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Session 7

GRUAN Station Report for Beltsville

(Submitted by Ricardo Kendi Sakai)

Summary and Purpose of Document

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

GRUAN Station Report for Howard University, Beltsville Campus

Reporting for the period Mar 2015 to Mar 2016
Date: April 15, 2016
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Overview

The Howard University Beltsville Research site (HUBR), as a part of the Beltsville Center for Climate System Observation, is one of the GRUAN sites. The Beltsville site performs routine measurements of upper air sondes for GRUAN and elects to launch the sondes during the NPP overpass times at nighttime. It satisfies both GRUAN requirement and it serves as sonde-based satellite validation activities. The site has been launching state-of-the-art Vaisala GPS rawinsondes (RS92-SGP) coincident with the Suomi National Polar-orbiting Partnership satellite (NPP) satellite overpass to minimize the sonde-satellite mismatch errors and radiosonde quality issues. Data are being stored in the local computer, and sent to GRUAN database through RsLaunchClient.

Recently, we add a monthly daytime launch coordinated with NWS-Sterling Auto sonde launcher. The first one is to provide another cal-val data set to NPP overpass. The second one is to compare HUBR soundings with a concomitant launch at the NWS- Sterling site. Till to this date, eight dual launches have been performed.

Since 2004, HUBR has operated an upper air ozone sonde station. The main objectives are understand summer pollution episodes to support Maryland Department of Environment (MDE) pollution monitoring, establishment of climatological statistics and application of these statistics and case studies for model formulation and optimization of satellite algorithms by HUBR collaborators, and quantification of the annual and inter annual variability of tropospheric O_3 (regional transport, stratospheric/tropospheric exchange, lightening, anthropogenic) and its impact on surface level air quality and air quality model predictability. Those data still need to be cleared by our sponsors.

HUBR continues its monthly Cryogenic Frost Point Hygrometer (CFH) launches, in collaboration with the NDACC-related work of the NASA Goddard (NASA/GSFC) partners, to study upper tropospheric moisture and temperature variability. The reference flights will be done with the RS92-SGP launches. Since it is launched close to NPP overpass, it provides useful calibration/validation information regarding upper atmospheric water vapour measurements. Other current and future NASA satellite overpasses might be included in the future.

Change and change management

There is no current activity regarding change in management during this period. But we plan to operate RS92-MW41 launches in the future. Those plans are under discussion at Beltsville.

Since January 6, 2016, the saturation humidity chamber (Dr Schulz & Partner GmbH) is being used as ground check for relative humidity. On 1/14/2016, Linderberg's SHC ground check protocol has been adopted.

Resourcing
We have lost some students, as some of our PhD candidates have graduated. However, we have been able to work normally. We are planning to hire some undergraduate students to supplement our staff. We are financed to do our weekly launches, and monthly CFH launches for 2 years. MDE has continued finance our Summer O3sonde launches.

Site assessment and certification
All paper work has been submitted and WG answers have been completed. We eagerly await GRUAN WG certification.

GRUAN-related research
Ozonesonde summer pollution episodes had not been launched during the summer of 2015. However, yearly climatology had been undergoing in collaboration with National Geospatial-Intelligence Agency (NGA) and NASA/GSFC – SHADOZ network.

Monthly CFH studies undergoing with a highly collaborative work is progressing in satellite-sonde validation work with NESDIS/STAR and Tony Reale's group. Tony Reale gave one day course of the NPROVs program on March 10, 2016.

WG-GRUAN interface
Belay Demoz Co-chairs the GRUAN sites task group and is a member of the GRUAN working group.
David Whiteman, Belay Demoz, Mike Hicks are members of the GRUAN working.
David Whiteman is a member of the scheduling task group and is contributing to the lidar studies group.
Mike Hicks and Jim Fitzgebons are members in the radiosonde task group.

Items for ICM-8 plenary discussions
Ease and speed data submitted are displayed at the GRUAN site and quick feedback from GRUAN-LC when corrections are needed to be made.

Future plans
RS92 and RS41 inter-comparison

MWR radiometer integration.

HUBR will resume its ozonesonde launches during summer of 2016 for the MDE project.

GRUAN Station Report for Beltsville (BEL), 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	Beltsville
Unique GRUAN ID	BEL
Geographical position	39.0500 °N, -76.8800 °W, 53.0 m
Operated by	HOWARD | Howard University
Main contact	Demoz, Belay
WMO no./name	-
Operators	current 26, change +2 / -0
Sounding Site	1
GNSS	1

1.1 General information about GRUAN measurement systems

System	Type	Setups	Measurements	As scheduled
BEL-GN-01	GNSS	0	0	not scheduled
BEL-RS-01	Sounding Site	4	63	not scheduled

1.2 General comments from Lead Centre

1.2.1 General

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.

