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

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Session 7

# GRUAN Site Report for Singapore

*(Submitted by Wong Shwei Lin)*

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**Summary and Purpose of this Document**

Report from the GRUAN site Singapore for the period January to December 2017.

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# GRUAN Site Report for Singapore (SNG)

Reporting for the period January to December 2017
Date: 3-April-2018
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## 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

- Implementation of pre-flight humidity chamber check from Apr 2017.
- Slight changes to Ozonesonde preparation and launch, as per Vaisalas advice:
  - Minor changes to procedures during preparation
  - Insertion of a small cooling pad inside ozonesonde box and
  - Usage of a heating battery

## Resourcing

NIL

## Operations

- Difficulties in regularly attaining the burst point at 10 hPa during evening (12UTC) launch. At present, early bursting rate is about 10% to 20% during evening, could be as high as 40% to 50% during rainy season.
- 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 2018.

## GRUAN-related research

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

## WG-GRUAN interface

Great support from WG and LC. It will be great if we can have details on dual layer balloons launches and perhaps a joint study of atmospheric conditions that can cause this phenomena at our site.

## Items for ICM-10 plenary discussions

NIL

## Other archiving centers

WOUDC and EUBREWNET

## Participation in campaigns

NIL

## Future plans

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

# GRUAN Site Report for Singapore (SNG), 2017

**Reported time range is Jan 2017 to Dec 2017**
Created by the Lead Centre
Version from 2018-04-06

## 1 General GRUAN site information

| Object | 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:<br>NEA \| National Enviroment Agency |
| Main contact | Choo, Lesley |
| WMO no./name | 48698 SINGAPORE/CHANGI AIRPORT |
| Operators | currently 8, changes +0 / -0 |
| Sounding Site | 1 |

## 1.1 General information about GRUAN measurement systems

| System | Name | Type | Setups | Measurements |
|---|---|---|---|---|
| SNG-RS-01 | Singapore Radiosonde Launch Site | Sounding Site | 4 | 719 |

## 1.2 General comments from Lead Centre

### 1.2.1 General

Good communications between station and GRUAN LC.

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

| Object | Value |
|---|---|
| System name | Singapore 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:<br>NEA \| National Enviroment 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 NCEI |
|---|---|---|---|---|

### 2.2.1 Stream: ECC

| | | | | |
|---|---|---|---|---|
| ECC | | 6 | 6 | |

### 2.2.2 Stream: RS41

| | | | | |
|---|---|---|---|---|
| RS41 | | 719 | 719 | |
| RS41-RAW | 001 | | 716 | |
| RS41-EDT | 001 | | 714 | |

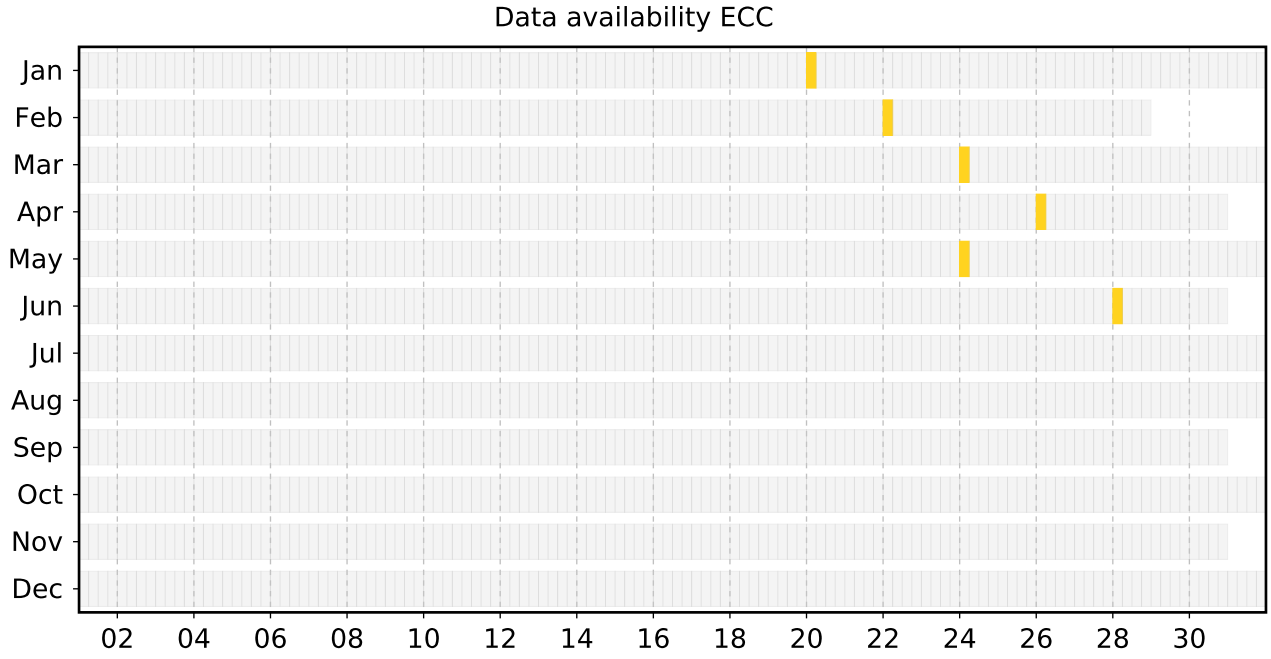
## 2.3 Data availability of data products

