



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

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**6th GRUAN Implementation-  
Coordination Meeting (ICM-6)**  
Greenbelt, USA  
10 March – 14 March 2014

Session 6

## GRUAN Station Report for Lauder

*(Submitted by Richard Querel)*

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

Report from the GRUAN station Lauder for the period Feb 2013 to Feb 2014.

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## GRUAN Station Report for Lauder (LAU)

Reporting for the period Feb 2013 to Feb 2014

Date: 28-Feb-2014

Primary author: Richard Querel  
(email: Richard.Querel@niwa.co.nz)

### Overview

Lauder continues to launch ozonesondes (1 per week) and frost-point sondes (1 per month). Our radiosonde program now conforms to GRUAN requirements. All DigiCORA III based ozonesonde flights (Dec.2012 to present) have been uploaded through RsLaunchClient. Frost-point sondes for the same period are also ready for uploading. GNSS data since May 2012 is ready for uploading. All other systems (LIDARs, Microwave radiometers, UV/Vis and UV spectrometers, FTIR, TEI, surface radiation measurements, etc.) are operational and submitting regularly to NDACC, BSRN, WOUDC, TCCON and other partner networks.

### Change and change management

- Dr. Richard Querel (new Measurement Scientist permanent position) has been appointed to manage the ozone measurement program and the UV/vis task of the trace gases measurement program.
- After 1-year of dual-system comparison measurements, our Marwin receiver has been disconnected and we are only recording telemetry with the new Vaisala DigiCORA III sounding system.
- We have introduced a humidity chamber test as a standard procedure in our sonde flights: Dr. Schulz & Partner GmbH: SHC Standard Humidity Chamber for radiosondes (SPRH-100)
- We have installed a Vaisala PTB110 barometer and data logger in the balloon/sonde prep. room.
- Ground check (GC25) and PTU measurements are now being performed in the balloon/sonde preparation room, rather than outside at the Met shed.
- Our standard ozonesonde preparation procedure is being rewritten and updated.
- We are requesting funds to upgrade our ozonizer (current unit from NOAA with Serial # 001!).
- We are also proposing the purchase of an ozone calibration source for testing purposes.
- We have successfully uploaded radiosonde data to GRUAN (through RsLaunchClient).
- Our GNSS-IWV was installed in May 2012. A subset of that data has been locally processed and successfully validated with frost-point sonde IWV data. The GNSS data is ready to send to GRUAN.

### Resourcing

- Lauder's GRUAN operations are partly funded through our Government-funded core research. The core funding for the GRUAN measurements has remained static since the last financial year; no change is anticipated for the coming (2014/2015) FY.
- We receive GRUAN-specific funding from NOAA to support their frost-point hygrometer flights (sondes and consumables supplied by NOAA, staff time from NIWA's ozonesonde program). NOAA funding also supports the alignment of our procedures and test equipment to GRUAN requirements.
- Two new permanent scientist positions have been filled. This will address staffing issues at Lauder as well as begin a generational change-over. Dr. Richard Querel began in November 2013. The second scientist will be starting late-April 2014.

### **Site assessment and certification**

- All requested site-assessment documentation has been submitted. The current year of ozonesonde data (RS92+ECC) has been uploaded to the GRUAN metadata system. Our frost-point sonde data is also ready for upload. We are awaiting further instructions in regards to our GNSS data stream.

### **GRUAN related research**

-No GRUAN-specific publications to report.

### **WG-GRUAN interface**

- Recently (over the past couple of years) we have been experiencing a highly variable background current in our ozonesondes. Having attempted the solutions suggested by other groups, we think it would be beneficial if there were a community mailing list or discussion board where particular problems and issues could be shared and discussed with other sites.

- What is the status of a standardized operating procedure and processing scheme for ozonesondes?

- What is the current state of usage/adoption of the RS41 in our community? Is a changeover from the RS92 planned?

