



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

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**8th GRUAN Implementation-  
Coordination Meeting (ICM-8)**

Session 7

Boulder, USA

25 April – 29 April 2016

## GRUAN Station Report for Cabauw

*(Submitted by Arnoud Apituley)*

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

Report from the GRUAN station Cabauw for the period March 2015 to March 2016.

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## GRUAN Station Report for Cabauw (CAB)

Reporting for the period Mar 2015 to Mar 2016

Date: 20 April 2016

Primary author: Arnoud Apituley  
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### **Overview**

The routine RS92 launches (00 UTC) are contributing to the GRUAN data stream, as well as the data from RS92 launches attached to the weekly (noon) ECC ozone sondes.

GNSS data can be submitted when possible.

The RSLaunchClient is still not used unfortunately. It was requested that ground station PC is upgraded to allow normal network traffic needed for the RSLaunchClient. This process is now (again) frustrated by internal procedures. This is high on our priority list, for GRUAN, as well as other reasons.

### **Change and change management**

KNMI has changed balloons from TX350 to TX600 for routine launches, in order to reach the minimum required burst level of 10 hPa. The plans for the change were communicated to the Leadcentre, as well as the date for the change.

The Cabauw details on the GRUAN website are correct (coordinates). However, Cabauw/De Bilt is a distributed site. The De Bilt details are not listed. Perhaps these could be included.

### **Resourcing**

GRUAN activities have been effected by austerity measures in the last years, but no further reduction of funding is expected in the next couple of years.

### **Site assessment and certification**

Cabauw has been certified on 19 Jan. 2016, and the certificate was personally delivered to Cabauw by the head of the Leadcentre on 1 Apr. 2016.

### **GRUAN-related research**

KNMI is involved in GaiaClim and ACTRIS, under the umbrella of which some GRUAN-related work is done. KNMI is member of the Task Team Ancillary Measurements, particularly collaborating in the development of potential GRUAN lidar data products.

Trickl, T., Vogelmann, H., Fix, A., Schäfler, A., Wirth, M., Calpini, B., Levrat, G., Romanens, G., Apituley, A., Wilson, K. M., Begbie, R., Reichardt, J., Vömel, H., and Sprenger, M.: How stratospheric are deep stratospheric intrusions? – LUAMI 2008, Atmos. Chem. Phys. Discuss., doi:[10.5194/acp-2016-264](https://doi.org/10.5194/acp-2016-264), in review, 2016.

**WG-GRUAN interface**

Not needed at the moment. Thank you.

**Items for ICM-8 plenary discussions**

Immediate notifications of warnings and errors in the processing of data submitted to the GRUAN Lead Centre.

None other than already on the agenda.

**Future plans**

- Upgrade of the Vaisala ground station (software upgrade and/or new ground station)
- Use of RSLaunchClient
- New description of local radiosonde launch procedures, including the proper use of the SHC for all launches and inclusion of metadata using the RSLaunchClient.
- Final selection of RS92 successor (exact type of RS41)



# GRUAN Station Report for Cabauw (CAB), 2015

Reported time range is Nov 2014 to Feb 2016

Created by the Lead Centre

Version from 2016-04-18

## 1 General GRUAN station information

Info	Value
Station name	Cabauw
Unique GRUAN ID	CAB
Geographical position	51.9700 °N, 4.9200 °E, 1.0 m
Operated by	KNMI   Koninklijk Nederlands Meteorologisch Instituut
Main contact	Apituley, Arnoud
WMO no./name	-
Operators	current 0, change +0 / -0
Sounding Site	1
GNSS	1

### 1.1 General information about GRUAN measurement systems

System	Type	Setups	Measurements	As scheduled
CAB-GN-01	GNSS	0	0	not scheduled
CAB-RS-01	Sounding Site	2	555	99.82 %

### 1.2 General comments from Lead Centre

#### 1.2.1 General

It is strongly recommended that the site uses the RsLaunchClient to submit data to the Lead Centre.

The site uses a Standard Humidity Chamber during launch preparation of the ECC ozone soundings, but these data are not submitted to the Lead Centre. Using the RsLaunchClient will allow proper submission of these data. It is recommended to use the SHC during the preparation of the operational soundings as well.

The site is requested to submit ECC ozone soundings with complete metadata matching an ECC ozone sonde and not to submit it as routine radiosounding.

