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GLOBAL CLIMATE OBSERVING  
SYSTEM (GCOS)

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## GRUAN Site Report for Tateno, Syowa, Minamitorishima

*(Submitted by Kenji Suzuki)*

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### **Summary and Purpose of this Document**

Report from the GRUAN sites Tateno, Syowa, Minamitorishima for the period January to December 2017.

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# GRUAN Site Report for

Tateno, Syowa, Minamitorishima (TAT, SYO,  
MTS)



Reporting for the period January to December 2017

Date: 29-March-2018

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## Overview

The Tateno site, operated by the Japan Meteorological Agency (JMA), conducts surface observation, low-layer wind observation up to 1.5 km by using a Doppler LIDAR, upper-air observation up to about 30 km by using radiosondes, ozone vertical distribution observation using ozonesondes, total column ozone observation by using a Dobson ozone spectrophotometer, ultraviolet observation by using a Brewer spectrophotometer, radiation observation and GNSS precipitable water observation. Radiosonde sounding data are operationally provided to the GRUAN Lead Centre, and other observation data are sent after coordination with the Lead Centre. The Minamitorishima site conducts surface observation, upper-air observation up to about 30 km by using radiosondes, radiation observation and greenhouse-gases observation. The Syowa site conducts surface observation, upper-air observation up to about 30 km by using radiosondes, ozone vertical distribution observation by using ozonesondes, total column ozone observation by using a Dobson ozone spectrophotometer, ultraviolet observation by using a Brewer spectrophotometer and radiation observation. Radiosonde sounding data of both sites are preparing to submit to the Lead Centre.

## Change and change management

The Tateno site changed the routine radiosonde from Meisei RS-11G to Meisei iMS-100 on 13 September 2017. In order to evaluate the continuity of sounding data due to equipment change, the combined launch of the previous RS-11G and current iMS-100 had been carried out 20 times in each period from October to November 2016, January, from March to April, June 2017. In addition, to compare the performance of the routine radiosonde and RS92-SGP, the combined launch of the routine radiosonde with RS92-SGP has been carried out at 00 or 12UTC on every Friday after the

change of the routine radiosonde.

## **Resourcing**

NIL

## **Operations**

Although the observation using the RS-11G equipped with MTR and/or CFH was originally planned to be carried out twice every year for accuracy confirmation from October 2015, the Tateno site has not conducted these due to safety problems in falling balloon/equipment. Actually, CFH was launched on 29 September 2017, while MTR was not launched in 2017.

## **Site assessment and certification**

The Tateno site is currently applying for the site-certification procedure. Additional document required was already sent to the GRUAN Lead Centre in July 2017. The Minamitorishima and Syowa sites have registered as GRUAN candidate sites in June 2017.

## **GRUAN-related research**

NIL

## **WG-GRUAN interface**

NIL

## **Items for ICM-10 plenary discussions**

NIL

## **Other archiving centres**

The observation data at the Tateno, Minamitorishima and Syowa sites are submitted to GAW, BSRN.

## Participation in campaigns

NIL

## Future plans

The Minamitorishima and Syowa sites will start providing the sounding data to the GRUAN Lead Centre after preparing the data report. The Tateno and Syowa sites are planning to launch MTR and/or CFH in 2018 and provide the data to the Lead Centre.

*Observation system:* JMA is planning to change the RS92 to RS41 because the Tateno site's RS92 is expected to run out in 2018.

*Ozone sounding:* The Tateno site is going to prepare to provide the ozone data observed by ECC soundings to the GRUAN Lead Centre.

*GNSS:* The conversion problem of RINEX file format has been solved. So the Tateno site will send the RINEX files for GNSS data to the GRUAN Lead Centre after coordination with the Lead Centre. JMA's new central processing system is a centralized data management system including following functions as data monitoring, data quality management, data storage and data reporting to the GTS for JMA's all upper-air observation sites. This system has been operated since February 2018.



# GRUAN Site Report for Tateno (TAT), 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	Tateno
Unique GRUAN ID	TAT
Geographical position	36.0581 °N, 140.1258 °E, 27.4 m
Operated by	JMA   Japan Meteorological Agency
Main contact	Abo, Toshihiro
WMO no./name	47646 TATENO
Operators	currently 25, changes +3 / -3
Sounding Site	1
GNSS	1

### 1.1 General information about GRUAN measurement systems

System	Name	Type	Setups	Measurements
TAT-GN-01	GNSS Site TATN	GNSS	0	not operational
TAT-RS-01	Tateno Radiosonde Launch Site	Sounding Site	8	727

### 1.2 General comments from Lead Centre

#### 1.2.1 General

Good communications between station and GRUAN LC.