- Is there any plan for a dedicated research-grade radiosonde?

- What is the status of the radiosonde co-location transfer function work being done by GATNDOR?

### **Items for ICM-6 plenary discussions**

- See above in WG-GRUAN interface.

### **Future plans**

- We will continue with our ozonesonde and frost-point sonde measurements. We intend to compare our in-house processed sonde output to the GRUAN products once available. We hope to be given approval to begin uploading our GNSS data.



# GRUAN Station Report for Lauder (LAU), 2013

Reported time range is Nov 2012 to Oct 2013

Created by the Lead Centre

Version from 2014-03-06

## 1 General GRUAN station information

Info	Value
Station name	Lauder
Unique GRUAN ID	LAU
Geographical position	-45.0500 °S, 169.6800 °E, 370.0 m
Operated by	NIWA   National Institute of Water & Atmospheric Research
Main contact	Querel, Richard
WMO no./name	-
Operators	current 4, change +0 / -0
Sounding Site	1
GNSS	1

### 1.1 General information about GRUAN measurement systems

System	Type	Setups	Measurements	As scheduled
LAU-GN-01	GNSS	1	0	0.00 %
LAU-RS-01	Sounding Site	3	37	69.81 %

### 1.2 General comments from Lead Centre

#### 1.2.1 General

In March 2014, the dataflow has started.

Good communications between station and GRUAN LC.

## 2 System: GNSS Site LAUD (LAU-GN-01)

<b>Info</b>	<b>Value</b>
System name	GNSS Site LAUD
Unique GRUAN ID	LAU-GN-01
System type	GNSS (GN - GNSS)
Geographical position	-45.0380 °S, 169.6840 °E, n m
Operated by	NIWA   National Institute of Water & Atmospheric Research
Instrument contact	Querel, Richard
Started at	2012-05-01
Defined setups	1 (HOURLY)
Possible streams	-

### 2.1 Lead Centre comments

#### 2.1.1 Dataflow

Measurements are recorded at station since May 2012. Dataflow of GNSS data to GRUAN LC can be started in April 2014.

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

Info	Value
System name	Radiosonde Launch Site
Unique GRUAN ID	LAU-RS-01
System type	Sounding Site (RS - Radiosonde)
Geographical position	-45.0500 °S, 169.6800 °E, 370.0 m
Operated by	NIWA   National Institute of Water & Atmospheric Research
Instrument contact	Querel, Richard
Started at	-
Defined setups	3 (OZONE, FPH-OZONE, RS-ONLY)
Possible streams	ECC, FPH, IMET1, RS92

#### 3.1 Lead Centre comments

##### 3.1.1 Dataflow

Sonde dataflow to the GRUAN LC running since March 2014 (including full year 2013). Currently this dataflow includes streams of the Vaisala RS92-SGP and an ECC Ozone sonde. All launches are recorded using the RsLaunchClient.

##### 3.1.2 Data quality

GC25 ground check corrections are largely within expected limits.

The use of a manufacturers independent ground check is highly recommended.

##### 3.1.3 General

Ozone soundings are launched weekly. Research soundings using FPH, ECC, iMet-1, and Vaisala RS92 are launched approximately once per month.

#### 3.2 GRUAN data products

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

ECC		37	37	
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##### 3.2.2 Stream: RS92

