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GLOBAL CLIMATE OBSERVING
SYSTEM (GCOS)

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**9th GRUAN Implementation-
Coordination Meeting (ICM-9)**

Session 7

Helsinki, Finland

12 - 16 June 2017

GRUAN Site Report for Beltsville

(Submitted by Ricardo Sakai)

Summary and Purpose of this Document

Report from the GRUAN site Beltsville for the period March 2016 to April 2017.

Overview

Beltsville is located at Howard University Beltsville Campus (HUBC, figure 1). It contributes with weekly RS92-RS41 and a monthly CFH data. The site was certified this year and has made the measurements consistently. The site is currently working on ways to submit the ozone profiles. In addition, Beltsville has been a primary participant in the multi-agency GRUAN group in the mid-Atlantic region called GMAC.

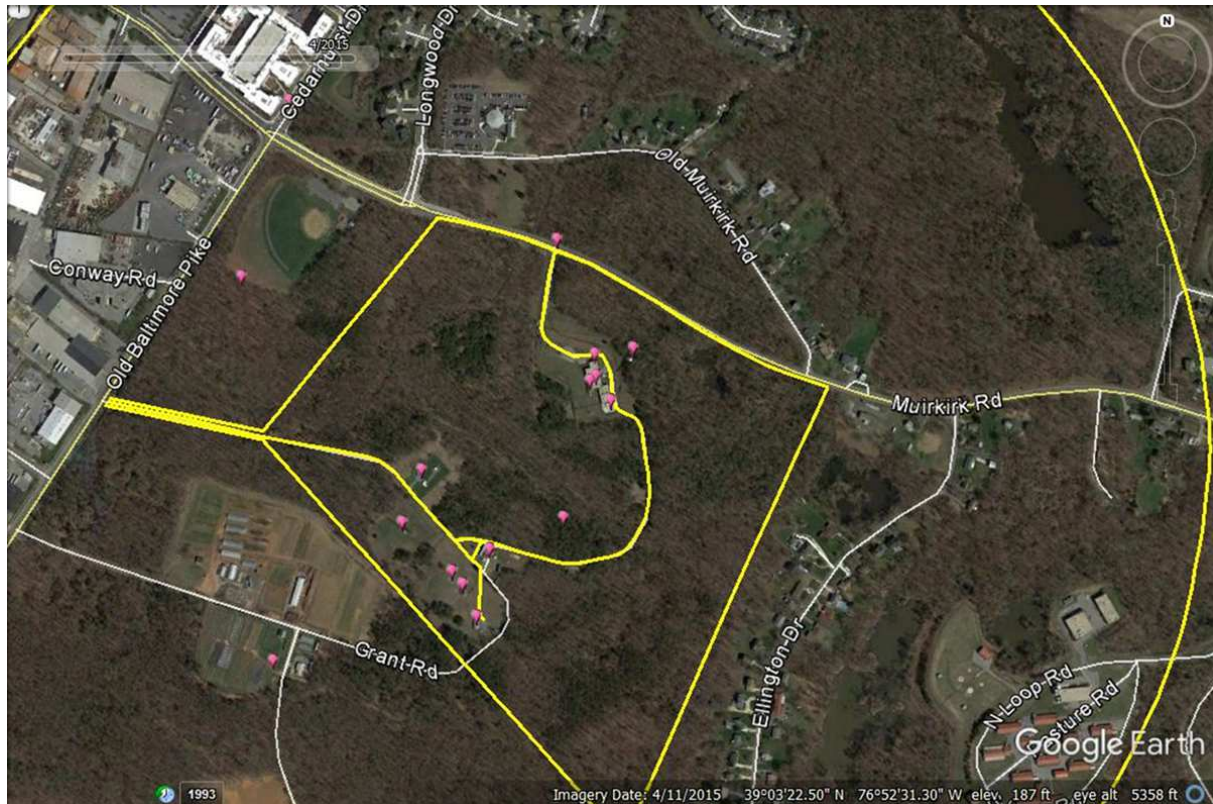


Figure 1: Google Earth image of HUBC. Yellow lines are the HUBC property boundaries. Red circle is the balloon launch location. Blue line shows the hill adjacent to the balloon launch location.

