GRUAN Station Report for NyAlesund (NYA), 2014

Reported time range is Nov 2013 to Oct 2014

Created by the Lead Centre

Version from 2015-02-11

## 1 General GRUAN station information

Info	Value
Station name	NyAlesund
Unique GRUAN ID	NYA
Geographical position	78.9200 °N, 11.9400 °E, 5.0 m
Operated by	AWI   Alfred-Wegener-Institut für Polarforschung, part of: HELMHOLTZ   Helmholtz-Gemeinschaft
Main contact	Maturilli, Marion
WMO no./name	-
Operators	current 10, change +5 / -7
Sounding Site	1
GNSS	1

### 1.1 General information about GRUAN measurement systems

System	Type	Setups	Measurements	As scheduled
NYA-GN-01	GNSS	1	0	0.00 %
NYA-RS-01	Sounding Site	4	435	104.07 %

### 1.2 General comments from Lead Centre

#### 1.2.1 General

Good communications between station and GRUAN LC.

#### 1.2.2 GTS

This site regularly sends PTU measurements in the GTS (FM35 format, once per day).

## 2 System: GNSS Site NYA2 (NYA-GN-01)

Info	Value
System name	GNSS Site NYA2
Unique GRUAN ID	NYA-GN-01
System type	GNSS (GN - GNSS)
Geographical position	78.5136 °N, 11.5212 °E, 49.1 m
Operated by	GFZ   Deutsches GeoForschungsZentrum GFZ, part of: HELMHOLTZ   Helmholtz-Gemeinschaft
Instrument contact	Ramatschi, Markus
Started at	2000-03-13
Defined setups	1 (HOURLY)
Possible streams	-

### 2.1 Lead Centre comments

#### 2.1.1 Dataflow

Dataflow of GNSS data to GRUAN LC and the GRUAN GNSS processing centre at GFZ has started in September 2013. This GNSS station is one of two test sites to implement the GNSS dataflow in GRUAN. The current dataflow includes manufacturer raw data, converted raw data (RINEX) and instrument logs, containing all equipment changes.

### 3 System: Radiosonde Launch Site (NYA-RS-01)

Info	Value
System name	Radiosonde Launch Site
Unique GRUAN ID	NYA-RS-01
System type	Sounding Site (RS - Radiosonde)
Geographical position	78.9230 °N, 11.9227 °E, 15.7 m
Operated by	AWI-POTSDAM   Forschungsstelle Potsdam, part of: AWI   Alfred-Wegener-Institut für Polarforschung, part of: HELMHOLTZ   Helmholtz-Gemeinschaft
Instrument contact	Maturilli, Marion
Started at	-
Defined setups	4 (ROUTINE, OZONE, FLASH, CFH)
Possible streams	CFH, ECC, RS92

#### 3.1 Lead Centre comments

##### 3.1.1 Dataflow

Sonde dataflow to the GRUAN LC running since April 2012. This dataflow includes streams of the Vaisala RS92-SGP, ECC Ozone sonde, CFH water vapour, and Internet IMET-1. All launches are promptly submitted using the RsLaunchClient.

##### 3.1.2 Data quality

GC25 ground check corrections are within expected limits.

A manufacturer independent additional ground check using the Standard Humidity Chamber (SHC) is used. The data are submitted to the Lead Centre.

In addition, the site performs an additional ground check at ambient conditions in a shelter prior to launch, which is recorded and submitted to the Lead Centre for further analysis.

##### 3.1.3 General

An intensive campaign was held in September 2014 with 4 soundings per day.

#### 3.2 GRUAN data products

Product	Version	Soundings received	Available at LC	Distributed by NCDC
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##### 3.2.1 Stream: CFH

CFH		5	5	
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##### 3.2.2 Stream: ECC

ECC		92	92	
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##### 3.2.3 Stream: IMET1

IMET1		5	5	
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##### 3.2.4 Stream: RS92

RS92		435	435	
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Product	Version	Soundings received	Available at LC	Distributed by NCDC
RS92-RAW	001		435	
RS92-GDP	001		81	
RS92-GDP	002		424	410

