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GLOBAL CLIMATE OBSERVING SYSTEM (GCOS)

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Matera, Italy
23 February – 27 February 2015

Session 8

GRUAN Station Report for Lauder

(Submitted by Richard Querel)

Summary and Purpose of Document

Report from the GRUAN station Lauder for the period Mar 2014 to Jan 2015.

GRUAN Station Report for Lauder, New Zealand (LAU)

Reporting for the period Mar 2014 to Jan 2015
Date: 13-Jan-2015
Primary author: Richard Querel
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Overview

Lauder has received its official GRUAN certification for its RS92 measurement program. Lauder continues to launch ozonesondes (1 per week) and frost-point sondes (1 per month). GNSS data uploads to GRUAN have begun. 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

Our principal sonde technician resigned June 2014 (after 10 years of service). A replacement technician started in October 2014. He has been trained on ozonesonde and frost-point sonde preparation and handling and data processing methods.

A new Ozonizer (ozonesonde conditioning and test unit) from DMT has been used since November 2014. Modestly lower ozonesonde background levels have been observed.

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 (2015/2016) 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 standards and requirements.

Site assessment and certification

In November 2014, Lauder received its official GRUAN certification for the RS-92 measurement program.

GRUAN related research

A PhD studentship funded by the German Academic Exchange Service (DAAD) will involve the creation of Site Atmospheric State Best Estimates (SASBE) of temperature, ozone and humidity profiles above the Lauder site using Lauder and GRUAN data. The student will be supervised by

Peter Builtjes (Freie Universitaet Berlin), Greg Bodeker (Bodeker Scientific) and Richard Querel (NIWA).

WG-GRUAN interface

- What is the status of ozonesonde data homogenization across the GRUAN 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?
- What is the status of the radiosonde co-location transfer function work?

Items for ICM-7 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 ozonesonde output to the GRUAN products once available. We have uploaded one-day of GNSS data and the associated meta-data site log files to GRUAN as a test case and hope to begin the automatic uploading soon.

GRUAN Station Report for Lauder (LAU), 2014

Reported time range is Nov 2013 to Oct 2014
Created by the Lead Centre
Version from 2015-02-18

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 +2 / -1
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	47	88.68 %

1.2 General comments from Lead Centre

1.2.1 General

In March 2014, the dataflow has started.

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

Info	Value
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 is expected to start soon.

No operational GNSS dataflow to GRUAN LC as yet.

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

Data to the GRUAN LC are flowing since February 2014. This dataflow includes data from the Vaisala RS92-SGP, ECC ozone sonde, FPH water vapour, and Intermet IMET-1. All launches are transmitted using RsLaunchClient.

No GRUAN data product has yet been established for the frostpoint hygrometer data.

3.1.2 Data quality

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

GC25 ground check corrections are within expected limits.

An additional ground check in the SHC (Standard Humidity Chamber) is not performed (or not recorded in meta-data).

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
3.2.1 Stream: ECC				
ECC		47	47	
3.2.2 Stream: FPH				
FPH		9	9	
3.2.3 Stream: IMET1				
IMET1		9	9	
3.2.4 Stream: RS92				
RS92		47	47	

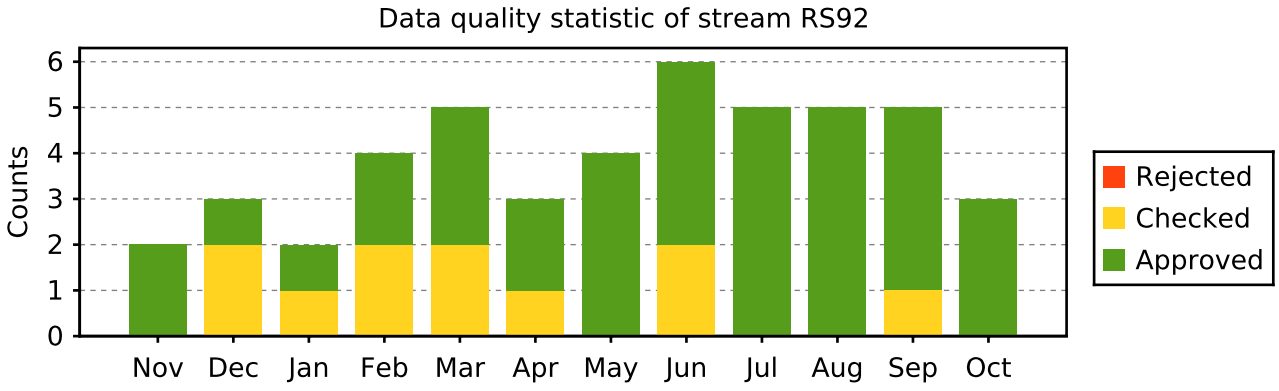
Product	Version	Soundings received	Available at LC	Distributed by NCDC
RS92-RAW	001		47	
RS92-GDP	002		47	36