For the ECC ozone sondes it is recommended that the site submits the meta-data and raw data to the Lead Centre in preparation for the planned ozone GRUAN data product.

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## 2 System: GNSS Site TATN (TAT-GN-01)

<b>Object</b>	<b>Value</b>
System name	GNSS Site TATN
Unique GRUAN ID	TAT-GN-01
System type	GNSS (GN - GNSS)
Geographical position	36.0573 °N, 140.1265 °E, 67.0 m
Operated by	JMA   Japan Meteorological Agency
Instrument contact	Abo, Toshihiro
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: Tateno Radiosonde Launch Site (TAT-RS-01)

Object	Value
System name	Tateno Radiosonde Launch Site
Unique GRUAN ID	TAT-RS-01
System type	Sounding Site (RS - Radiosonde)
Geographical position	36.0581 °N, 140.1258 °E, 24.8 m
Operated by	JMA   Japan Meteorological Agency
Instrument contact	Abo, Toshihiro
Started at	-
Defined setups	8 (ROUTINE, COMPARE, ROUTINE2, DUAL, DUAL2, DUAL3, ROUTINE3, DUAL4)
Possible streams	IMS-100, RS-11G, RS41, RS92

#### 3.1 Lead Centre comments

##### 3.1.1 Change management

Weekly dual launches of RS92-SGP and RS-11G are performed and submitted to the GRUAN LC.

##### 3.1.2 Dataflow

Sonde dataflow to the GRUAN LC is operational since June 2011.

Now, the dataflow includes streams of Meisei IMS-100, RS-11G and Vaisala RS41-SG, RS92-SGP. All launches are promptly submitted using the RsLaunchClient.

##### 3.1.3 General

Routine soundings are performed two times per day. Vaisala RS92 have been used as redundant sonde during weekly dual soundings since January 2015. Various sonde combinations have been flown through the reporting period.

Change of operational sonde from Meisei RS-11G to Meisei IMS-100 was on 13 September 2017.



## 3.2 GRUAN data products

Product	Version	Soundings received	Available at LC	Distributed by NCEI
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### 3.2.1 Stream: IMS-100

IMS-100		268	268	
IMS-100-BETA	001		161	

### 3.2.2 Stream: RS-11G

RS-11G		499	499	
RS-11G-GDP	001		349	

### 3.2.3 Stream: RS41

RS41		10	10	
RS41-RAW	001		10	
RS41-EDT	001		10	

### 3.2.4 Stream: RS92

RS92		61	61	
RS92-RAW	001		61	
RS92-RAW	002		61	
RS92-EDT	001		61	
RS92-GDP	002		61	44

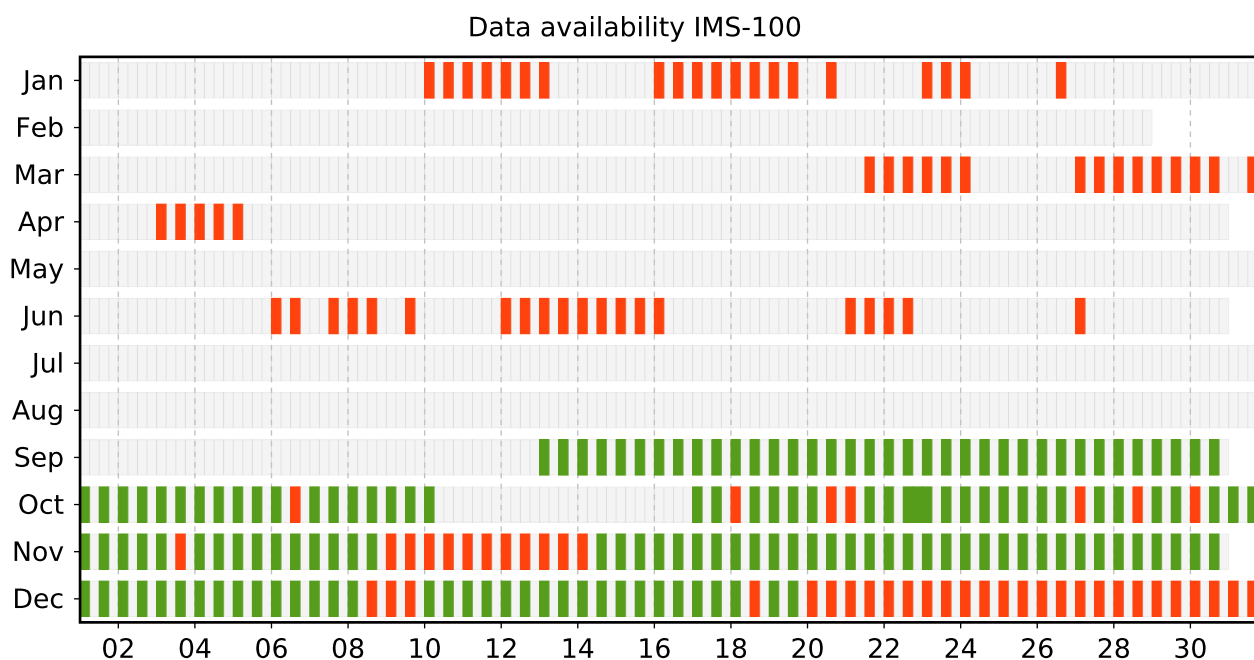
### 3.3 Data availability of data products