Available (green): All steps of processing have been successfully completed. The data file is available at LC (e.g. unapproved or uncertified GRUAN data products) and at NCEI (approved and certified GRUAN data products).

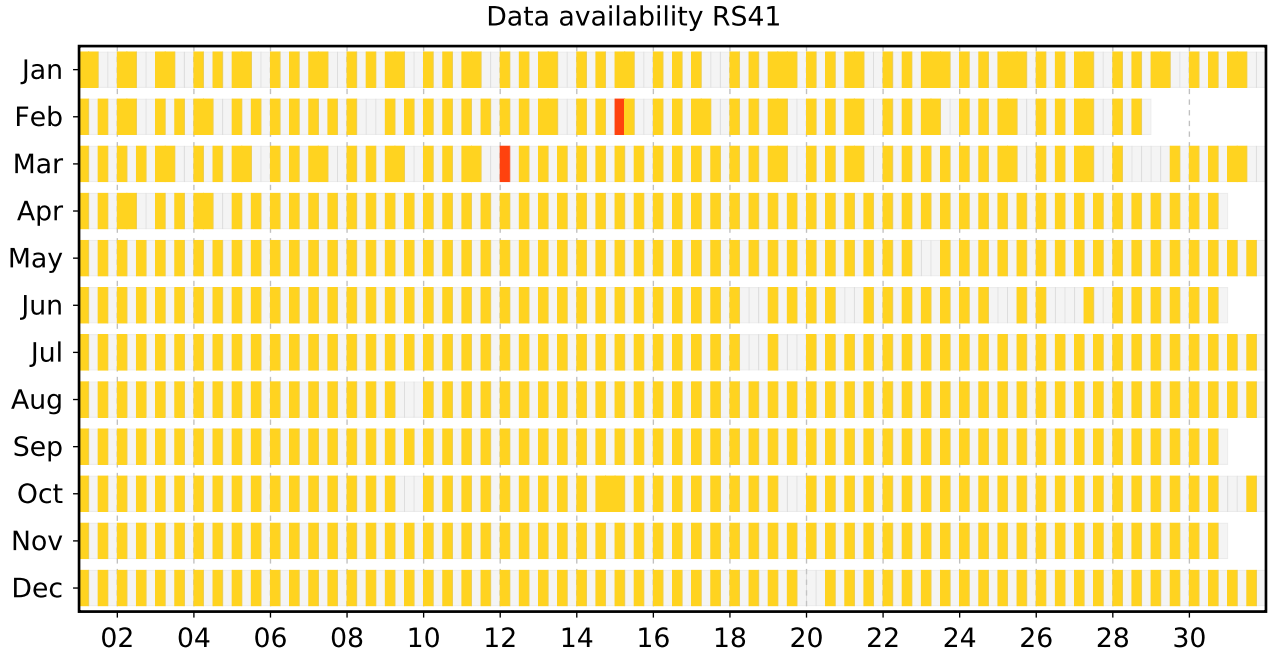
Unprocessed (yellow): The raw data file has been successfully converted to a GRUAN standardized raw data file format (NetCDF). The processing (e.g. GRUAN data processing) has not yet been done, or has not been completed. Reason may be a processing routine which does not yet exist, or software errors.