Change and change management

Beltsville has been launching a dual sonde RS92-RS41 for quite some time this year at HUBC (figure 2). The plan is to operate in that mode for the foreseeable future. So far we have 16 dual launches and we will probably operate till our RS 92SGP supply lasts. Further, our collaboration with GMAC and Sterling has allowed similar multi-package flights and we will report on this activity at ICM9.



Figure 2: (a) Photos of the RS92-SGP (left) and RS41-SG (right) at the radiosonde boom. (b) Mr. Adrian Flores and PhD candidate Lekealem Taku launching the RS92-SGP and RS41-SG radio-sondes.

Resourcing

Dr. Sakai has been managing the day to day GRUAN activity at Beltsville and has been overwhelmed at times. To solve this, we have also recently hired a Technician, Adrian Flores, to work part time on GRUAN related work at Beltsville assisting Dr. Sakai. One of his primary task will be to send data to GRUAN RsLaunch, and hopefully, improve the data flow to the lead centre. In addition, by teaming up with GMAC, a number of cross-benefits will be derived from a quarterly meeting and knowledge exchange with the members. However, the cost of running the CFH and personnel is always a challenge and one-proposal decline away.

Operations

Following are some of the things that we think and worry about (in no particular order):

- The launch site is still in the HUBC north site, and the presence of a hill in the East still gives problems (figure 1), principally during the winter, when the winds are stronger. Otherwise, most of the times, we have been successful launching balloons higher or close to 10 hPa.
- Our RS92 batch sondes (even the once donated from ARM) passed the QC checks given in table 1 of section 4.3 in the draft of the GRUAN-TD-5 technical report.
- The CFH launches use the IMET-1, a radiosonde that is not certified by GRUAN.

- We have at times have not submitted sondes immediately after launch for manpower related reasons (students graduate out of the program, etc). But this will improve since we have hired Mr. Adrian Flores to address these issues.

Site assessment and certification

Beltsville has been certified and we look forward to get the certificate!

GRUAN-related research

2017 has been the most active regarding GRUAN input. Since ICM8 this site has been instrumental in established the GRUAN-Mid-Atlantic-Consortium (GMAC), a GRUAN advocacy with NOAA-NWS and NOAA-STAR as group members. As part of the GMAC, the site has been training NWS operators in CFH launches, coordinated flights, and other analysis work related to GRUAN. A Major Campaign for multi-Sonde inter-comparison was completed at Wallops, VA by NWS and GMAC input. The site scientists are members in the radiosonde task team; Chair GRUAN site task team, ancillary data task team.

WG-GRUAN interface

This sites GRUAN operation is primarily funded through a collaboration with NWS and NOAA-STAR and primarily the advocacy and partial funding from Dr. Howard Diamond and Dr. Mitch Goldberg. It would be very nice to get (1) A thank you letter to both and in particular to Dr. Mitch Goldberg [Phone: 240-684-0509 Email: mitch.goldberg@noaa.gov] would go a long way to help encourage continuing support. (2) We would be most grateful to get a support letter to NASA for we are discussing a long term continued support of the Beltsville NDACC activities. We could draft the letter and the point of contact if LC is willing to help in this regard.

Items for ICM-9 plenary discussions

Discuss the implementation of a system to guard continuity of data submission

Future plans

Immediate plans are to continue the operation and no major changes are planned.



GRUAN Station Report for Beltsville (BEL), 2016/17

Reported time range is Mar 2016 to Apr 2017

Created by the Lead Centre

Version from 2017-06-06

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 +0 / -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	not operational	not scheduled
BEL-RS-01	Sounding Site	5	12	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	5 (RESEARCH, ROUTINE, OZONE, ROUTINE2, OZONE2)
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.

Data flow is interrupted since June 2016.