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).

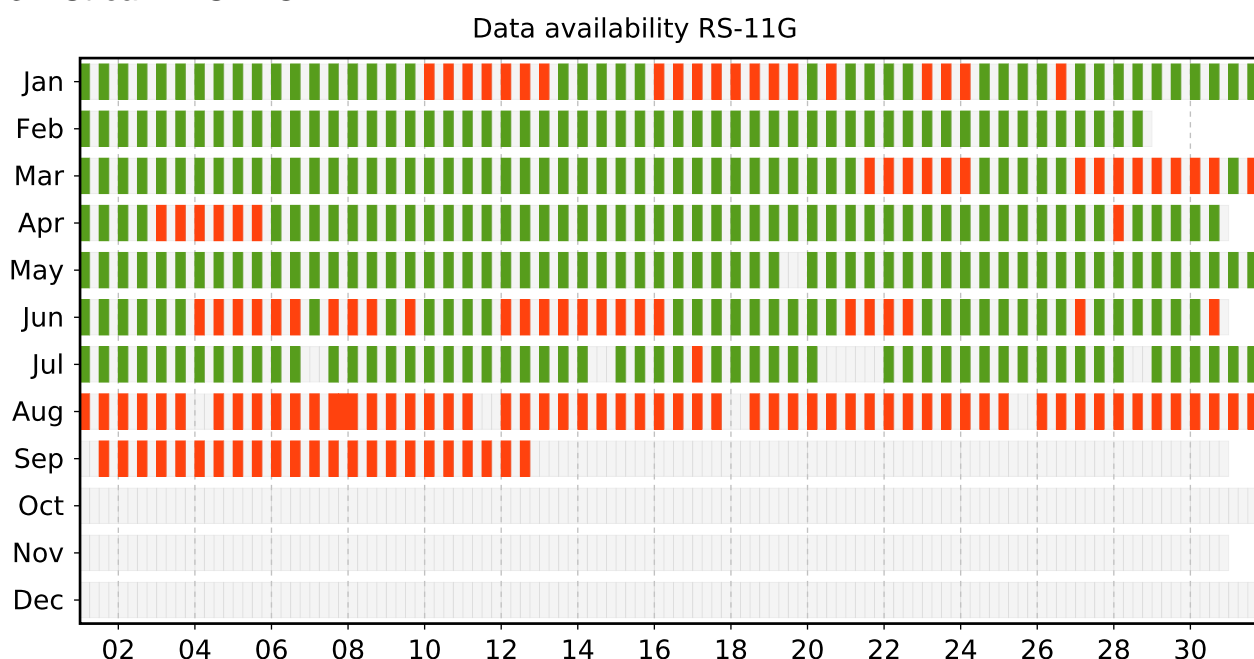
Unprocessed (yellow): The raw data file has been successfully converted to a GRUAN standardized raw data file format (NetCDF). The processing (e.g. GRUAN data processing) has not yet been done, or has not been completed. Reason may be a processing routine which does not yet exist, or software errors.

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.

