



WMO/IOC/UNEP/ICSU
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 Singapore

(Submitted by Wong Shwei Lin)

Summary and Purpose of this Document

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

Overview

Current dataflow to GRUAN LC:

- Twice-daily RS41-SG radiosonde soundings
- Monthly ECC ozonesonde soundings

Planned dataflow:

- Daily GNSS and meteo data files (estimate second half of 2017)

Change and change management

- Direct uploading of raw files via RSLaunch (once a day) from Apr 2016.
- Implementation of pre-flight humidity chamber check from Apr 2017.

Resourcing

NIL

Operations

- Difficulties in regularly attaining the burst point at 10 hPa during evening (12UTC) launch. At present, early bursting rate is about 20% during evening.
- Pre-launch treatment with kerosene is not feasible as we are launching within an office building (issue of smell and fire hazard).
- Given Singapore's size, we have issues when radiosondes / ozonesonde land at
 - Airports and air bases.
 - Private properties
 - Commercial properties disruptions to their operations

Site assessment and certification

4th quarter of 2017. We have completed a two weeks trial where a GNSS geodetic grade antenna and receiver system was set up in our site of choice. GFZ is helping to take a quick analysis on the data that we have sent to give confirmation that the site is suitable. In the event we need to evaluate and install on other sites, there might be further delay.

GRUAN-related research

NIL. At the moment we are focused on getting the necessary programs in place for the certification process.

WG-GRUAN interface

Support from the working group, LC and GFZ have been great, much appreciated.

Items for ICM-9 plenary discussions

NIL

Future plans

- Installation of GNSS
- Undergo certification to be a GRUAN site



GRUAN Station Report for Singapore (SNG), 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	Singapore
Unique GRUAN ID	SNG
Geographical position	1.3404 °N, 103.8880 °E, 21.0 m
Operated by	MSS Meteorological Service Singapore, part of: NEA National Environment Agency
Main contact	Choo, Lesley
WMO no./name	48698 SINGAPORE/CHANGI AIRPORT
Operators	current 8, change +0 / -0
Sounding Site	1

1.1 General information about GRUAN measurement systems

System	Type	Setups	Measurements	As scheduled
SNG-RS-01	Sounding Site	4	735	43.13 %

1.2 General comments from Lead Centre

1.2.1 General

Good communications between station and GRUAN LC.

2 System: Radiosonde Launch Site (SNG-RS-01)

Info	Value
System name	Radiosonde Launch Site
Unique GRUAN ID	SNG-RS-01
System type	Sounding Site (RS - Radiosonde)
Geographical position	1.3404 °N, 103.8880 °E, 23.5 m
Operated by	MSS Meteorological Service Singapore, part of: NEA National Environment Agency
Instrument contact	Choo, Lesley
Started at	-
Defined setups	4 (ROUTINE2, ROUTINE, OZONE, OZONE2)
Possible streams	DFM-09, ECC, RS41

2.1 Lead Centre comments

2.1.1 Dataflow

Sonde dataflow to the GRUAN LC is operational since April 2016.

Dataflow includes twice daily soundings of Vaisala RS41-SGP and monthly soundings of ECC Ozone sonde. All soundings are submitted using RsLaunchClient.

2.2 GRUAN data products

Product	Version	Soundings received	Available at LC	Distributed by NCDC
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2.2.1 Stream: ECC

ECC		10	10	
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2.2.2 Stream: RS41

RS41		735	735	
RS41-RAW	001		733	
RS41-EDT	001		720	720

2.3 Data availability of data products

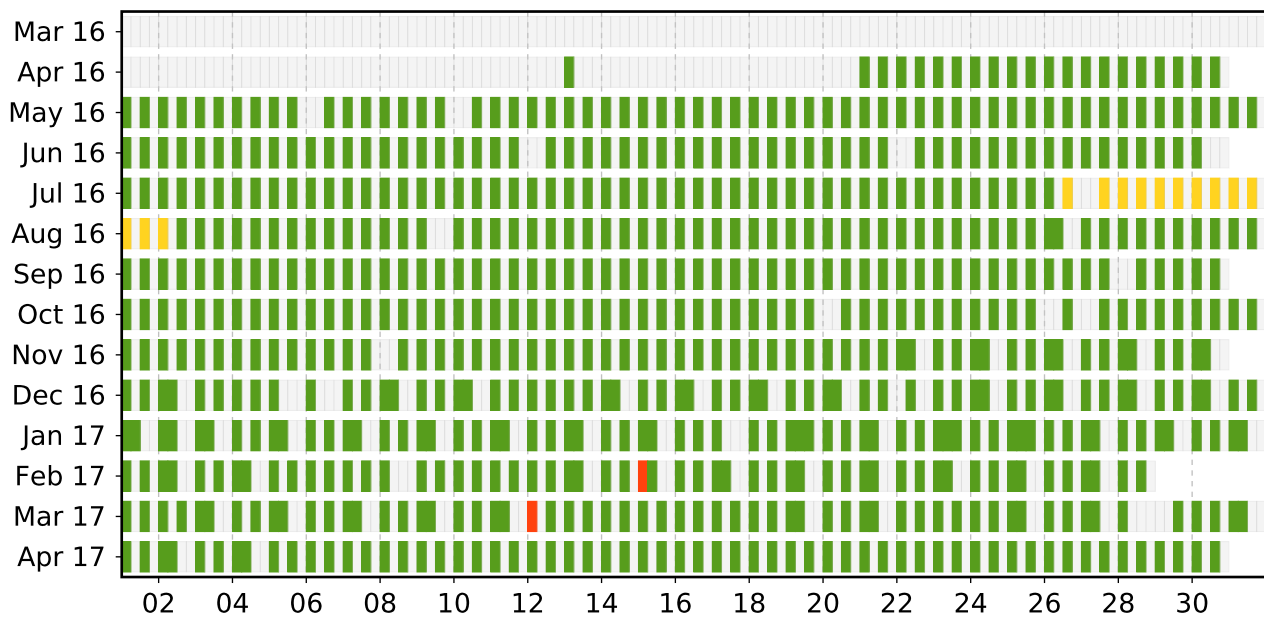
Available (green): All steps of processing have been successfully completed. The data file is available at NCEI (NCDC).

