



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

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(14.IV.2016)

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

Session 7

Boulder, USA

25 April – 29 April 2016

GRUAN Station Report for Barrow

(Submitted by Donna Holdridge)

Summary and Purpose of Document

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



GRUAN Station Report for Barrow (BAR)

Reporting for the period Mar 2015 to Mar 2016

Date: 14-Apr-16

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Overview

ARM SGP site in Barrow, Alaska currently supplies radiosonde data from operational launches which occur two times daily. The site also launches weekly radiosondes to support the NPOESS/NPP Satellite Overpass Verification (<https://www.arm.gov/campaigns/sgp2012npoess>).

Change and change management

In 2017 we hope to implement the new MW41 software across all ARM sites. We will continue to use RS92 radiosondes until they are no longer available.

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

TBD

GRUAN-related research

N/A

WG-GRUAN interface

N/A

Items for ICM-8 plenary discussions

RS41 change management suggestions.

Future plans

We are considering switching our balloon size to 600 g to increase our burst altitude. We cannot implement the use of a SHC due to Autosonde operation.



GRUAN Station Report for Barrow (BAR), 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	Barrow
Unique GRUAN ID	BAR
Geographical position	71.3233 °N, -156.6158 °W, 8.0 m
Operated by	ARM US DOE Atmospheric Radiation Measurement (ARM) Program
Main contact	Sisterson, Doug
WMO no./name	70027 BARROW/POINT BARROW
Operators	current 0, change +0 / -0
Sounding Site	2
GNSS	1

1.1 General information about GRUAN measurement systems

System	Type	Setups	Measurements	As scheduled
BAR-GN-01	GNSS	0	0	not scheduled
BAR-RS-01	Sounding Site	1	0	0.00 %
BAR-RS-02	Sounding Site	1	1073	110.39 %

1.2 General comments from Lead Centre

1.2.1 General

ARM site.

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

It is strongly recommended that the site uses a manufacturer independent ground check, e.g. SHC, for the RS92 radiosonde.

1.2.2 GTS

This site regularly sends PTU measurements in the GTS (FM35 format, 2 times per day).

2 System: GNSS Site SG27 (BAR-GN-01)

Info	Value
System name	GNSS Site SG27
Unique GRUAN ID	BAR-GN-01
System type	GNSS (GN - GNSS)
Geographical position	71.3229 °N, -156.6103 °W, 7.5 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) (BAR-RS-01)

Info	Value
System name	Balloon-Borne Sounding System (SONDE)
Unique GRUAN ID	BAR-RS-01
System type	Sounding Site (RS - Radiosonde)
Geographical position	71.3233 °N, -156.6158 °W, 8.0 m
Operated by	ARM US DOE Atmospheric Radiation Measurement (ARM) Program
Instrument contact	Sisterson, Doug
Started at	-
Defined setups	1 (ROUTINE)
Possible streams	RS92

3.1 Lead Centre comments

3.1.1 General

Manual launch site until February 2012.

This system is used mainly for NPOESS/NPP satellite validation launches and for backup if there is an Autosonde failure.

The facility code is S01.

4 System: Balloon-Borne Sounding System (SONDE) (BAR-RS-02)

Info	Value
System name	Balloon-Borne Sounding System (SONDE)
Unique GRUAN ID	BAR-RS-02
System type	Sounding Site (RS - Radiosonde)
Geographical position	71.3233 °N, -156.6158 °W, 8.0 m
Operated by	ARM US DOE Atmospheric Radiation Measurement (ARM) Program
Instrument contact	Sisterson, Doug
Started at	2012-02-08
Defined setups	1 (AUTO1)
Possible streams	RS92

4.1 Lead Centre comments

4.1.1 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.

4.1.2 Data quality

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

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

Most GC25 ground check corrections are within expected limits. Occasionally the pressure corrections are outside the expected limits (± 1.5 hPa).

4.1.3 General

Auto-launcher since February 2012.

There was an onsite maintenance and repair visit by Vaisala technicians on July 6-10, 2015. At this time, repairs were made to the gas flow system to correct failing parts. This repair stabilized our flow control allowing us to maintain balloon fill volumes and ascent rates. MAWS and GC25 temperature sensors were swapped out with newly calibrated sensors.