3.2 GRUAN data products

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

RS92		12	12	
RS92-RAW	002		12	
RS92-EDT	001		12	12

3.3 Data availability of data products

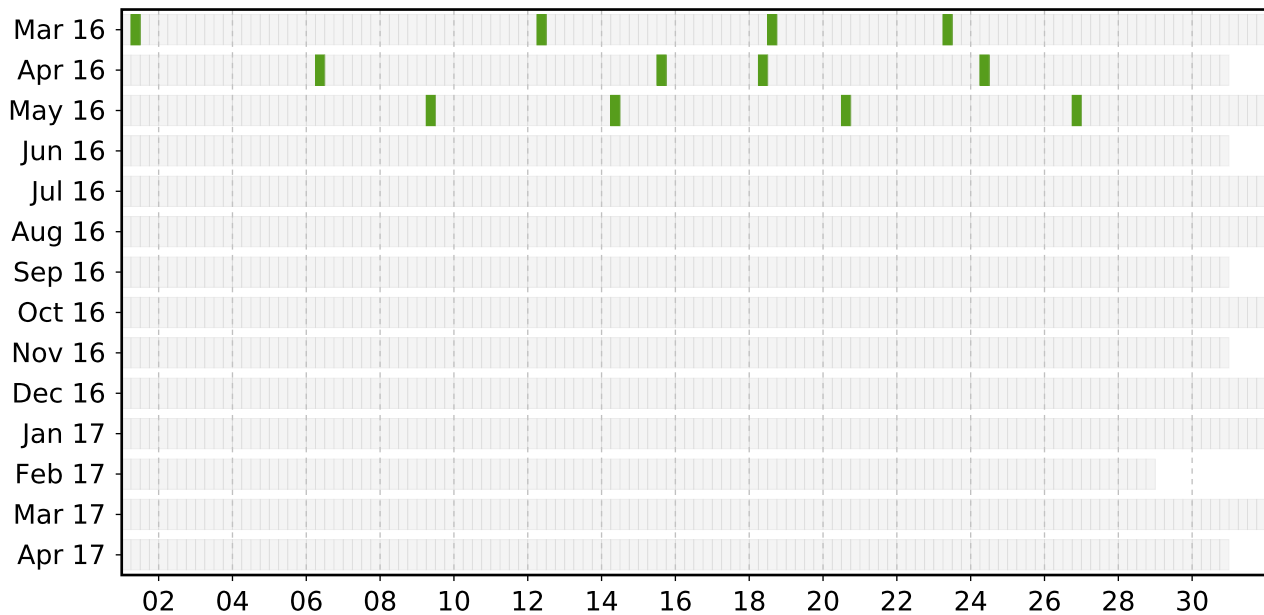
Available (green): All steps of processing have been successfully completed. The data file is available at NCEI (NCDC).

Unprocessed (yellow): The raw data file has been successfully converted to a GRUAN standardized raw data file format (NetCDF). The processing itself (e.g. extracting manufacturer data product or GRUAN data processing) is not done yet, or could not be completed. Reason may be missing raw data, or software bugs.

Failed (red): Raw data file could not be converted to a GRUAN standardized raw data file format (NetCDF). Reason may be a corrupt original raw data file, or software bugs.