Original (red): The original raw data file is available (e.g. MWX). The raw data file was not converted to a GRUAN standardized raw data file format (NetCDF). Reason may be a converting routine which does not yet exist, or a corrupt original raw data file, or software errors.

### 2.3.1 Stream: ECC




### 2.3.2 Stream: RS41



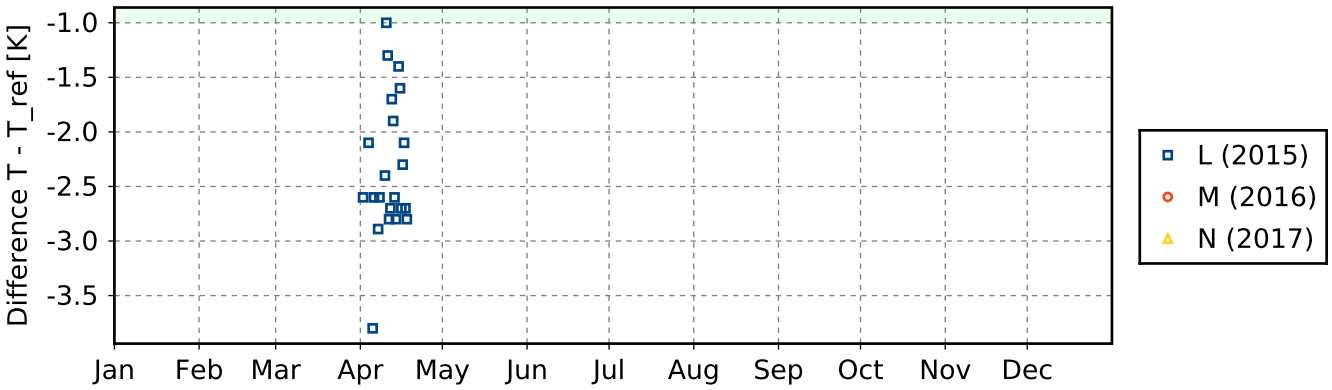
## 2.5 Instrument combinations of SNG-RS-01

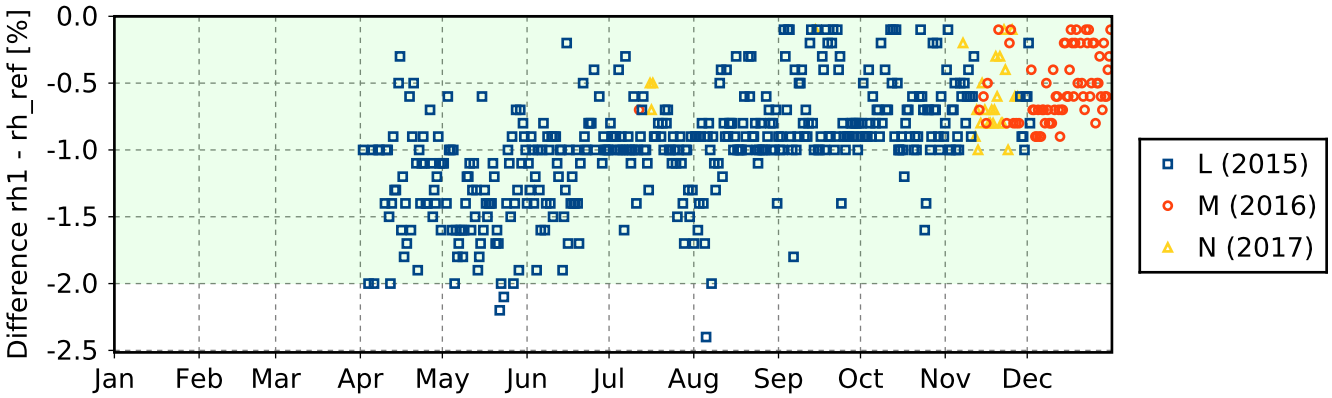
| Count | Instrument combination |
|---|---|
| 6 | ECC, RS41 |
| 713 | RS41 |

## 2.6 Instrument ground check

### 2.6.1 Stream: RS41

**(1) GroundCheck: GC-SHC**




## 2.7 Measurement events