3.3 Data quality of current GRUAN data products

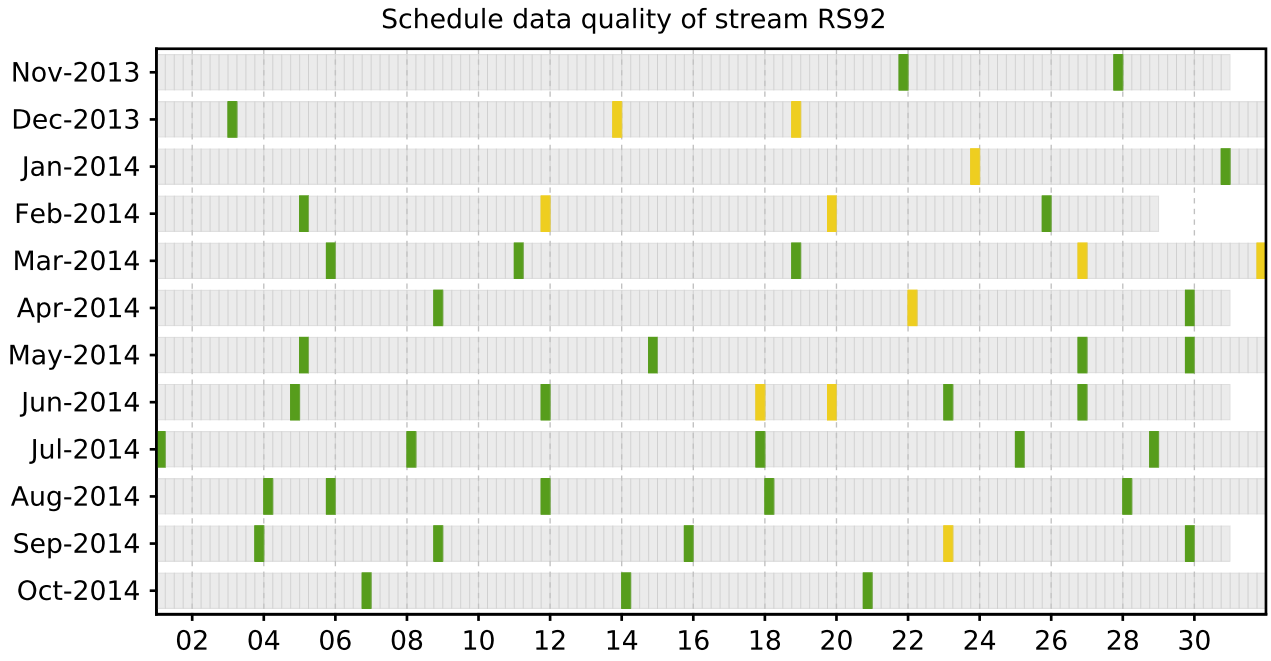
Month	Count	GRUAN Data Quality			Issues				
		Approved	Checked	Rejected	Meta-data	Process.	Press	Temp	RH

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

Nov 13	2	2							
Dec 13	3	1	2						2
Jan 14	2	1	1				1		1
Feb 14	4	2	2				1		1
Mar 14	5	3	2				1		2
Apr 14	3	2	1						1
May 14	4	4							
Jun 14	6	4	2						3
Jul 14	5	5							1
Aug 14	5	5							
Sep 14	5	4	1				1		1
Oct 14	3	3							
	47	**36**	**11**				**4**		**12**