4.2 GRUAN data products

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

RS92		1073	1073	
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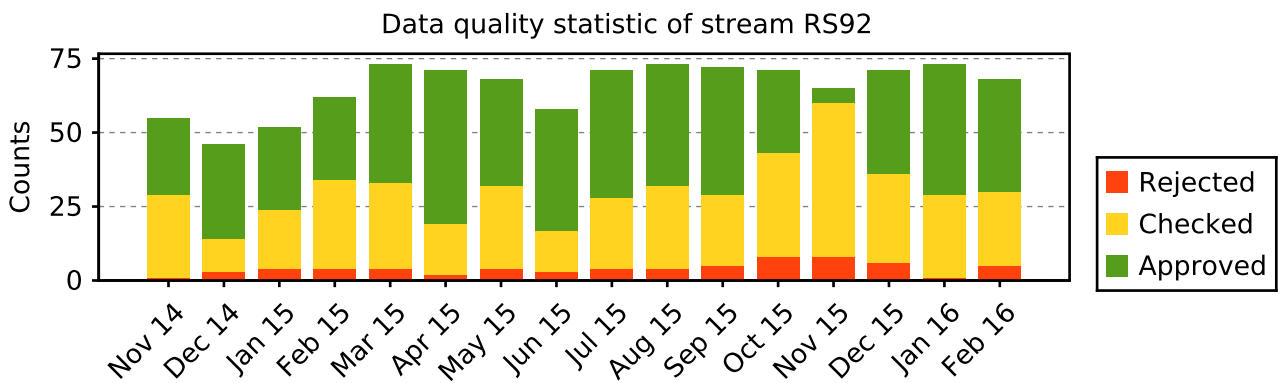
Product	Version	Soundings received	Available at LC	Distributed by NCDC
RS92-RAW	001		1049	
RS92-GDP	002		983	560

4.3 Data quality of current GRUAN data products

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

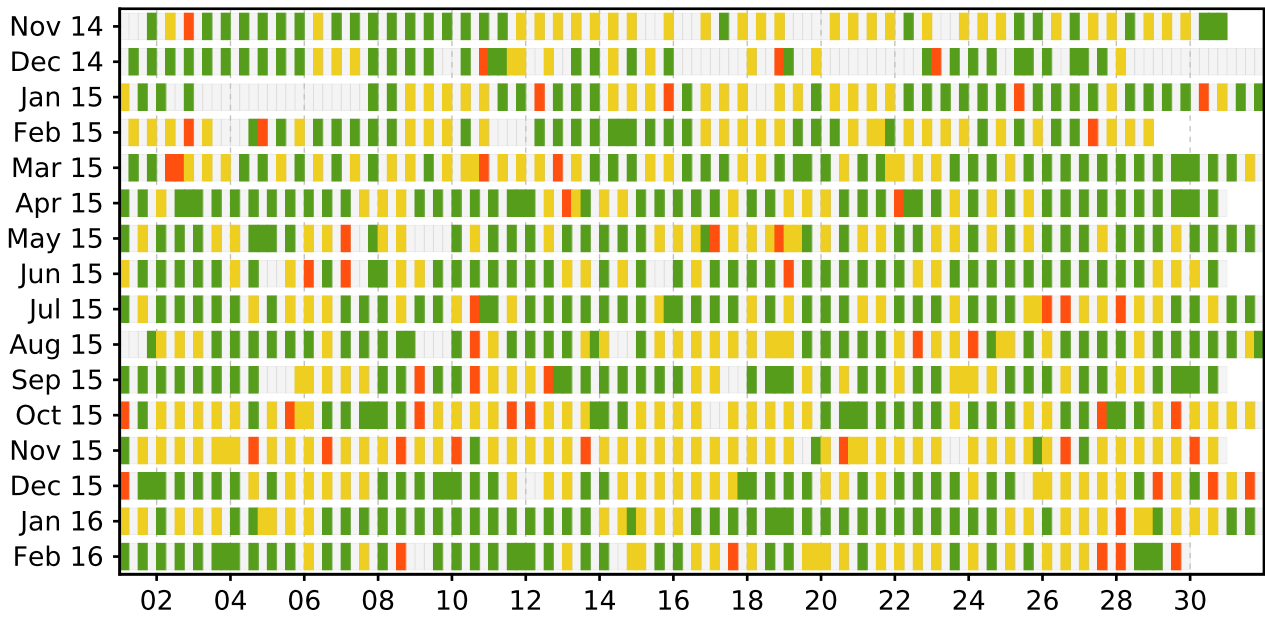
4.3.1 Stream: RS92 (Product: RS92-GDP-002)