#### 1.2.2 GTS

This site regularly sends PTU measurements in the GTS (BUFR format, 2s resolution, once per day).

## 2 System: GNSS Site CABW (CAB-GN-01)

<b>Info</b>	<b>Value</b>
System name	GNSS Site CABW
Unique GRUAN ID	CAB-GN-01
System type	GNSS (GN - GNSS)
Geographical position	51.9690 °N, 4.9260 °E, 2.4 m
Operated by	KNMI   Koninklijk Nederlands Meteorologisch Instituut
Instrument contact	Apituley, Arnoud
Started at	-
Defined setups	-
Possible streams	-

### 2.1 Lead Centre comments

#### 2.1.1 Dataflow

No GNSS dataflow to GRUAN LC as yet.

### 3 System: Radiosonde Launch Site (De Bilt) (CAB-RS-01)

Info	Value
System name	Radiosonde Launch Site (De Bilt)
Unique GRUAN ID	CAB-RS-01
System type	Sounding Site (RS - Radiosonde)
Geographical position	52.1000 °N, 5.1800 °E, 1.0 m
Operated by	KNMI   Koninklijk Nederlands Meteorologisch Instituut
Instrument contact	Apituley, Arnoud
Started at	-
Defined setups	2 (ROUTINE, OZONE)
Possible streams	RS92

#### 3.1 Lead Centre comments

##### 3.1.1 Dataflow

Sonde dataflow from De Bilt to the GRUAN LC is operational in a fully automated mode since January 2011. The launch metadata are not checked by operators. Equipment changes (e.g. balloon, unwinder, ...) are not recorded.

As a consequence it is essential that the Lead Centre is notified of all upcoming changes to be able to maintain a correct metadata record.

##### 3.1.2 Data quality

Only few data processing issues (corrupt files or unknown issues).

One third of all measurements passed GRUAN Quality Control routines with a 'checked' label, largely due to uncertainty inconsistencies in pressure and humidity.

An additional ground check SHC (Standard Humidity Chamber) is used for all ECC launches. However, the RsLaunchClient is not used and SHC ground check data are not transmitted to the Lead Centre.

Weekly ECC launches are incorrectly recorded as Vaisala RS92 routine soundings without ECC sonde.

Additional ground check in SHC is not performed for the operational soundings.

#### 3.2 GRUAN data products

Product	Version	Soundings received	Available at LC	Distributed by NCDC
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##### 3.2.1 Stream: RS92

RS92		555	555	
RS92-RAW	001		554	
RS92-GDP	002		509	318

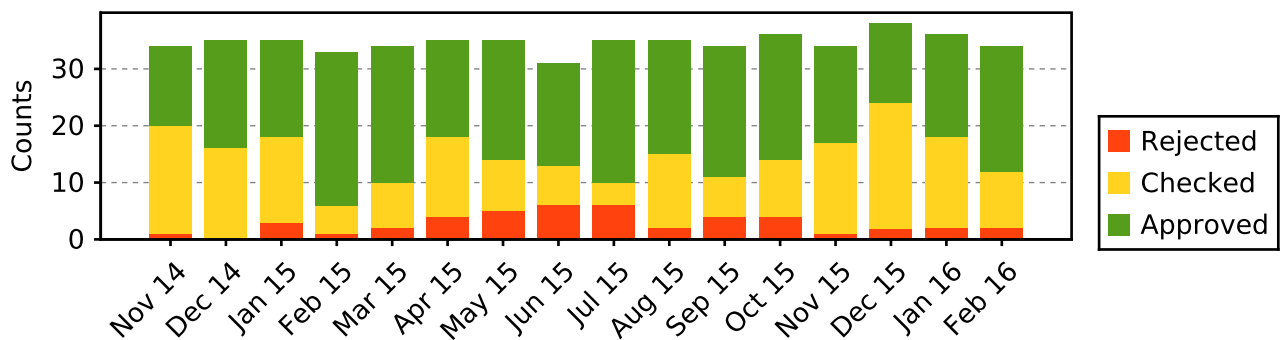
#### 3.3 Data quality of current GRUAN data products