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



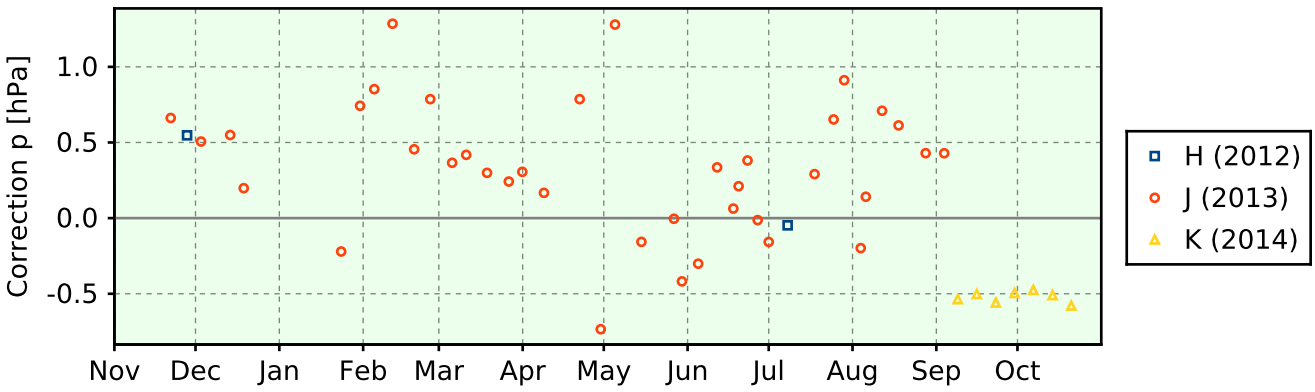
3.4 Instrument combinations of LAU-RS-01

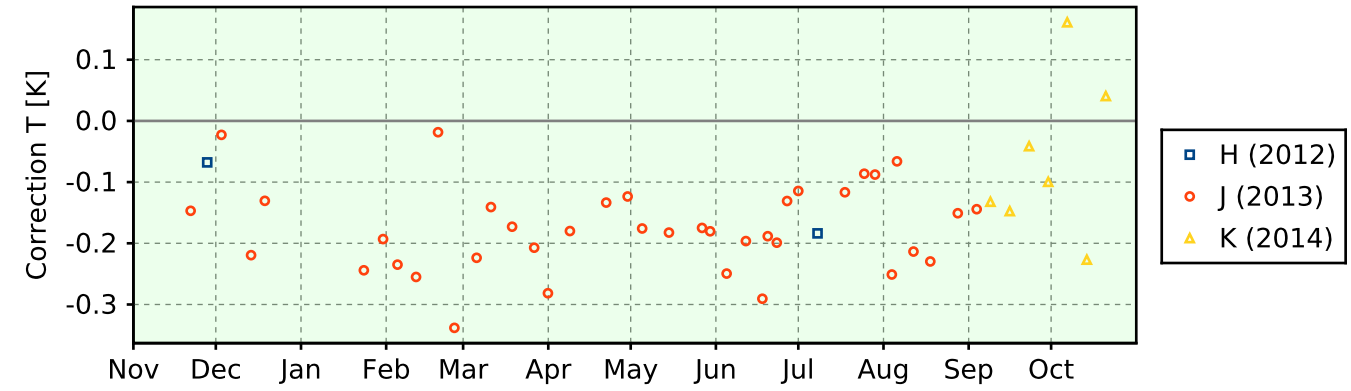
Count	Instrument combination
9	ECC, FPH, IMET1, RS92
38	ECC, RS92