Nov 14	55	26	28	1				2		29
Dec 14	46	32	11	3				6		11
Jan 15	52	28	20	4				5		18
Feb 15	62	28	30	4				8	1	28
Mar 15	73	40	29	4				5		29
Apr 15	71	52	17	2						17
May 15	68	36	28	4				2		28
Jun 15	58	41	14	3				7		14
Jul 15	71	43	24	4				5		24
Aug 15	73	41	28	4				4		32
Sep 15	72	43	24	5				4		24
Oct 15	71	28	35	8				10		33
Nov 15	65	5	52	8				9		53
Dec 15	71	35	30	6				11		26
Jan 16	73	44	28	1				1		28
Feb 16	68	38	25	5				8		23
	1049	560	423	66				87	1	417



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

Schedule data quality of stream RS92



4.4 Instrument combinations of BAR-RS-02

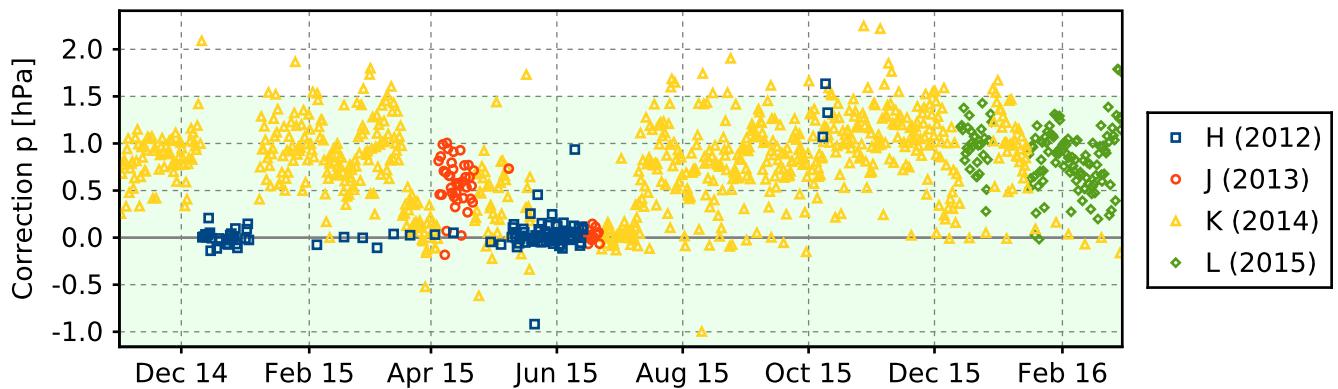
Count Instrument combination

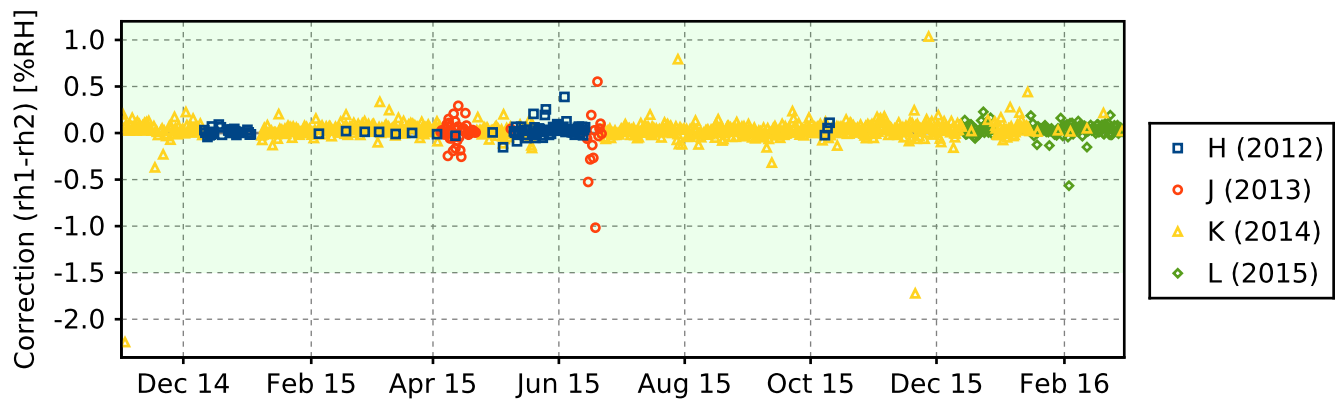
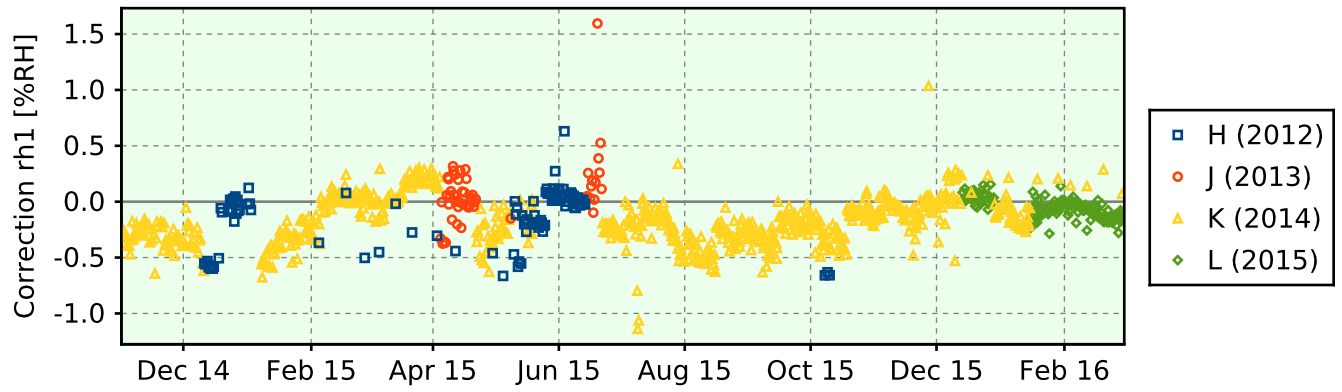
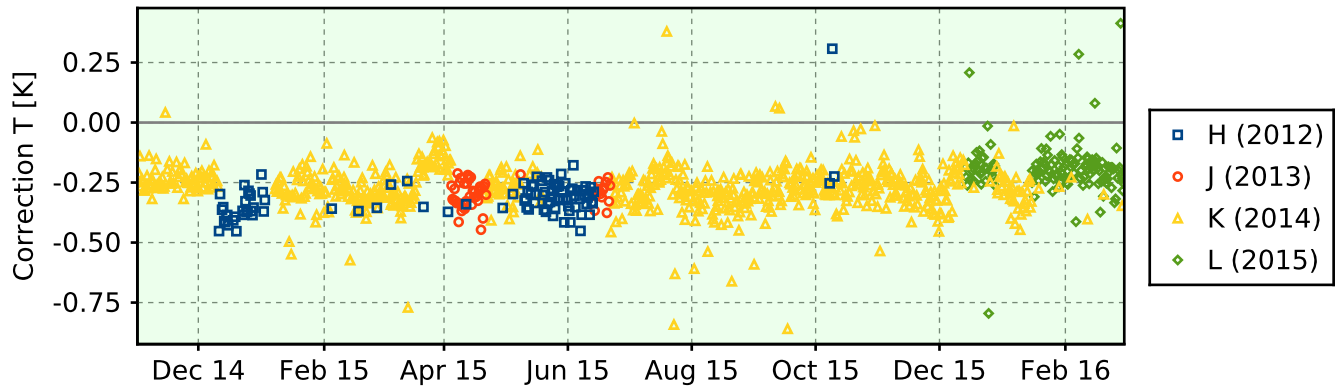
1073 RS92

