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

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8th GRUAN Implementation-Coordination Meeting (ICM-8)
Boulder, USA
25 April – 29 April 2016

Session 7

GRUAN Station Report for Lamont (SGP)

(Submitted by Donna Holdridge)

Summary and Purpose of Document

Report from the GRUAN station Lamont (SGP) for the period March 2015 to March 2016.

GRUAN Station Report for Lamont (SGP)

Reporting for the period Mar 2015 to Mar 2016
Date: 14-Apr-16
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Overview
ARM SGP site in Lamont, Oklahoma currently supplies radiosonde data from operational launches which occur four times daily. The site also launches weekly radiosondes to support the NPOESS/NPP Satellite Overpass Verification (https://www.arm.gov/campaigns/sgp2012npoess).

CFH launches take place at the SGP site on a monthly basis.

Change and change management
In June 2014 we implemented the use of a Vaisala MAWS to automatically supply surface meteorological values to the DigiCORA during launch. This was done to standardize our measurements between sites and to help eliminate observer error.

In 2017 we hope to implement the new MW41 software across all ARM sites. We will continue to use RS92 rasdiosondes until they are no longer available. We are putting in a request (possibly with GRUAN coordination) to perform weekly dual launches of RS92/RS41 sondes for a 12 month period.

Resourcing
As a US-DOE User Facility, we are restrained by government budgetary limitations. We must have our requests for new equipment and supplies scrutinized before approval.

Site assessment and certification
Possibly 2017.

GRUAN-related research
N/A

WG-GRUAN interface
We may like to coordinate with GRUAN to request the year-long dual RS92/RS41 launches as an official IOP so it will be funded from a different monetary pool.

Items for ICM-8 plenary discussions
RS41 change management suggestions.

Future plans
We are considering switching our balloon size to 600g to increase our burst altitude. We are also considering purchase of a SHC and implementing this in our launch procedures.

GRUAN Station Report for Lamont (SGP), 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	Lamont
Unique GRUAN ID	SGP
Geographical position	36.6000 °N, -97.4900 °W, 320.0 m
Operated by	ARM | US DOE Atmospheric Radiation Measurement (ARM) Program
Main contact	Sisterson, Doug
WMO no./name	74646 LAMONT
Operators	current 1, change +0 / -0
Sounding Site	1
GNSS	1

1.1 General information about GRUAN measurement systems

System	Type	Setups	Measurements	As scheduled
SGP-GN-01	GNSS	0	0	not scheduled
SGP-RS-01	Sounding Site	3	2345	120.63 %

1.2 General comments from Lead Centre

1.2.1 General

ARM site.

It is strongly recommended to use a manufacturer independent ground check (e.g. SHC) for the Vaisala radiosonde.

ARM is using an automated routine to transmit data and raw data. ARM is requested to inform the Lead Centre of all upcoming changes of the equipment, launch schedule or procedures which are required to update the metadata database.

1.2.2 GTS

This site regularly sends PTU measurements in the GTS (FM35 format, 4 times per day).

Added high-resolution BUFR upper air messages in January 2016.

2 System: GNSS Site SG01 (SGP-GN-01)

Info	Value
System name	GNSS Site SG01
Unique GRUAN ID	SGP-GN-01
System type	GNSS (GN - GNSS)
Geographical position	36.6041 °N, -97.4848 °W, 290.0 m
Operated by	ARM | US DOE Atmospheric Radiation Measurement (ARM) Program
Instrument contact	Sisterson, Doug
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: Balloon-Borne Sounding System (SONDE) (SGP-RS-01)

Info	Value
System name	Balloon-Borne Sounding System (SONDE)
Unique GRUAN ID	SGP-RS-01
System type	Sounding Site (RS - Radiosonde)
Geographical position	36.6100 °N, -97.4900 °W, 315.0 m
Operated by	ARM | US DOE Atmospheric Radiation Measurement (ARM) Program
Instrument contact	Sisterson, Doug
Started at	-
Defined setups	3 (ROUTINE, DUAL, CFH)
Possible streams	CFH, RS41, RS92

3.1 Lead Centre comments

3.1.1 Dataflow

Dataflow is running fully automated from the ARM Archive to the GRUAN LC. Launch metadata are not checked manually. 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. (This comment applies to all ARM sites in GRUAN.)

Additional launches from the 'ARM Radiosondes for NPOESS/NPP Validation' field campaign are included in the dataflow.

3.1.2 Data quality

Data processing issues (corrupt files or unknown issues) are occured at approx. 10 percent of measurements. A closer look is necessary at Lead Centre.