RS92		37	37	
RS92-RAW	001		37	
RS92-GDP	002		37	26

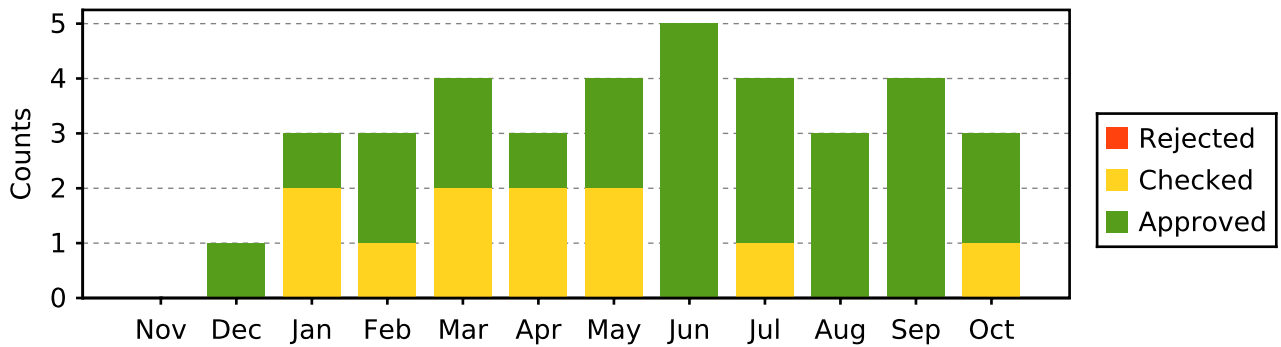
#### 3.3 Data quality of current GRUAN data products

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

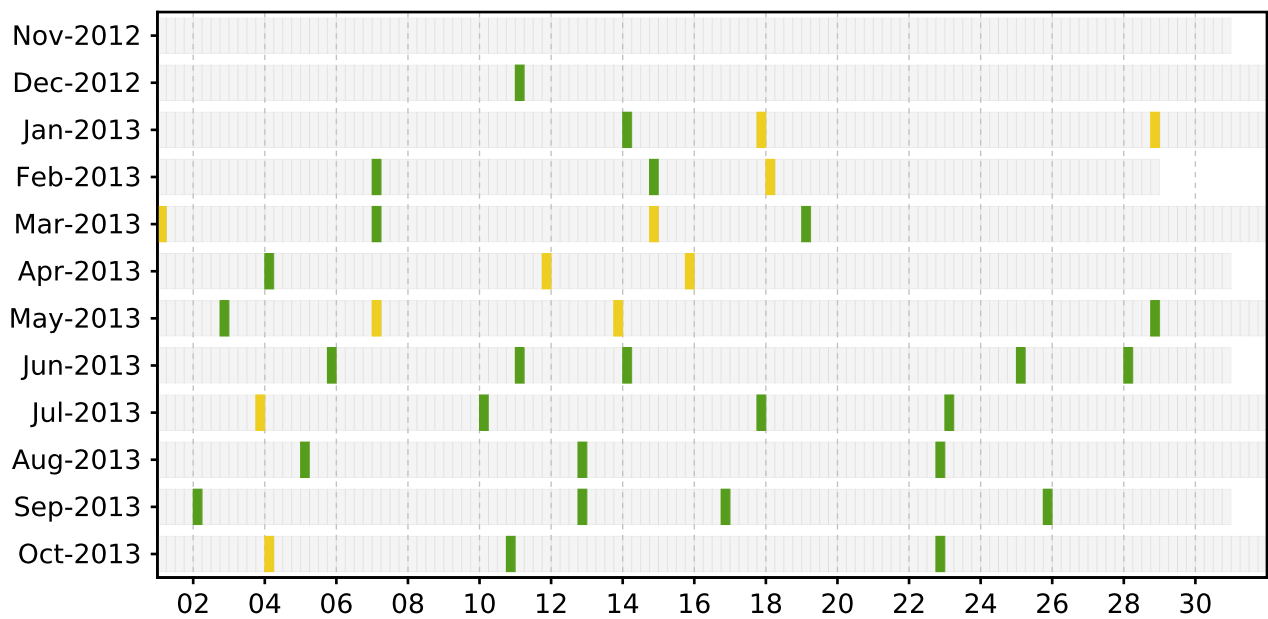
##### 3.3.1 Stream: RS92 (Product: RS92-GDP-002)