#### 3.3.1 Stream: IMS-100

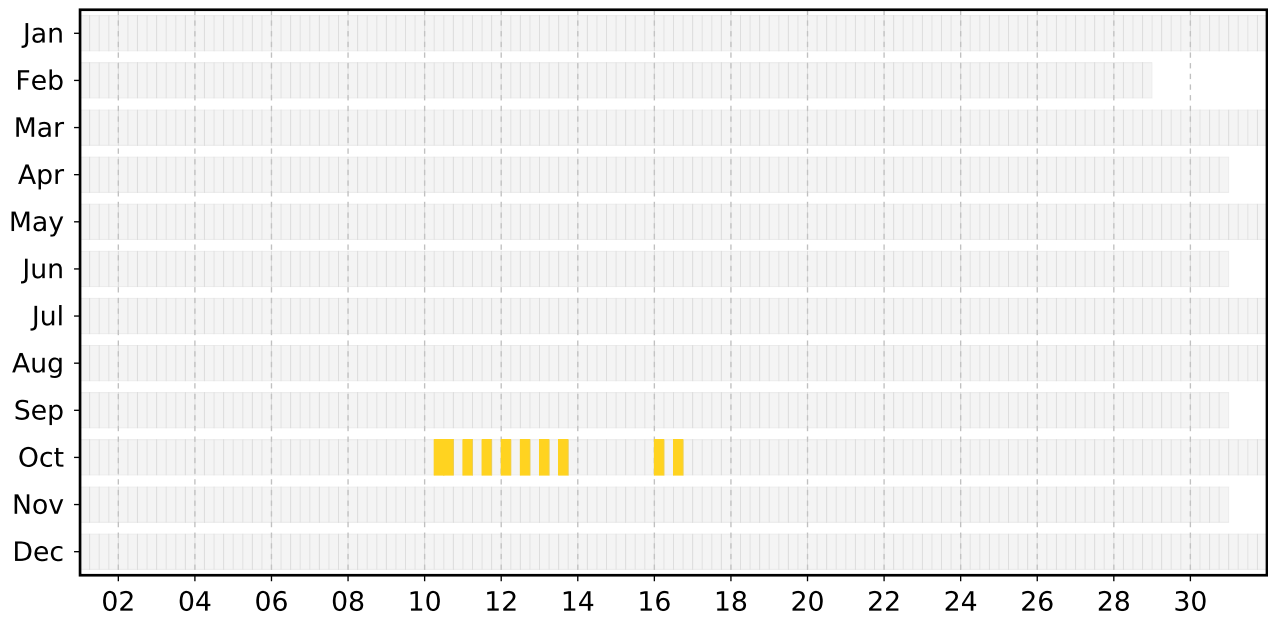


#### 3.3.2 Stream: RS-11G



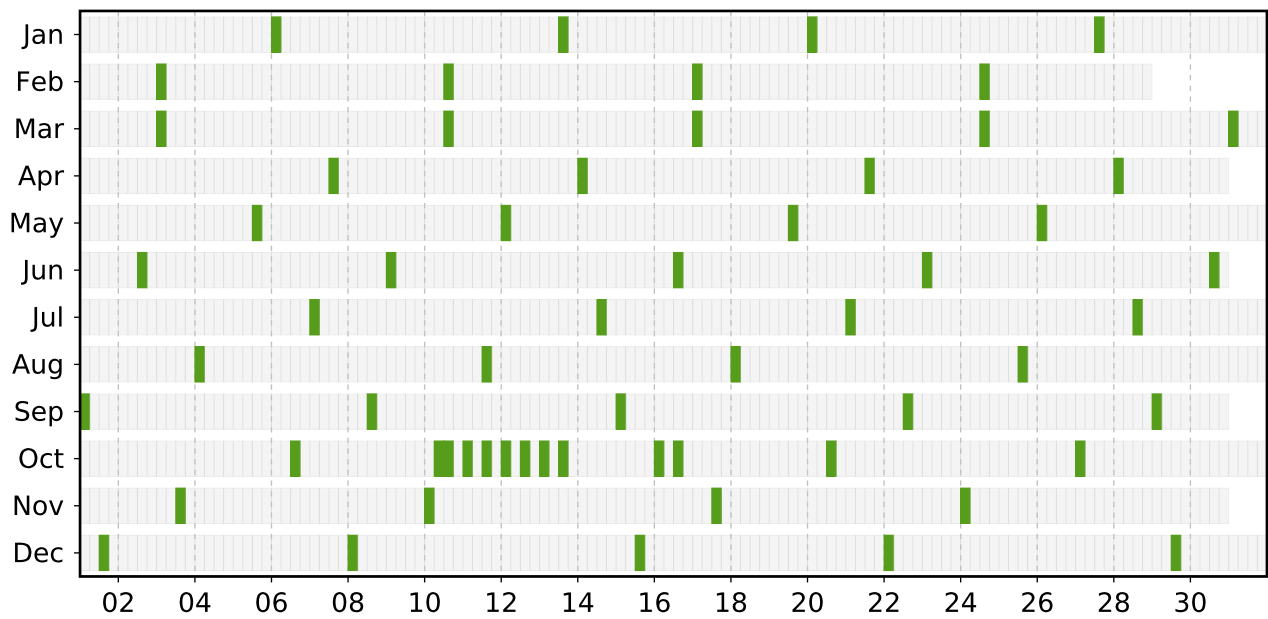
### 3.3.3 Stream: RS41

Data availability RS41



### 3.3.4 Stream: RS92

Data availability RS92



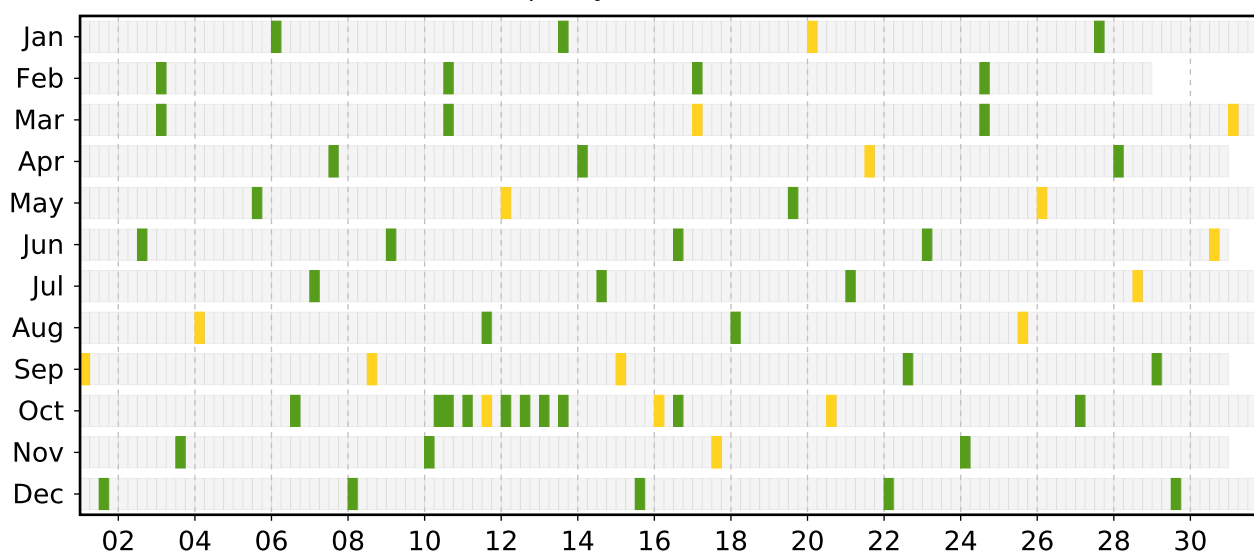
### 3.4 Data quality of current GRUAN data products

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