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 14	34	14	19	1			2		19
Dec 14	35	19	16				2		15
Jan 15	35	17	15	3			4		15
Feb 15	33	27	5	1			1	1	5
Mar 15	34	24	8	2					10
Apr 15	35	17	14	4			2		15
May 15	35	21	9	5			2		10
Jun 15	31	18	7	6			8	1	7
Jul 15	35	25	4	6			6	1	5
Aug 15	35	20	13	2			1		14
Sep 15	34	23	7	4			2		7
Oct 15	36	22	10	4			1		13
Nov 15	34	17	16	1			1		17
Dec 15	38	14	22	2			1		26
Jan 16	36	18	16	2			5		15
Feb 16	34	22	10	2			5		11
	<b>554</b>	<b>318</b>	<b>191</b>	<b>45</b>			<b>43</b>	<b>3</b>	<b>204</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 CAB-RS-01

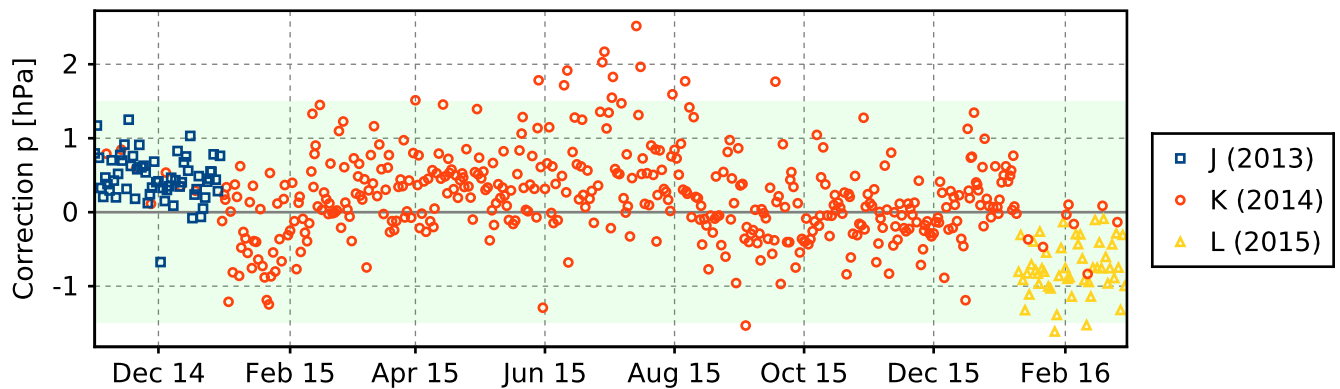
Count Instrument combination

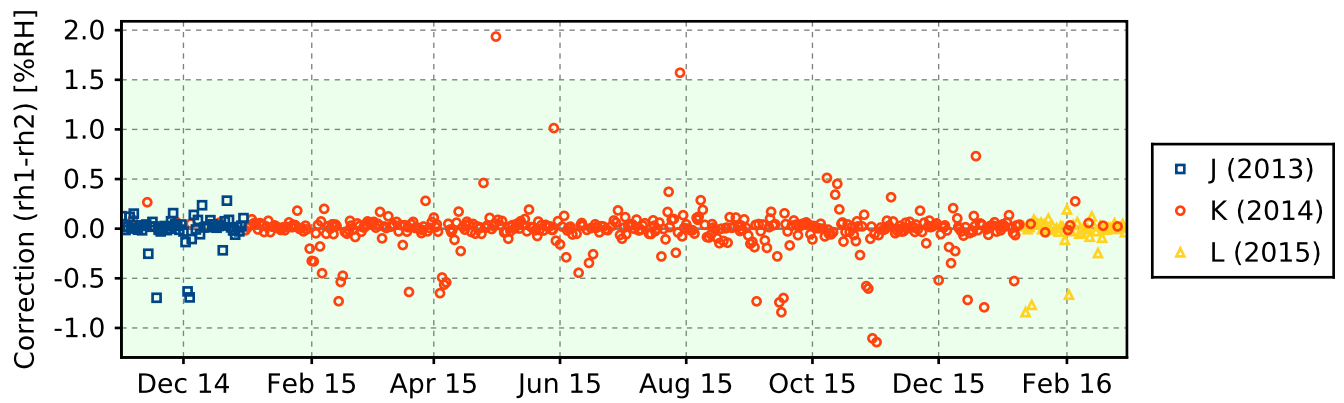
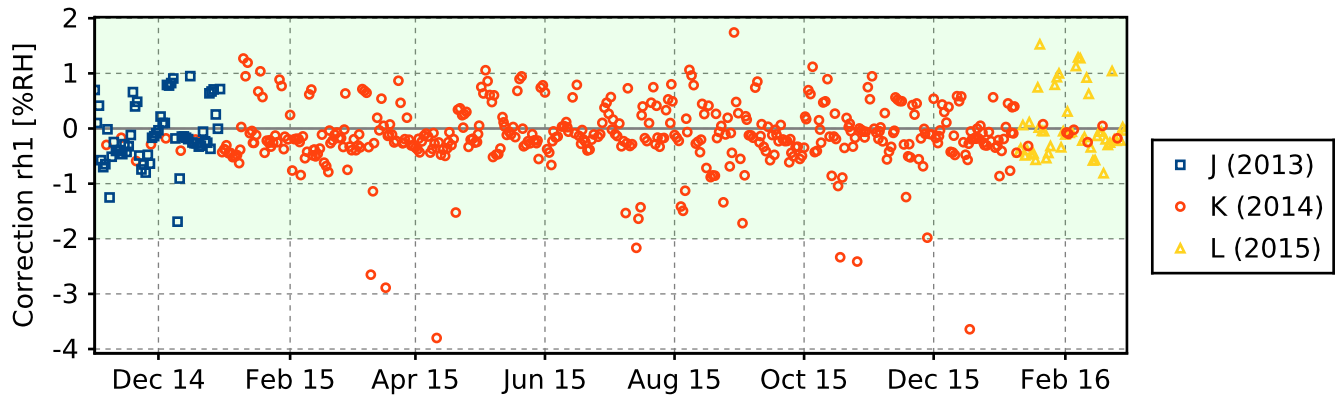
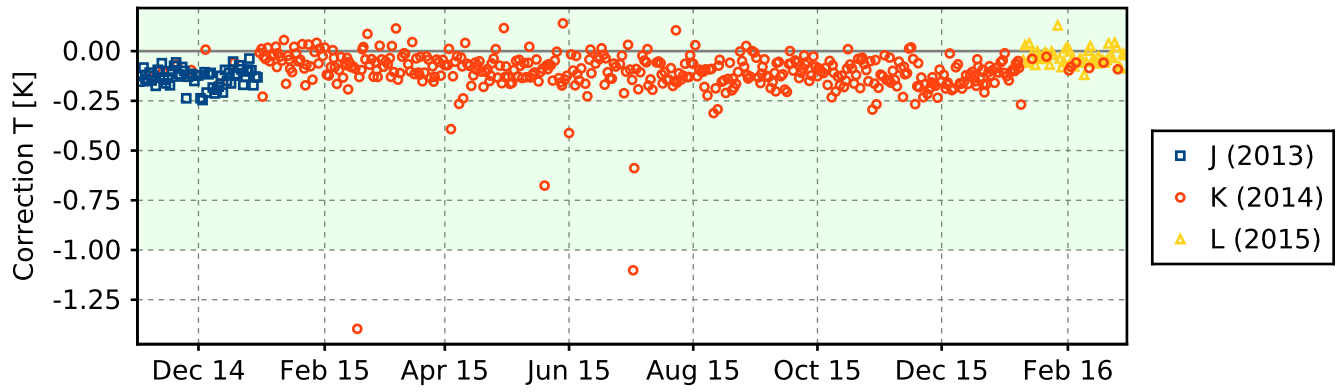
555 RS92