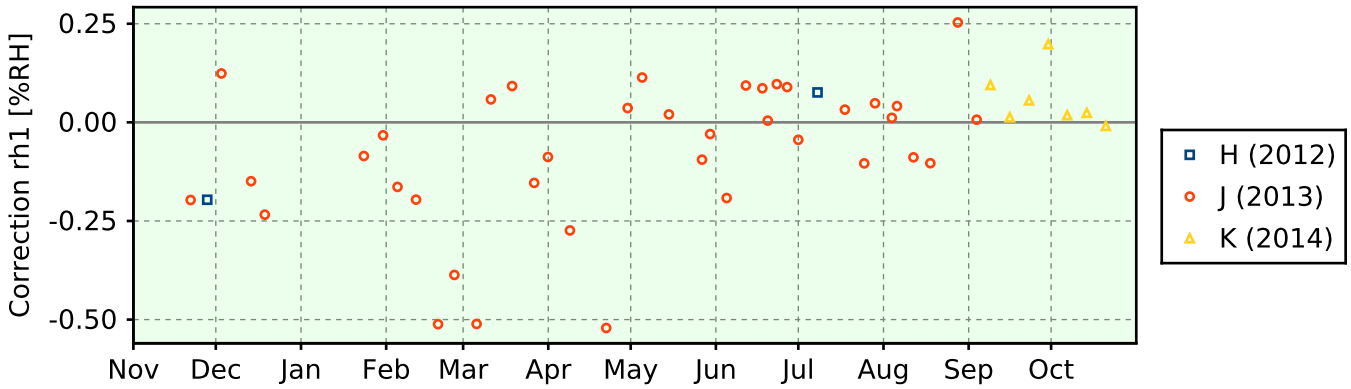
3.5 Instrument ground check

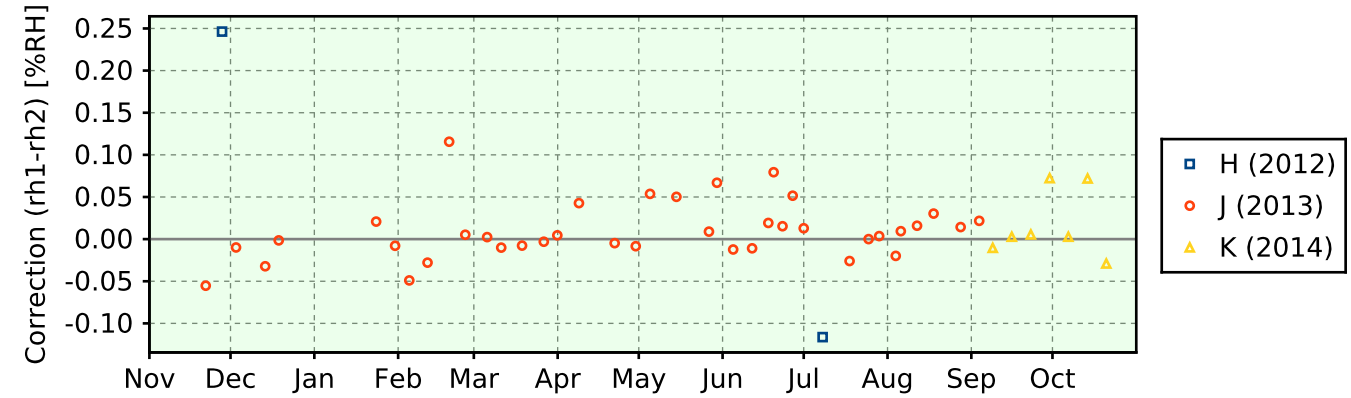
3.5.1 Stream: RS92

3.5.1.1 GroundCheck: GC25

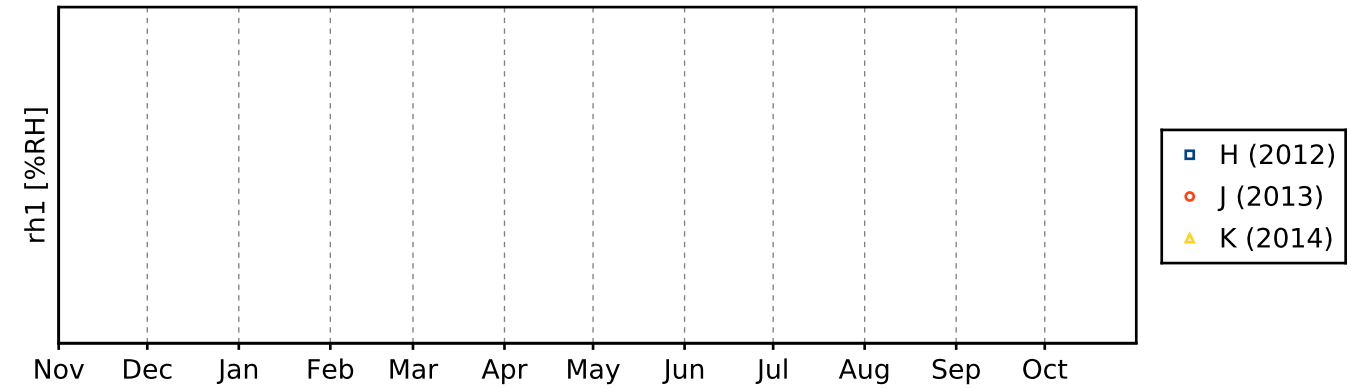