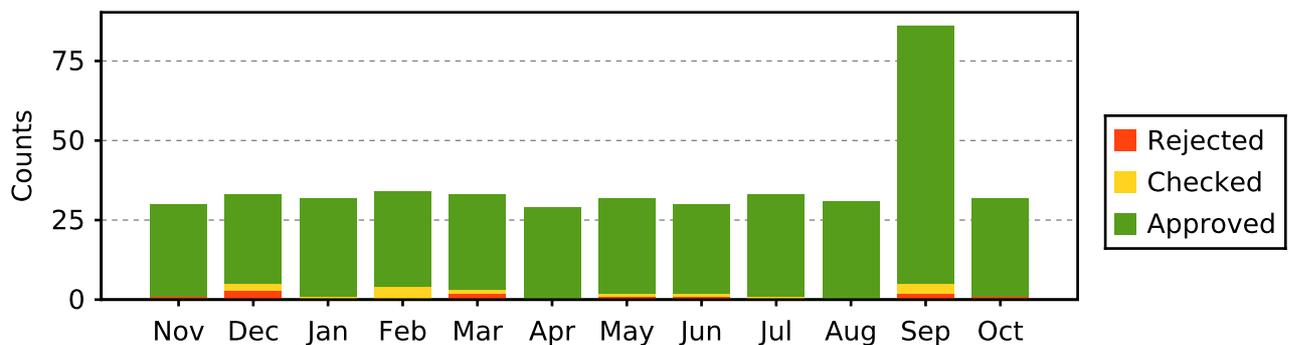
### 3.3 Data quality of current GRUAN data products

Month	Count	GRUAN Data Quality			Issues				
		Approved	Checked	Rejected	Meta-data	Process.	Press	Temp	RH

#### 3.3.1 Stream: RS92 (Product: RS92-GDP-002)

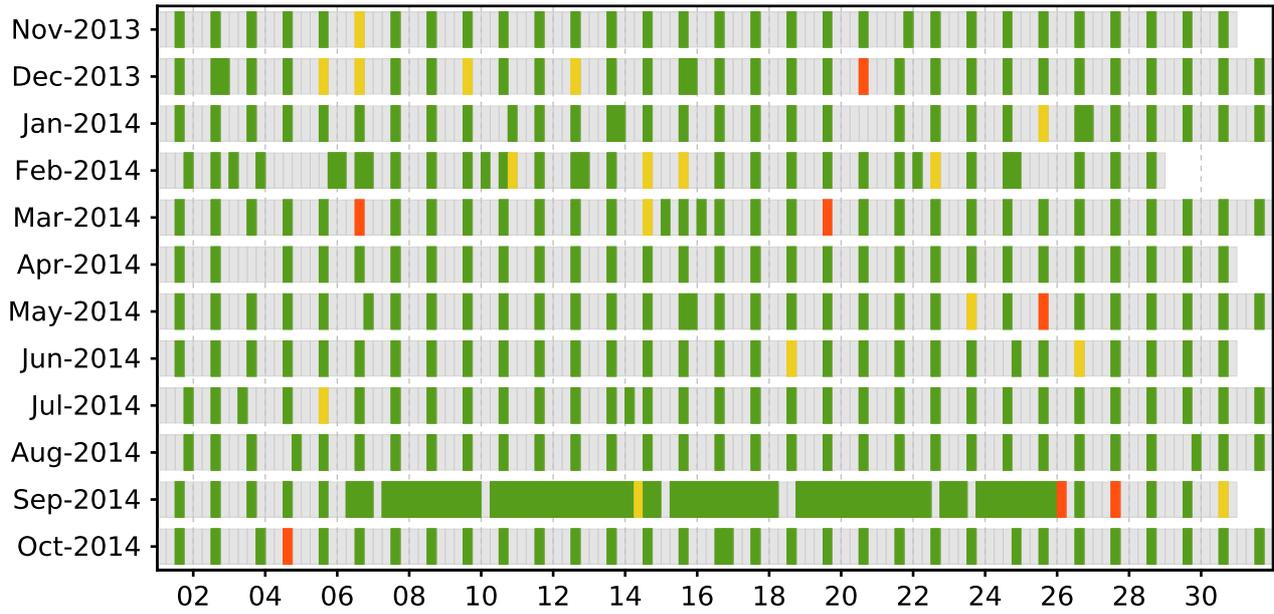
Nov 13	30	29		1			1		8
Dec 13	33	28	2	3			2		8
Jan 14	32	31	1						16
Feb 14	34	30	4				1		12
Mar 14	33	30	1	2					10
Apr 14	29	29							3
May 14	32	30	1	1					5
Jun 14	30	28	1	1			1		3
Jul 14	33	32	1					1	2
Aug 14	31	31							3
Sep 14	86	81	3	2			2	1	19
Oct 14	32	31		1			1		7
	<b>435</b>	<b>410</b>	<b>14</b>	<b>11</b>			<b>8</b>	<b>2</b>	<b>96</b>