Month	Count	GRUAN Data Quality			Issues				
		Approved	Checked	Rejected	Meta-data	Process.	Press	Temp	RH
Nov 12									
Dec 12	1	1							
Jan 13	3	1	2				1		2
Feb 13	3	2	1						1
Mar 13	4	2	2						2
Apr 13	3	1	2						2
May 13	4	2	2						2
Jun 13	5	5							1
Jul 13	4	3	1						1
Aug 13	3	3							
Sep 13	4	4							
Oct 13	3	2	1						1
	<b>37</b>	<b>26</b>	<b>11</b>				<b>1</b>		<b>12</b>

Data quality statistic of stream RS92



Schedule data quality of stream RS92



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

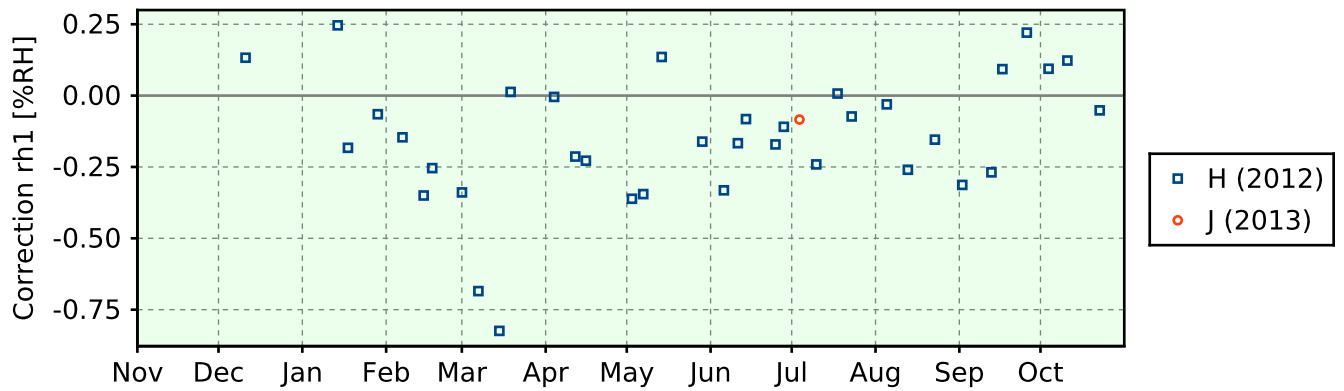
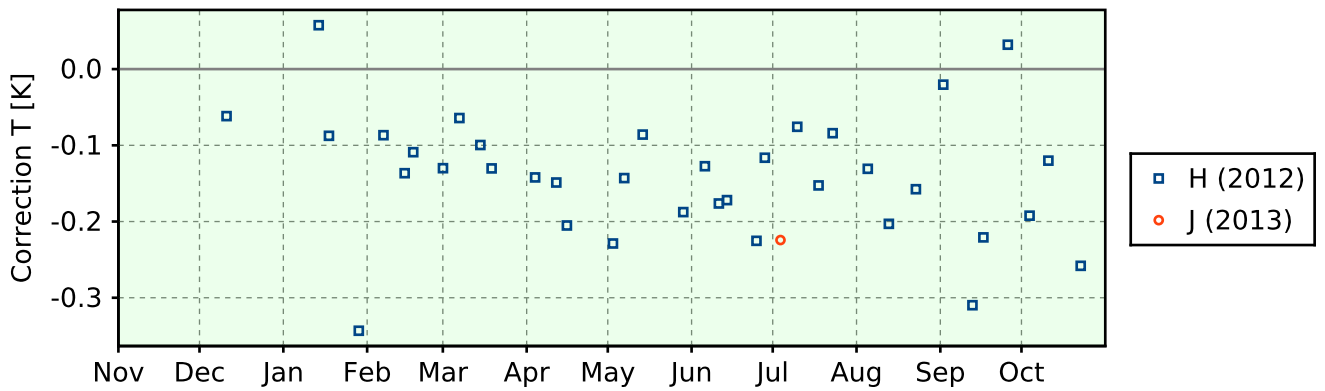
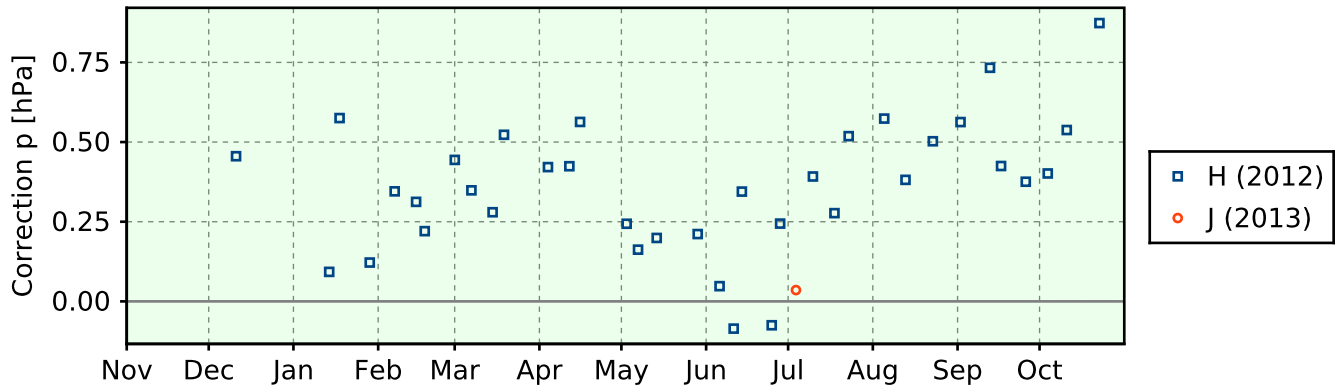