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

GC25 ground check corrections of pressure are NOT as expected. The ground check correction does not appear to use a reference pressure sensor, and the mean pressure correction is 0.00 ±0.15 hPa. A dedicated reference pressure sensor should be used to recalibrate the RS92 pressure sensor.

The use of a manufacturer independent ground check (e.g. SHC) is highly recommended.

3.1.3 General

An intensive campaign was held in summer 2015 (June till August) with 4 to 15 soundings per day.

ARM added a dedicated Vaisala MAWS in July 2014 to standardize and automate the surface meteorological measurements.

3.2 GRUAN data products

Product	Version	Soundings received	Available at LC	Distributed by NCDC

Product	Version	Soundings received	Available at LC	Distributed by NCDC

3.2.1 Stream: RS92

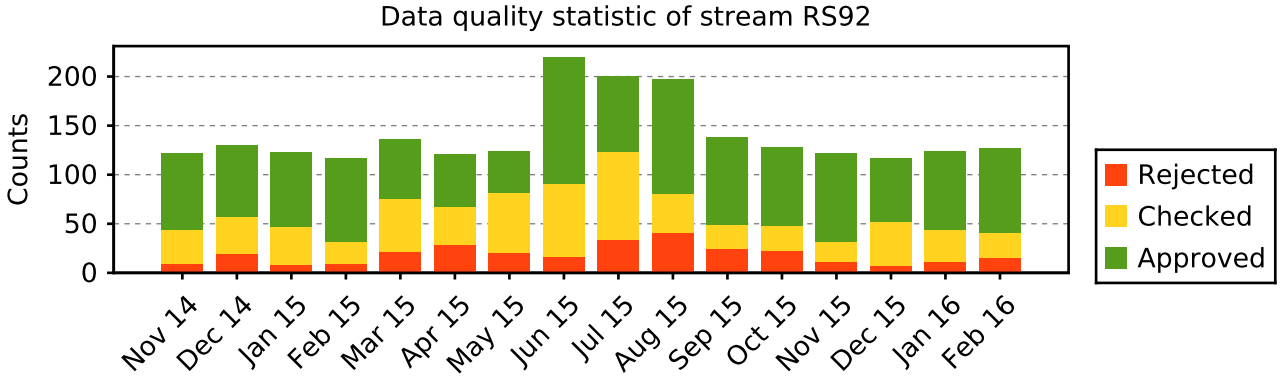
RS92		2345	2345	
RS92-RAW	001		2246	
RS92-GDP	002		1947	1281

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	122	78	35	9			10	2	36
Dec 14	130	73	37	20			20	7	36
Jan 15	123	76	39	8			12		37
Feb 15	117	85	23	9			11	2	26
Mar 15	136	61	53	22			26	2	53
Apr 15	121	53	39	29			15		48
May 15	124	42	62	20			9	1	67
Jun 15	220	129	75	16			11	2	77
Jul 15	200	77	89	34			19	3	103
Aug 15	197	117	39	41			39	3	38
Sep 15	138	89	24	25			24	2	34
Oct 15	128	80	26	22			21	2	23
Nov 15	122	90	21	11			10		18
Dec 15	117	65	45	7			5	1	47
Jan 16	124	80	33	11			12		34
Feb 16	127	86	26	15			7	2	29
	2246	**1281**	**666**	**299**			**251**	**29**	**706**