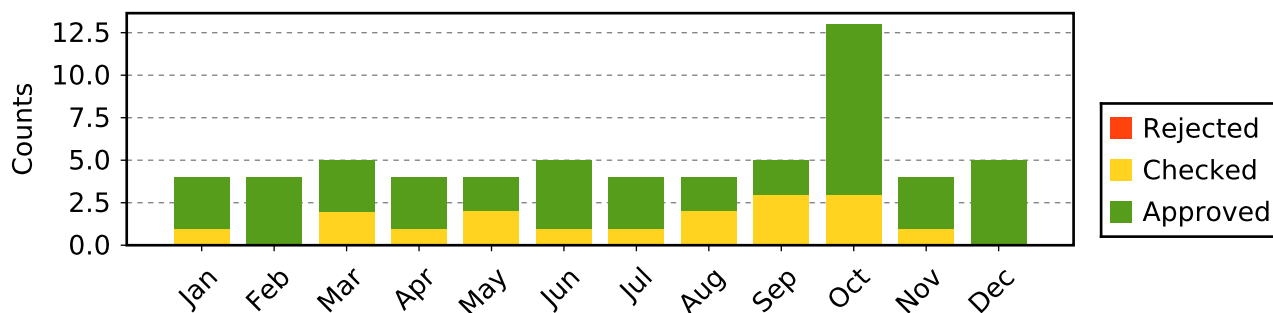
#### 3.4.1 Stream: RS92 (Product: RS92-GDP-002)

Jan	4	3	1						1
Feb	4	4							
Mar	5	3	2				1		1
Apr	4	3	1						1
May	4	2	2						2
Jun	5	4	1						1
Jul	4	3	1				1		1
Aug	4	2	2						2
Sep	5	2	3						3
Oct	13	10	3				2		1
Nov	4	3	1						1
Dec	5	5							
<b>Sum</b>	<b>61</b>	<b>44</b>	<b>17</b>				<b>4</b>		<b>14</b>