Data quality statistic of stream RS92



Month	Count	GRUAN Data Quality			Issues				
		Approved	Checked	Rejected	Meta-data	Process.	Press	Temp	RH

Schedule data quality of stream RS92



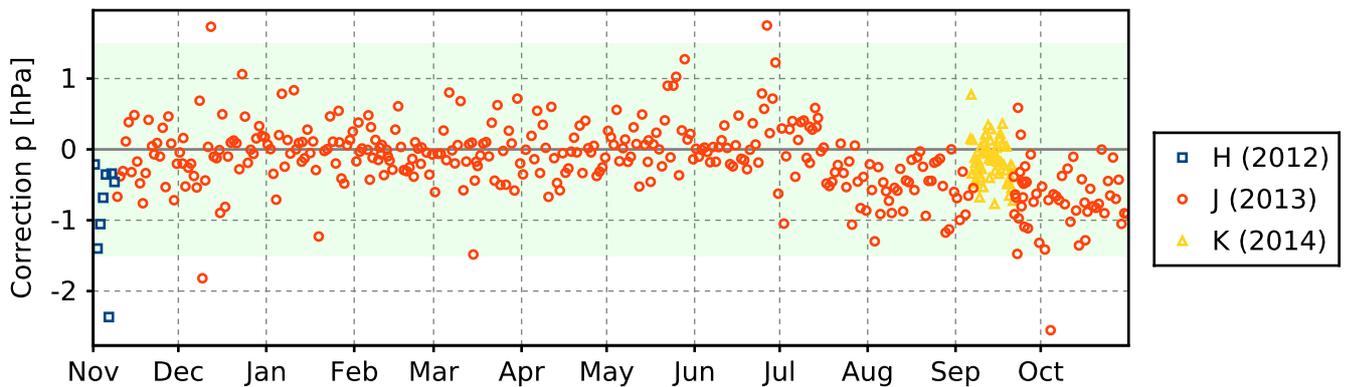
### 3.4 Instrument combinations of NYA-RS-01