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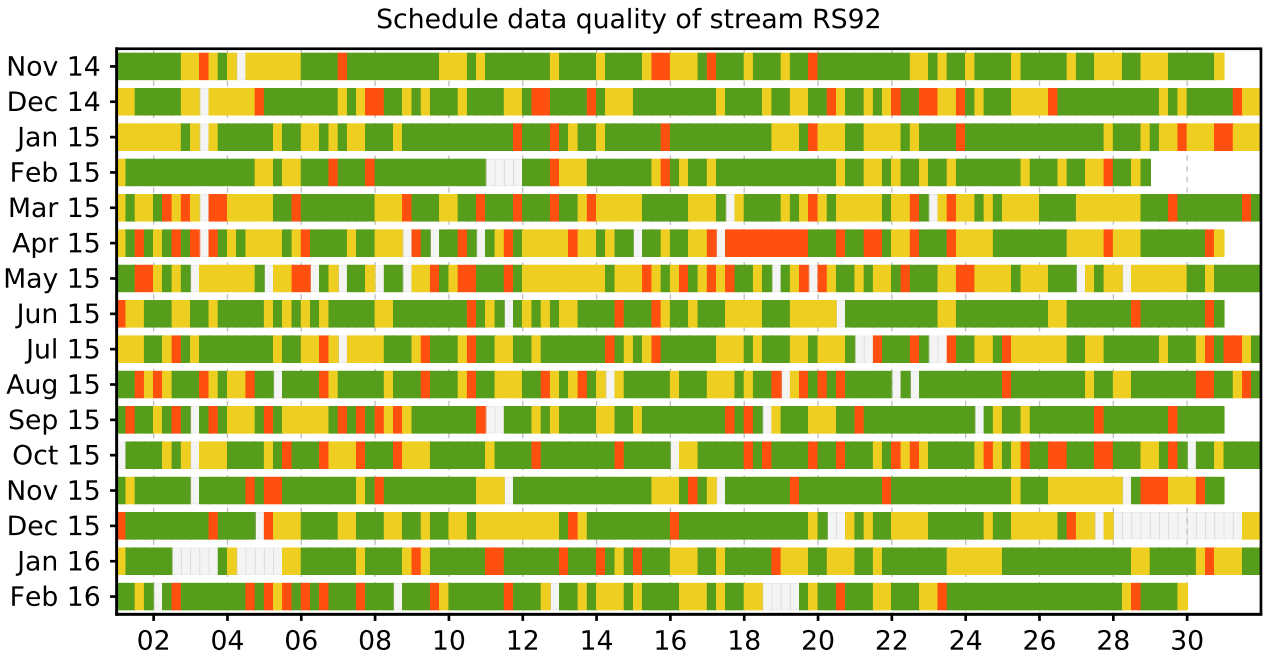


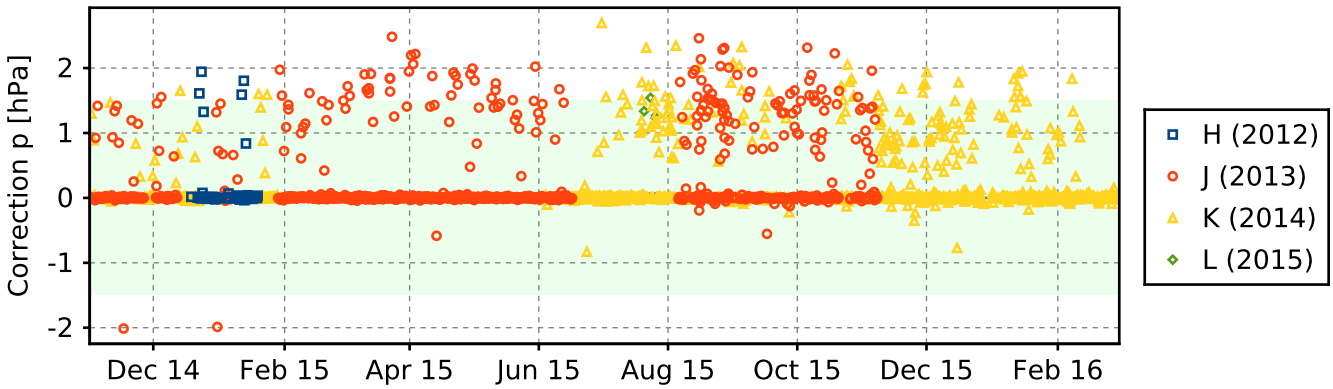
3.4 Instrument combinations of SGP-RS-01