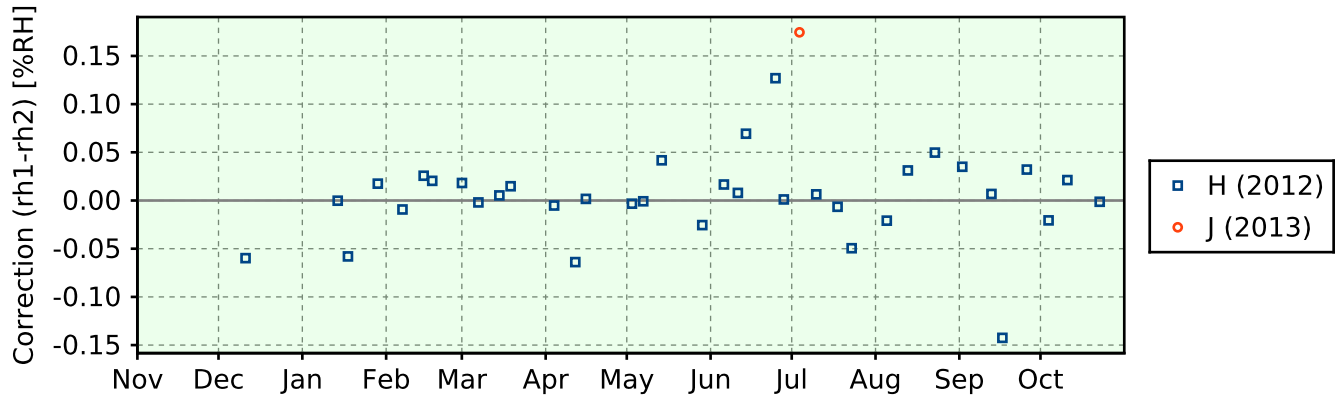
Count	Instrument combination
37	ECC, RS92

### 3.5 Instrument ground check

#### 3.5.1 Stream: RS92

##### 3.5.1.1 GroundCheck: GC25





3.5.1.2 GroundCheck: SHC