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.

2.3.1 Stream: RS41 (Product: RS41-EDT-001)

Schedule data availability of stream RS41



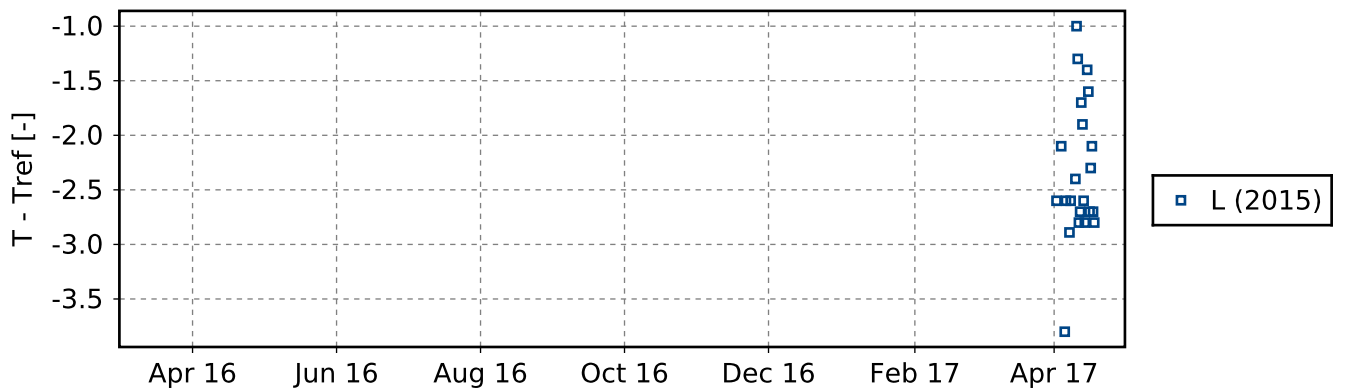
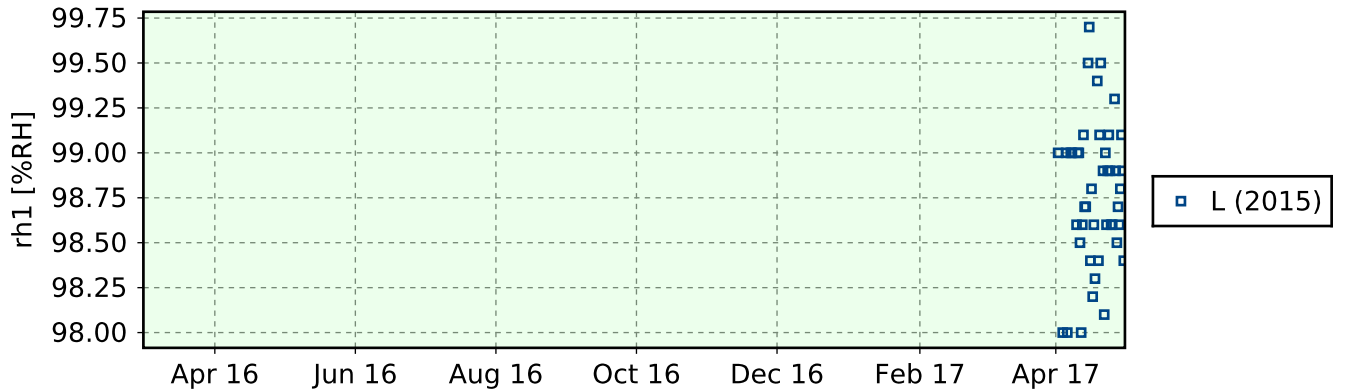
2.5 Instrument combinations of SNG-RS-01

Count	Instrument combination
10	ECC, RS41
725	RS41

2.6 Instrument ground check

2.6.1 Stream: RS41

2.6.1.1 GroundCheck: SHC



2.7 Measurement events

2.7.1 Stream: RS41