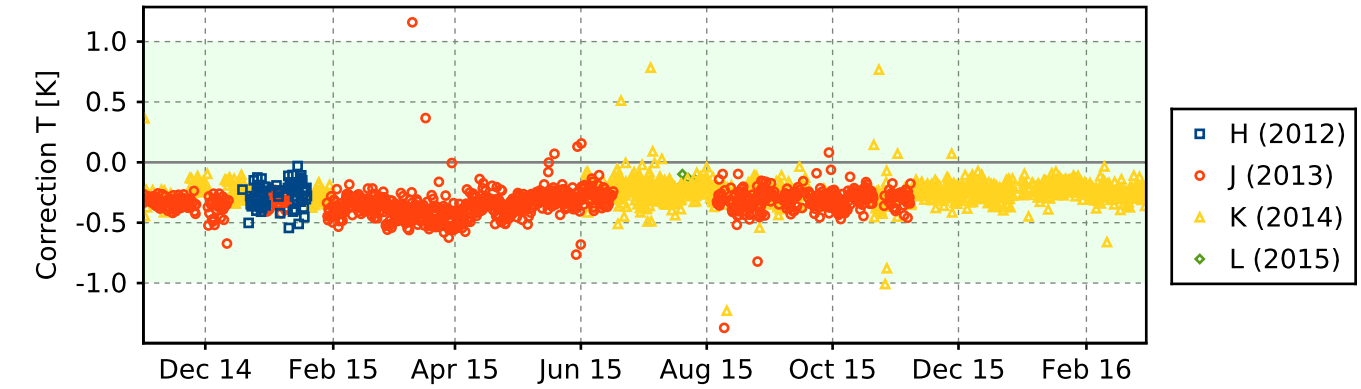
Count	Instrument combination
2345	RS92

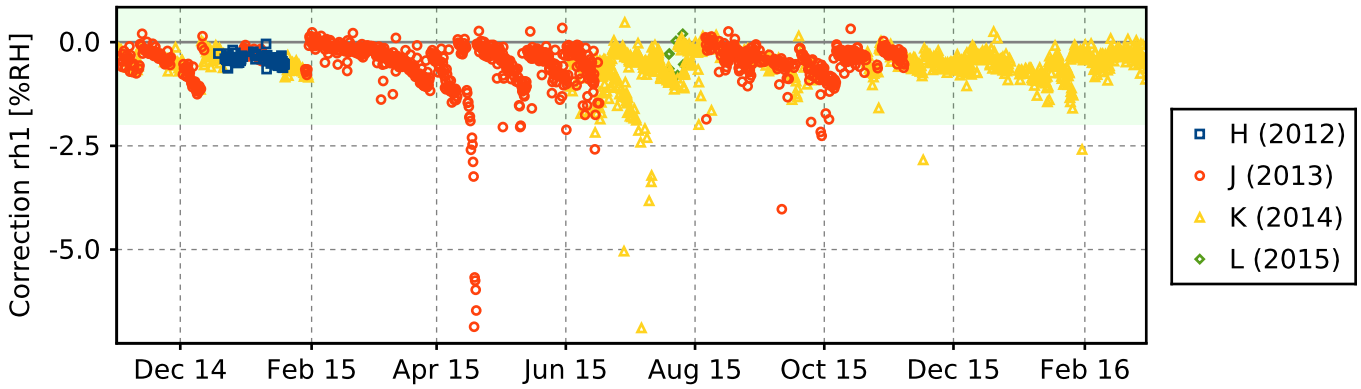
3.5 Instrument ground check

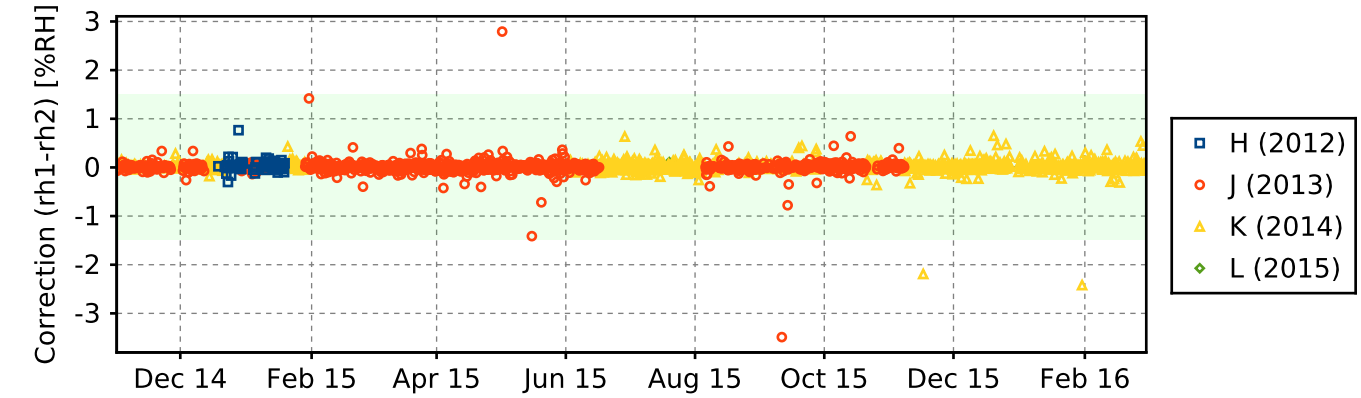
3.5.1 Stream: RS92