3.3.1 Stream: RS92 (Product: RS92-EDT-001)

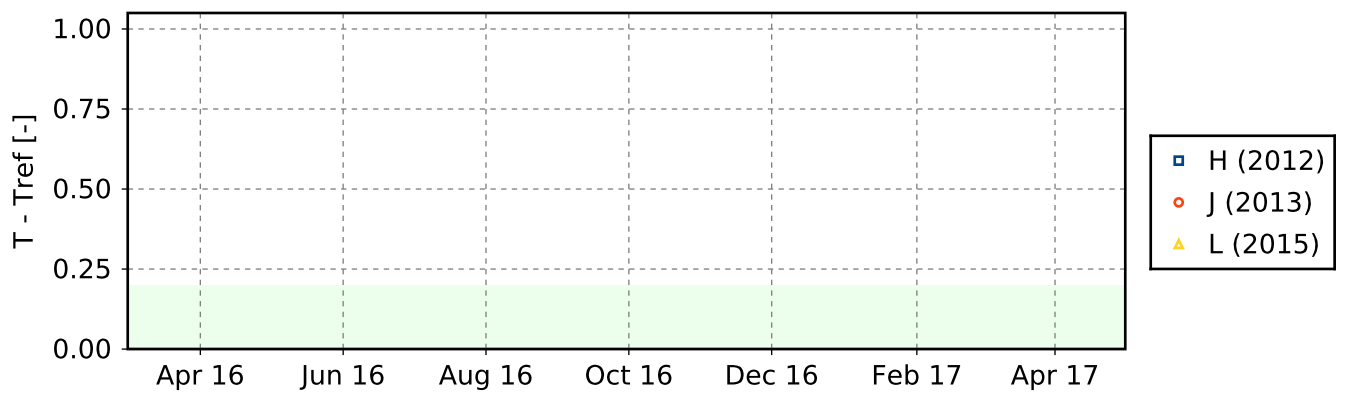
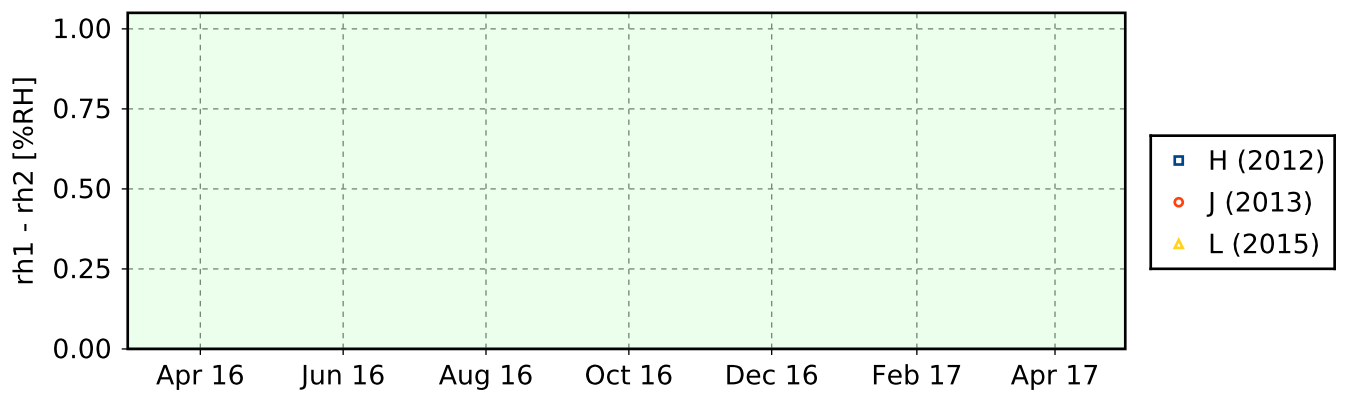
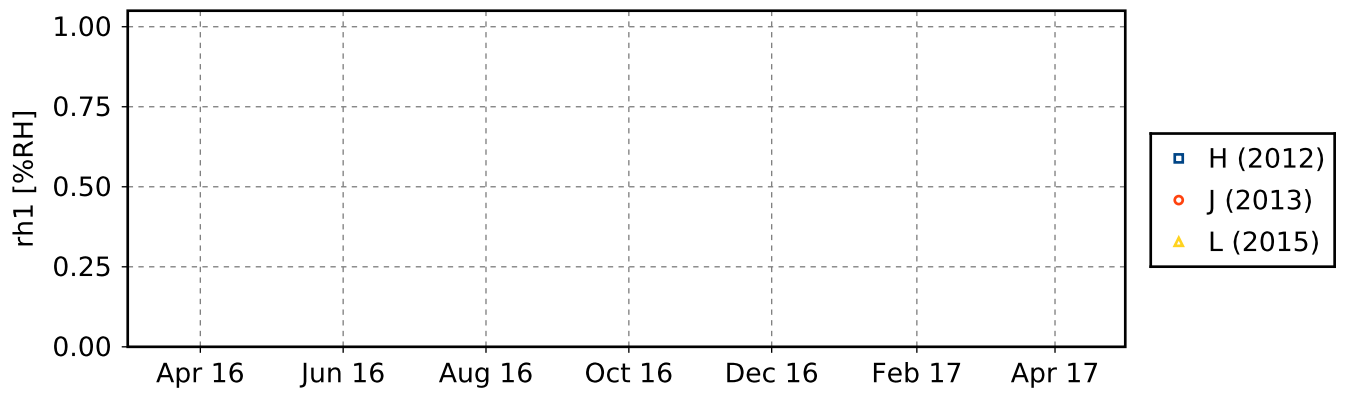
Schedule data availability of stream RS92



3.5 Instrument combinations of BEL-RS-01

Count	Instrument combination
12	RS92

3.6.1.2 GroundCheck: SHC



3.7 Measurement events

3.7.1 Stream: RS92