### 3.5 Instrument ground check

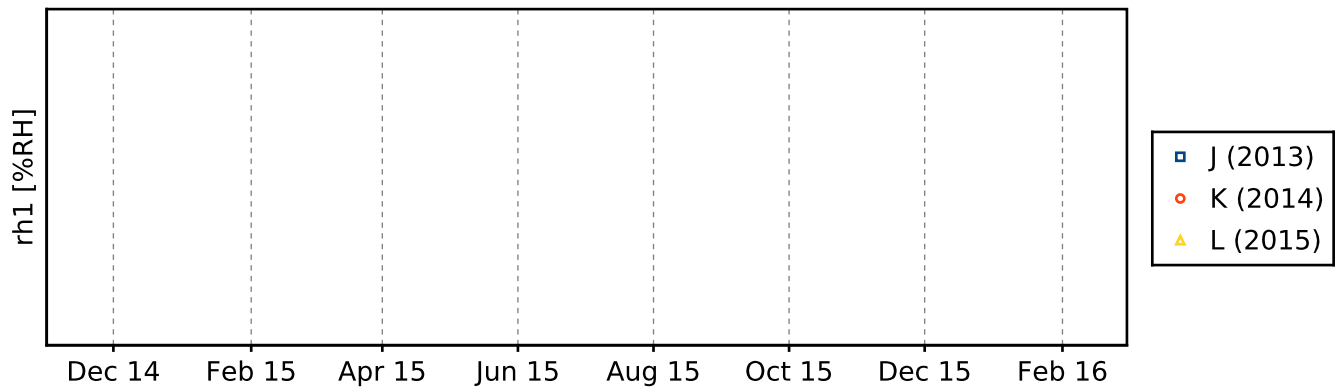
#### 3.5.1 Stream: RS92

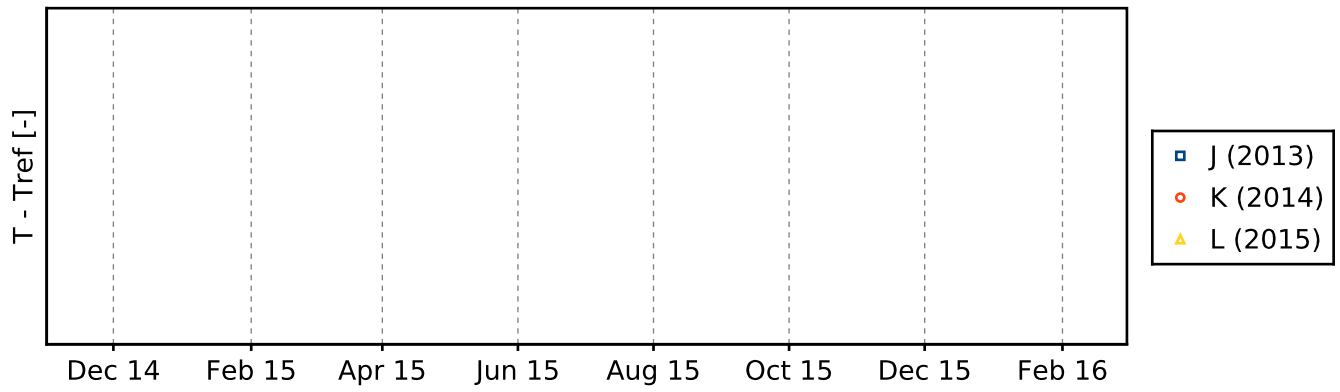
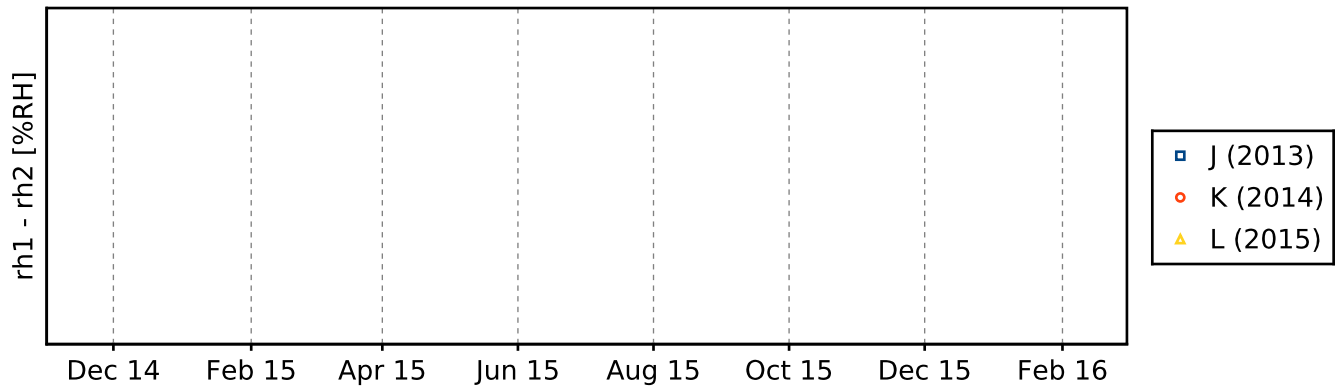
##### 3.5.1.1 GroundCheck: GC25





3.5.1.2 GroundCheck: SHC





### 3.6 Measurement events

#### 3.6.1 Stream: RS92