Data quality of stream RS92



Data quality statistic of stream RS92



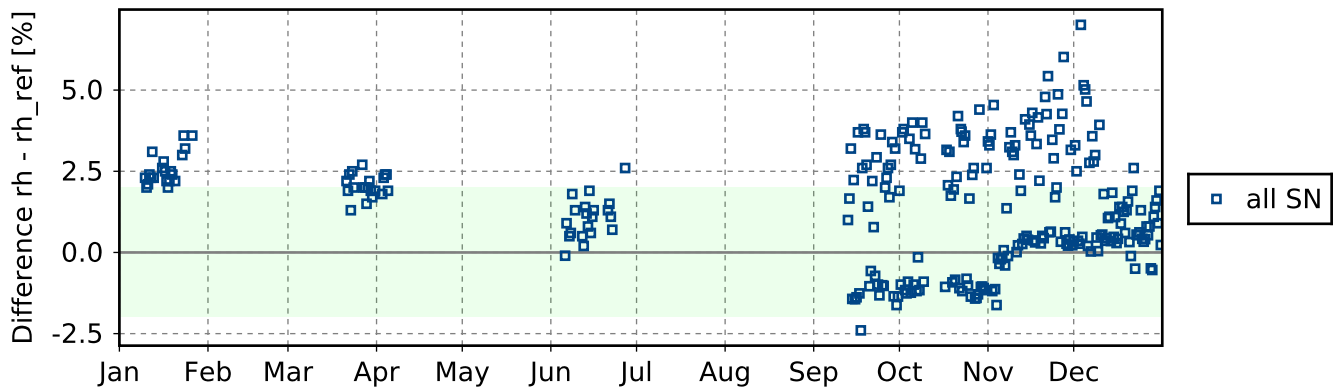
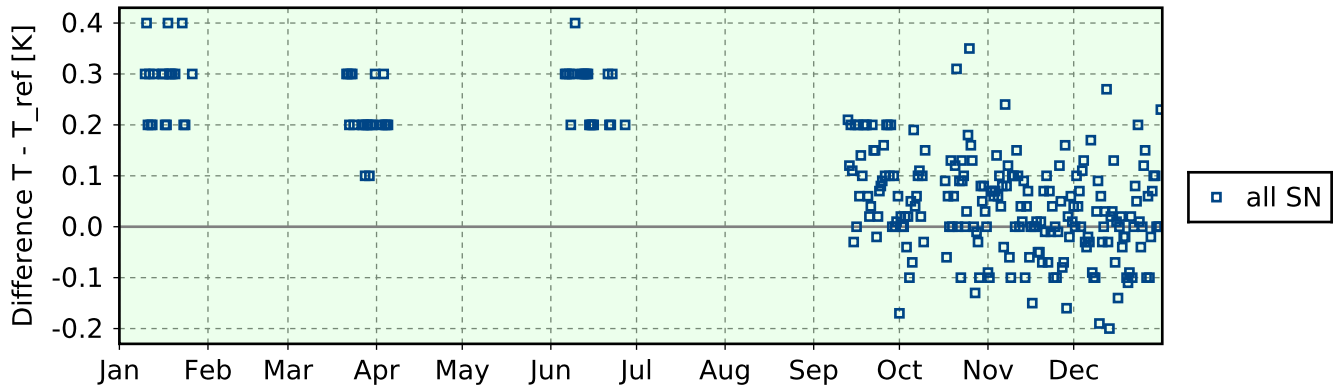
### 3.5 Instrument combinations of TAT-RS-01

<b>Count</b>	<b>Instrument combination</b>
193	IMS-100
60	IMS-100, RS-11G
15	IMS-100, RS92
413	RS-11G
26	RS-11G, RS92
10	RS41, RS92
10	RS92