2 System: GNSS Site DCHU (BEL-GN-01)

Info	Value
System name	GNSS Site DCHU
Unique GRUAN ID	BEL-GN-01
System type	GNSS (GN - GNSS)
Geographical position	39.0541 °N, -76.8775 °W, 25.3 m
Operated by	HOWARD | Howard University
Instrument contact	Demoz, Belay
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 (BEL-RS-01)

Info	Value
System name	Radiosonde Launch Site
Unique GRUAN ID	BEL-RS-01
System type	Sounding Site (RS - Radiosonde)
Geographical position	39.0520 °N, -76.8775 °W, 52.0 m
Operated by	HOWARD | Howard University
Instrument contact	Demoz, Belay
Started at	-
Defined setups	4 (RESEARCH, ROUTINE, OZONE, ROUTINE2)
Possible streams	CFH, ECC, RS92

3.1 Lead Centre comments

3.1.1 Dataflow

Sonde dataflow to the GRUAN LC is operational since August 2014. This dataflow includes data from the Vaisala RS92-SGP. All launches are transmitted using the RsLaunchClient.

Processing of RS92 data with the new MWX file format will be possible at the end of 2016.

3.1.2 Data quality

GC25 ground check corrections are within expected limits.

According to the metadata, an additional ground check in the SHC was not performed.

3.2 GRUAN data products

Product	Version	Soundings received	Available at LC	Distributed by NCDC

3.2.1 Stream: RS92

RS92		63	63	
RS92-RAW	002		63	

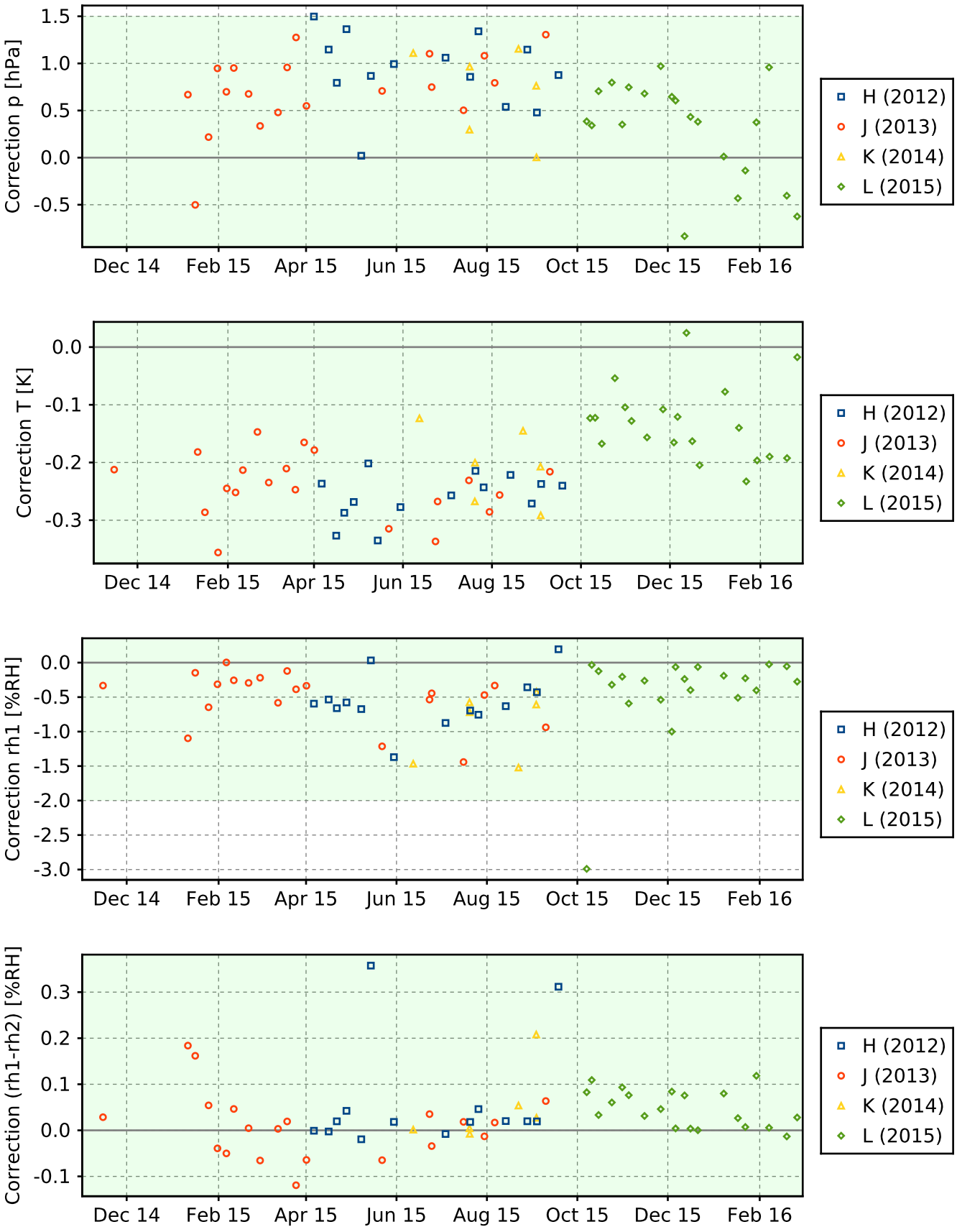
3.4 Instrument combinations of BEL-RS-01