3.5.1.1 GroundCheck: GC25

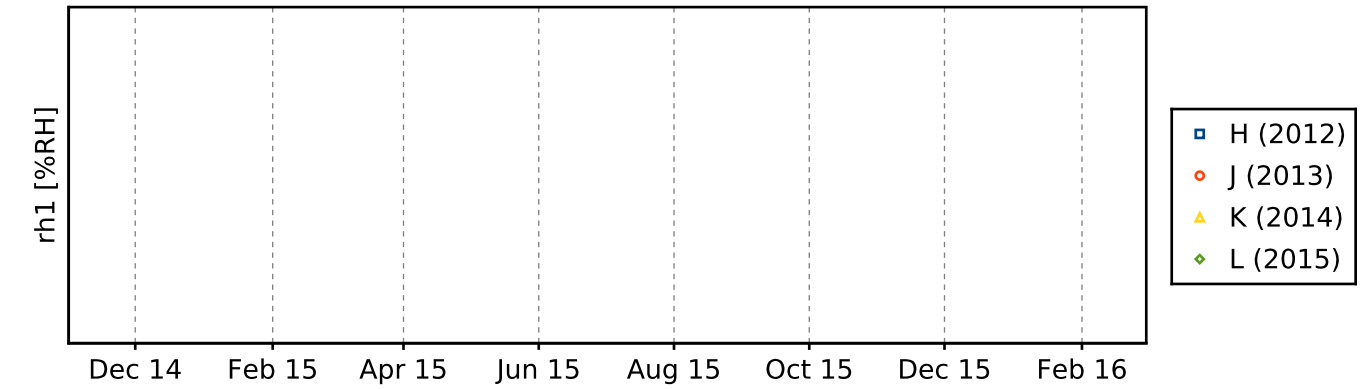


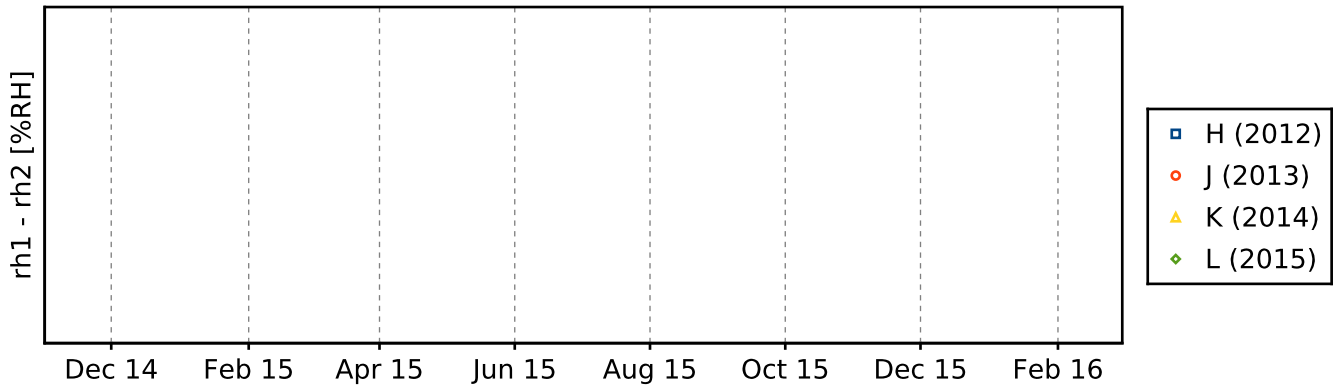


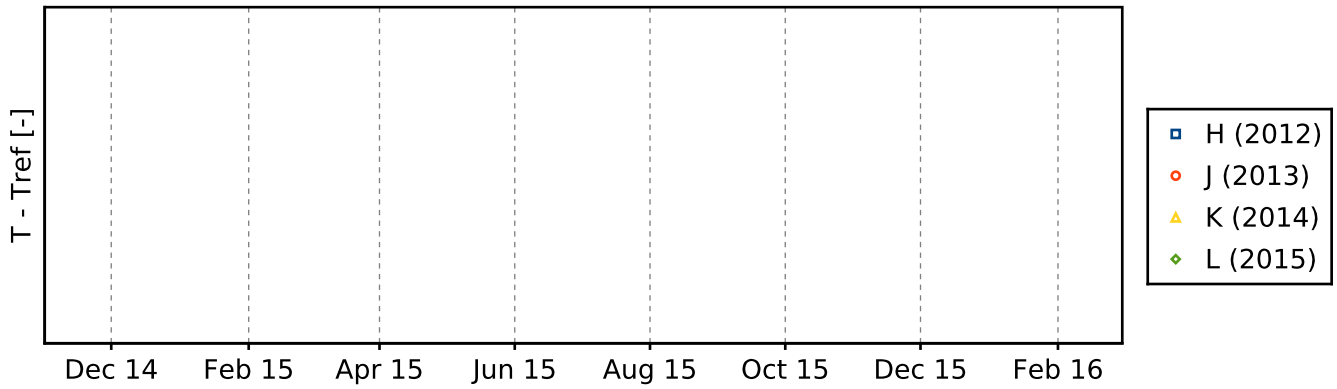




3.5.1.2 GroundCheck: SHC







3.6 Measurement events

3.6.1 Stream: RS92