4.5 Instrument ground check

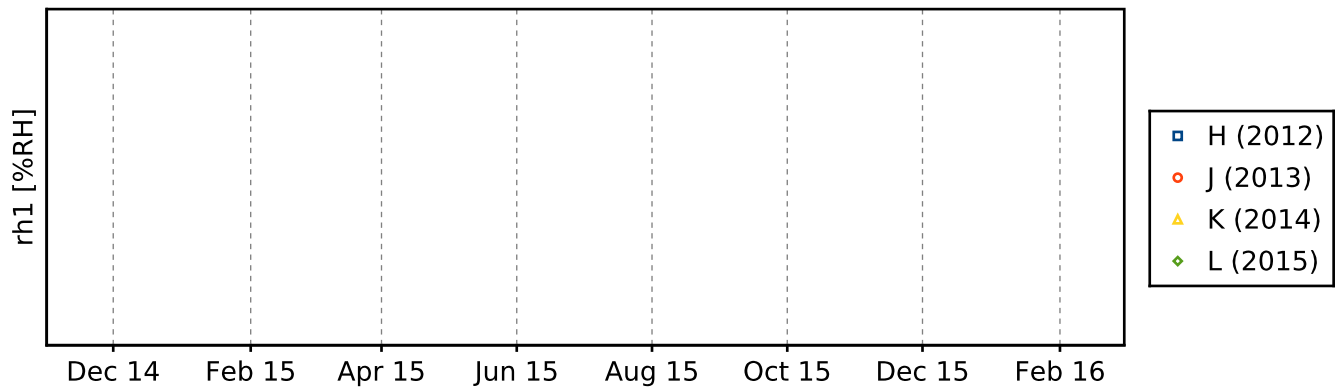
4.5.1 Stream: RS92

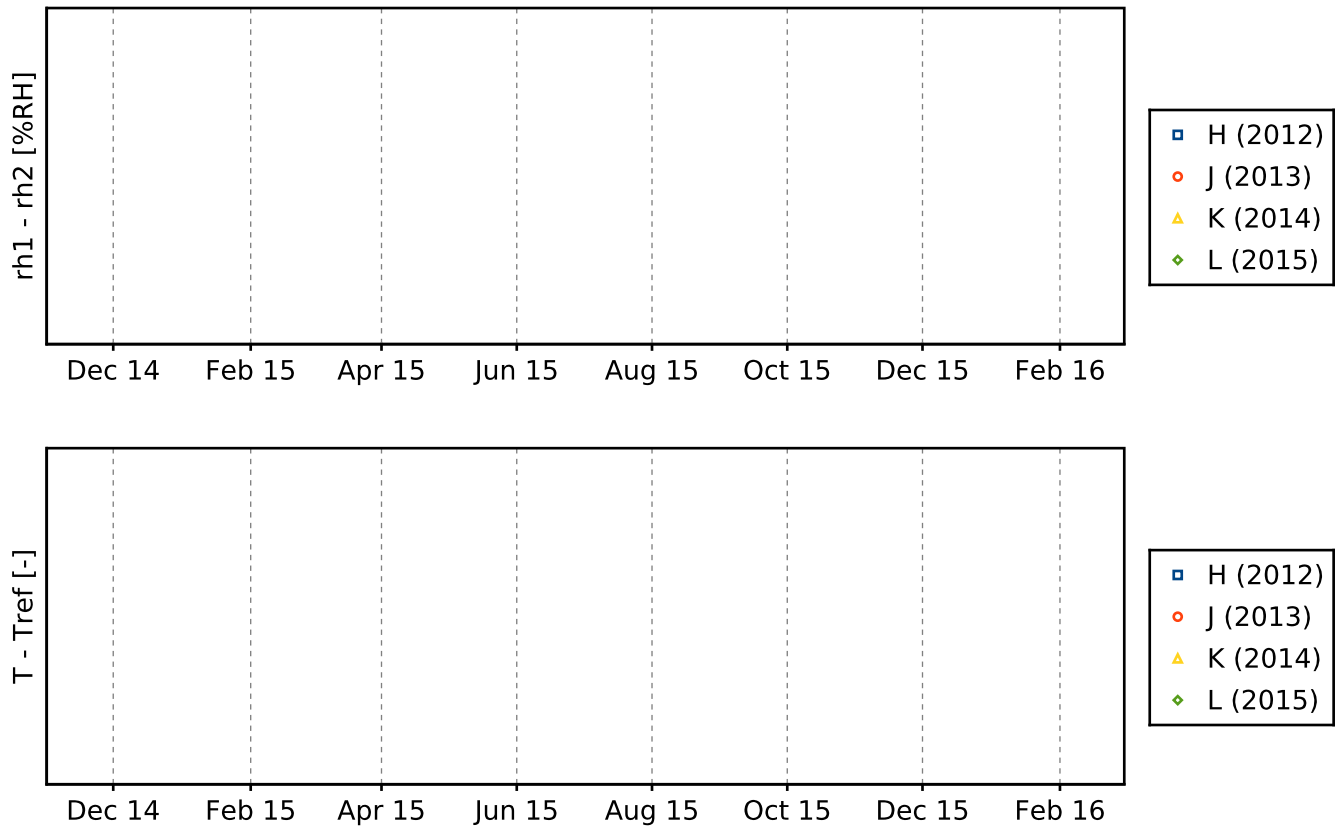
4.5.1.1 GroundCheck: GC25





4.5.1.2 GroundCheck: SHC





4.6 Measurement events

4.6.1 Stream: RS92