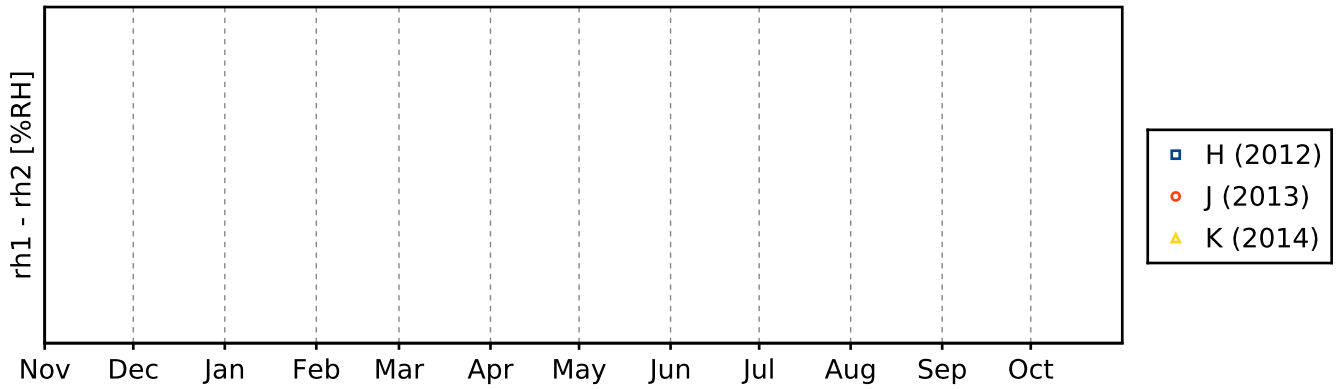


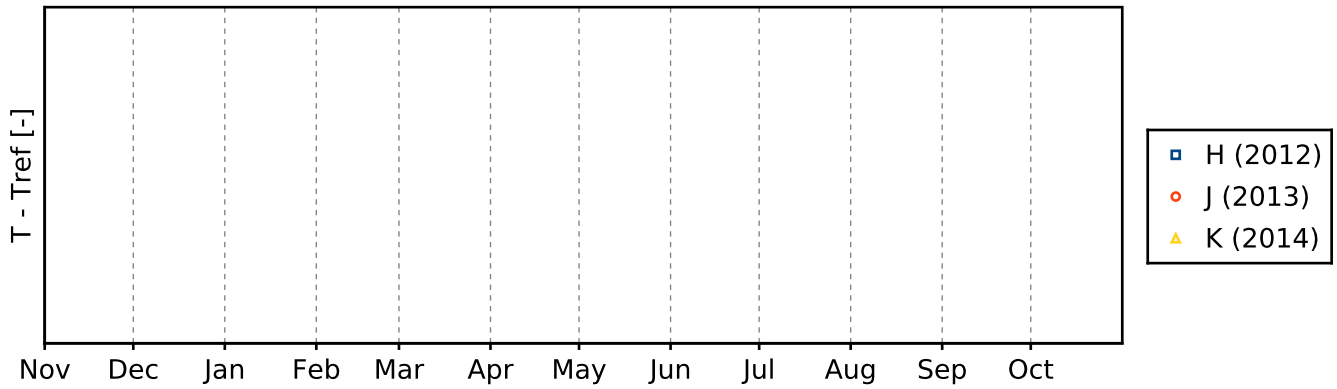




3.5.1.2 GroundCheck: SHC







3.6 Measurement events

3.6.1 Stream: RS92