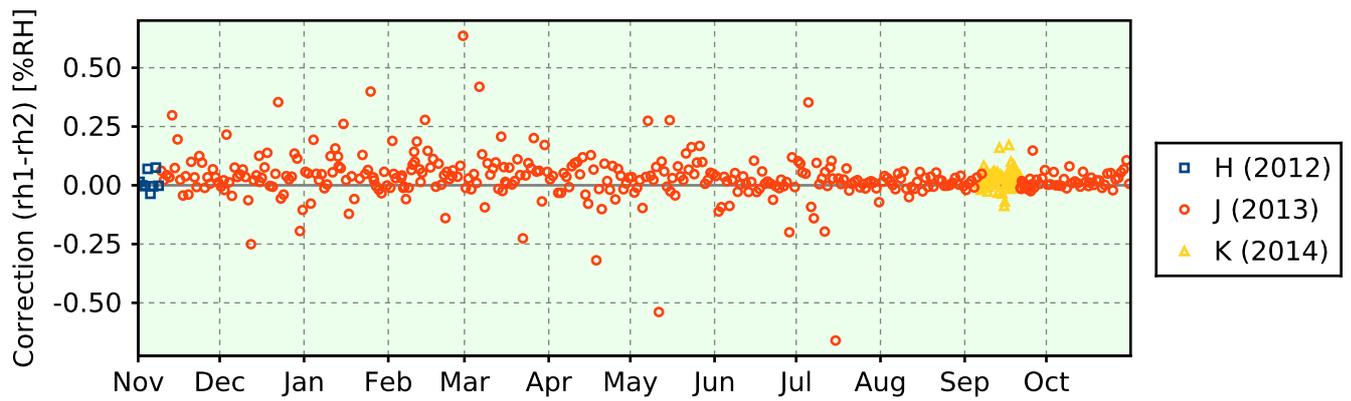
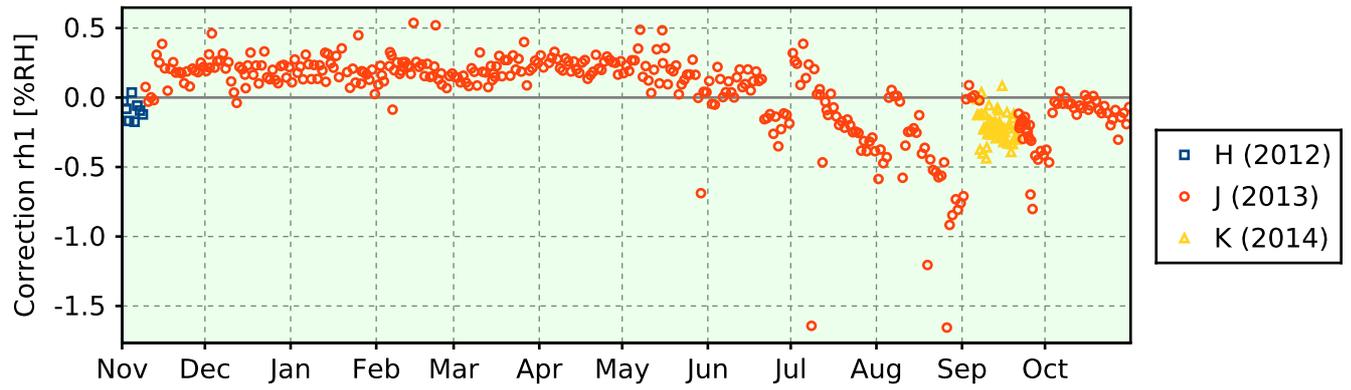
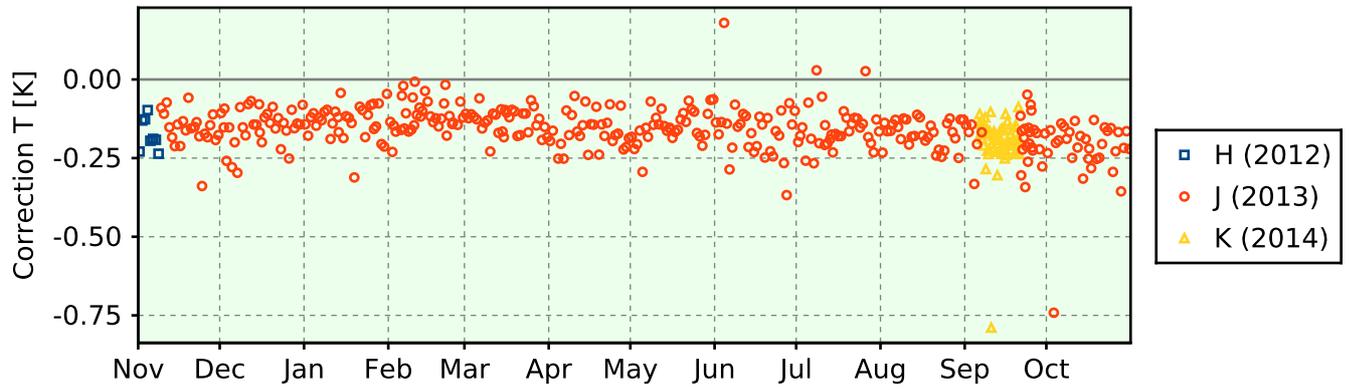
Count	Instrument combination
5	CFH, ECC, IMET1, RS92
87	ECC, RS92
343	RS92