Count	Instrument combination
63	RS92

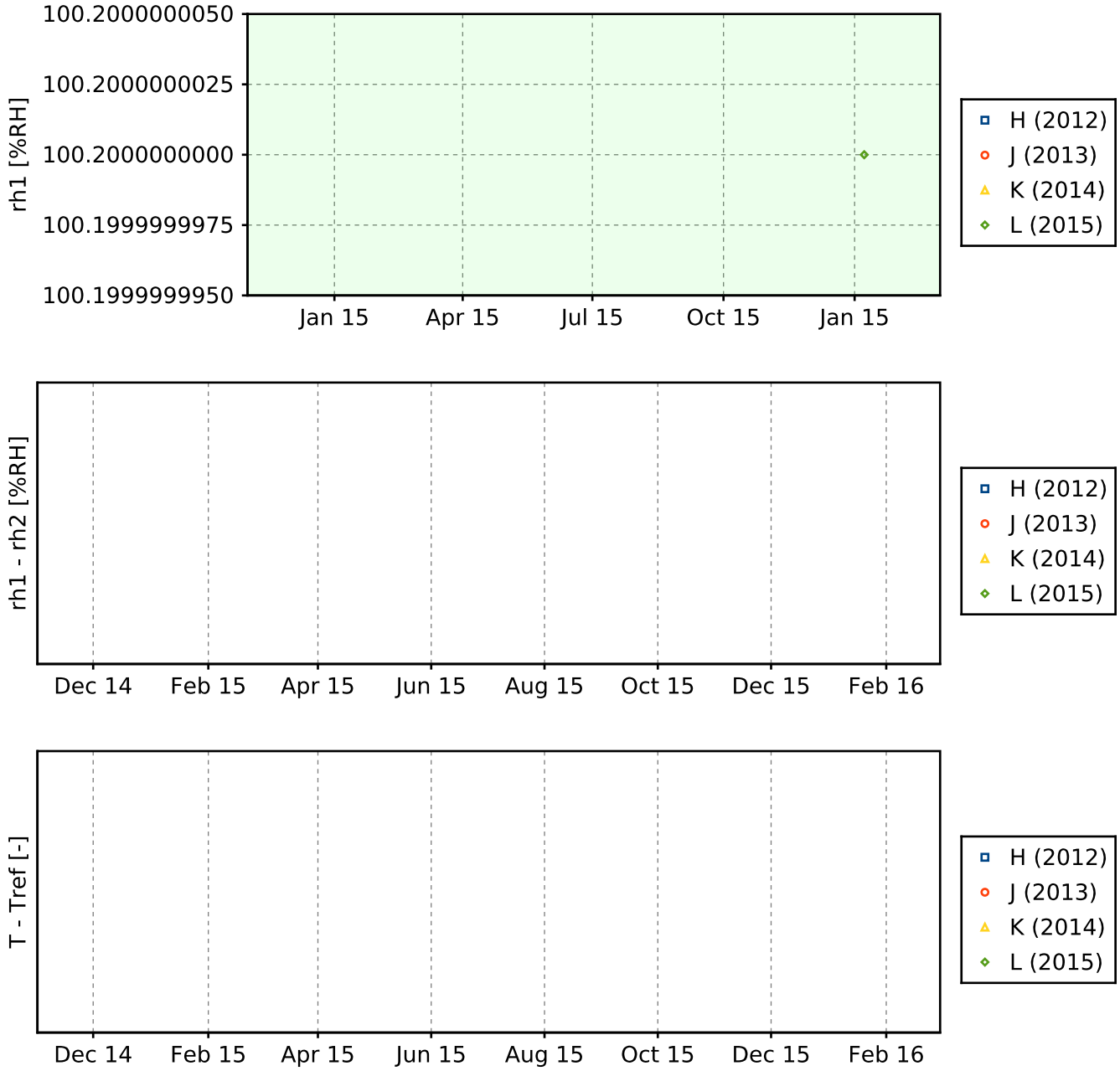
3.5 Instrument ground check

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