### 3.6 Instrument ground check

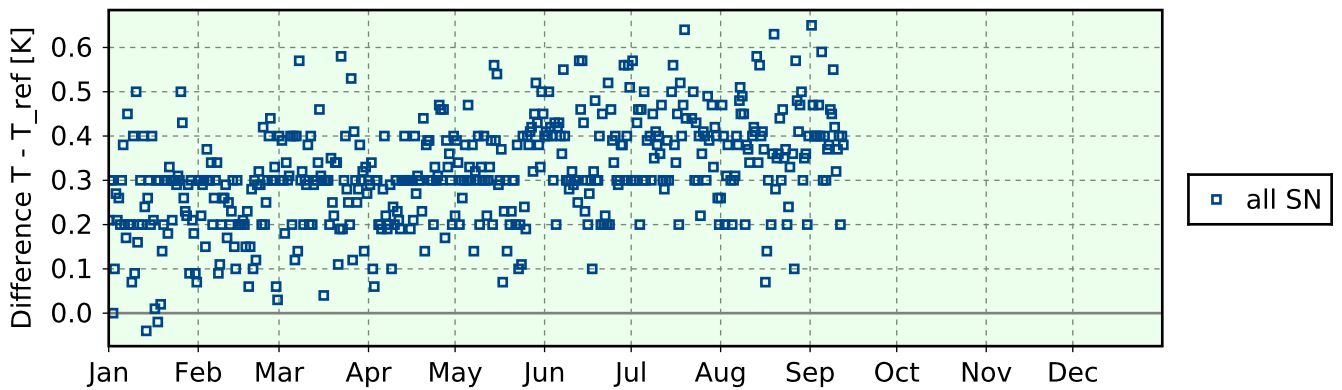
#### 3.6.1 Stream: IMS-100

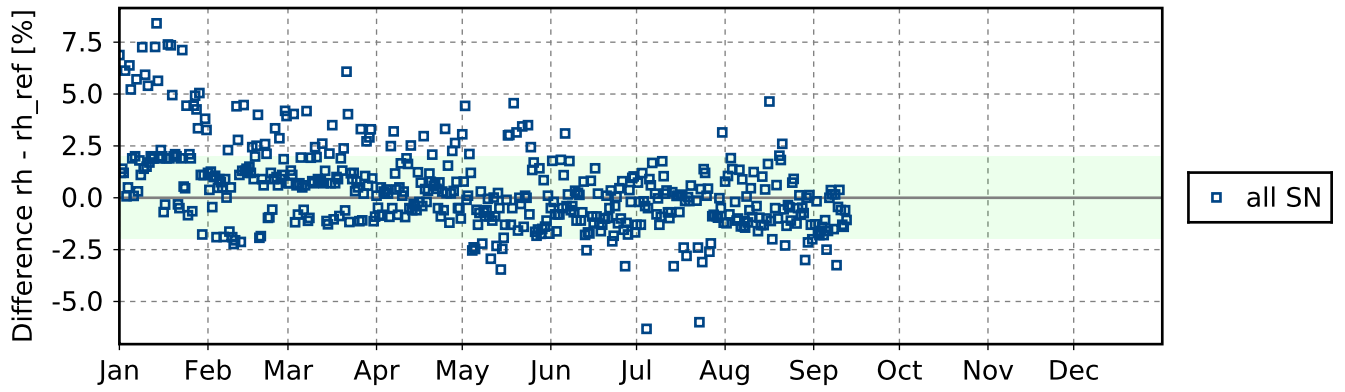
##### (1) GroundCheck: GC-TU



#### 3.6.2 Stream: RS-11G