### 3.5 Instrument ground check

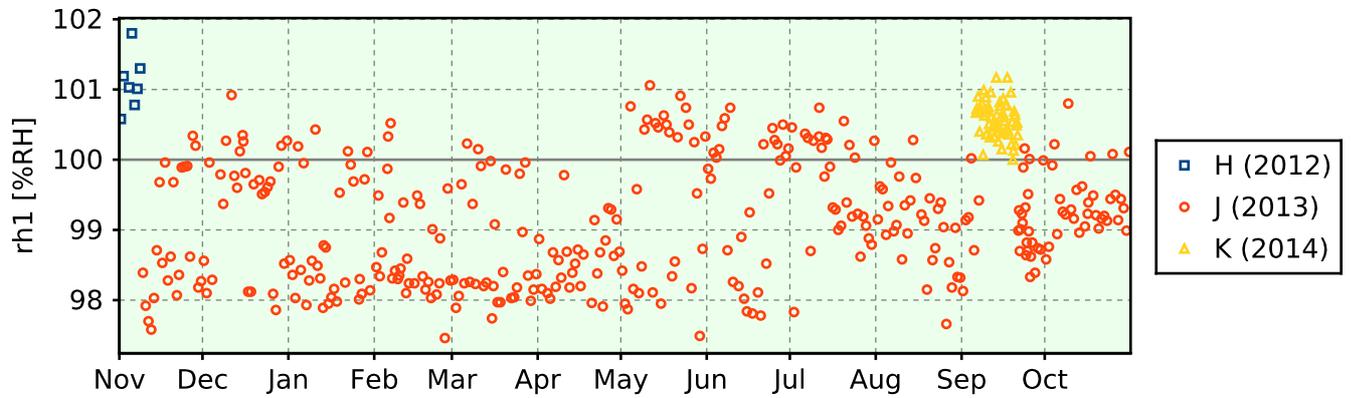
#### 3.5.1 Stream: RS92

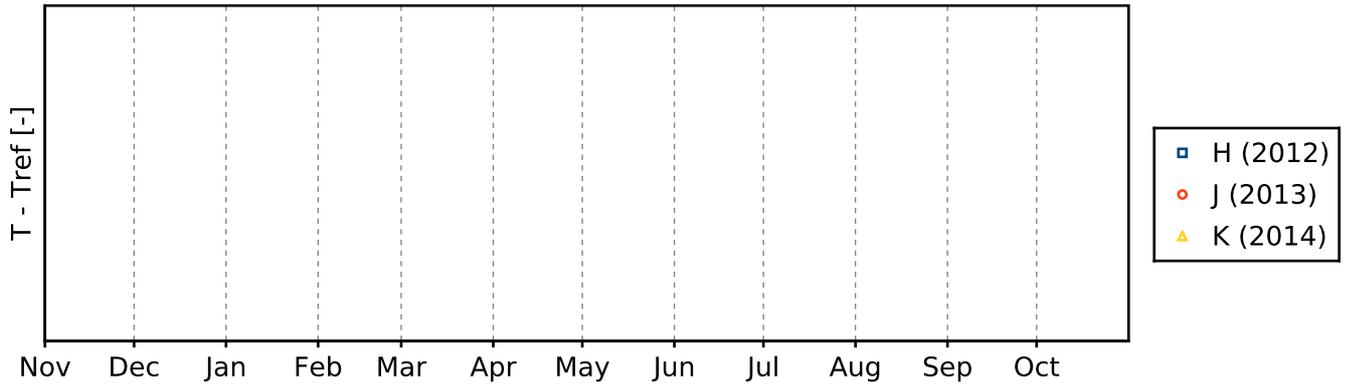
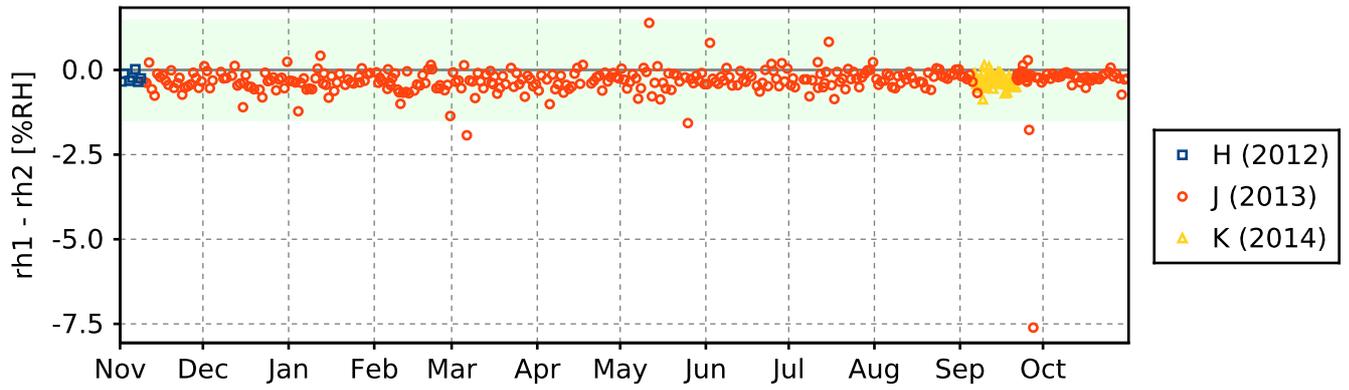
##### 3.5.1.1 GroundCheck: GC25





3.5.1.2 GroundCheck: SHC





### 3.6 Measurement events

#### 3.6.1 Stream: RS92