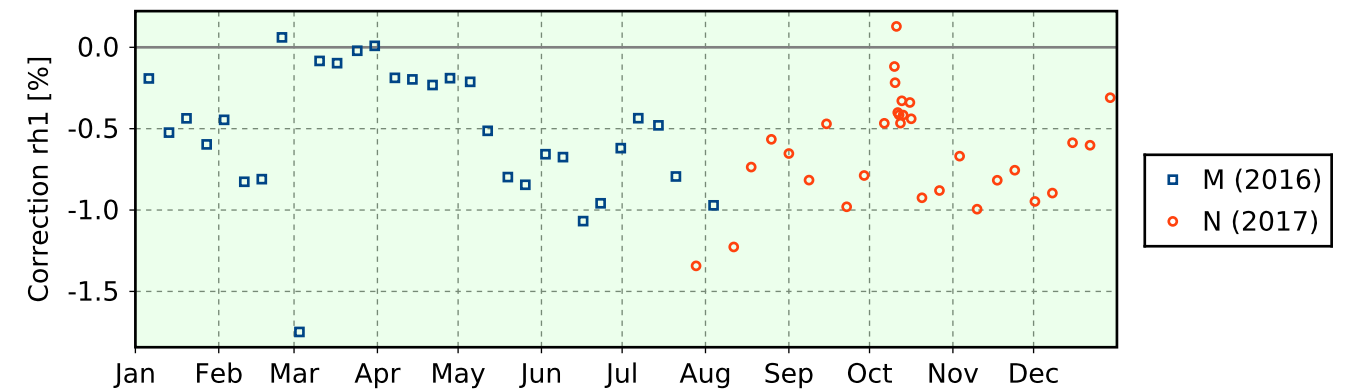
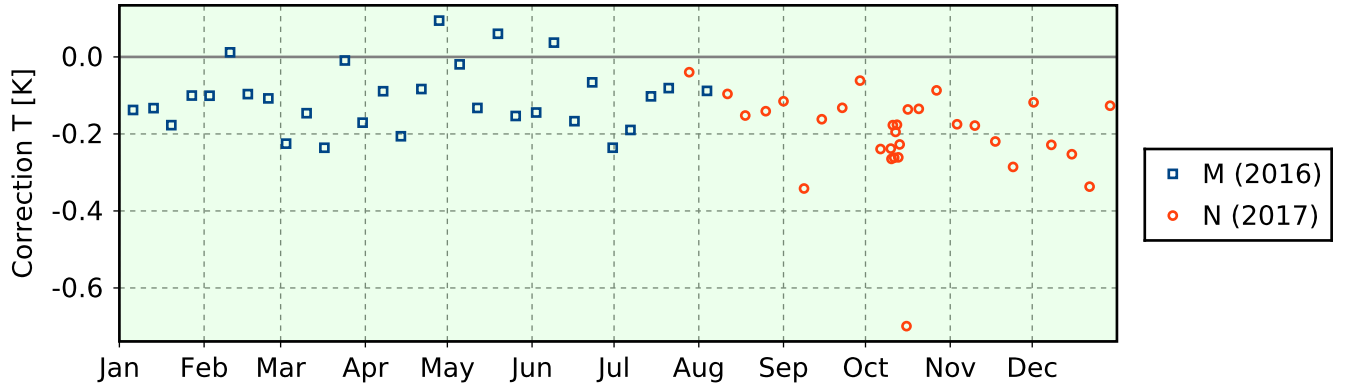
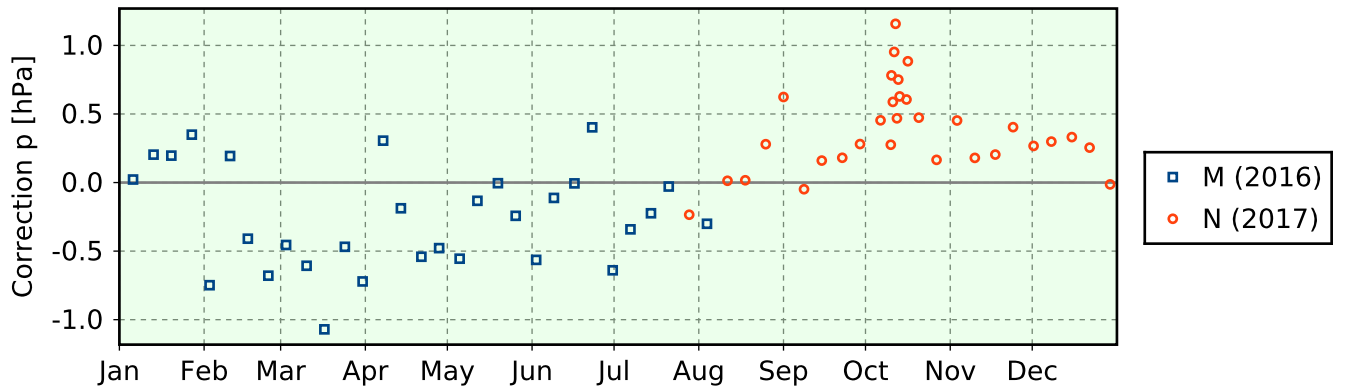
##### (1) GroundCheck: GC-TU

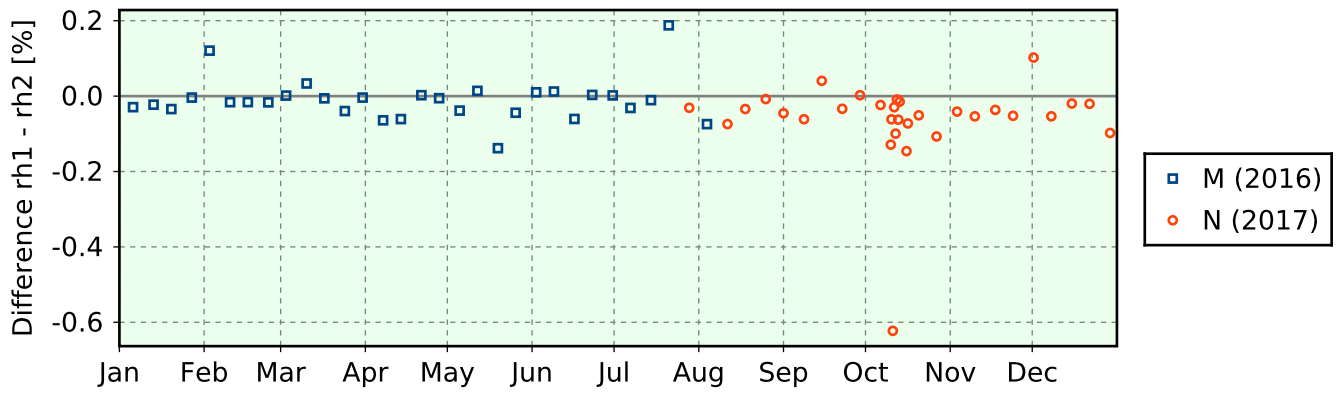




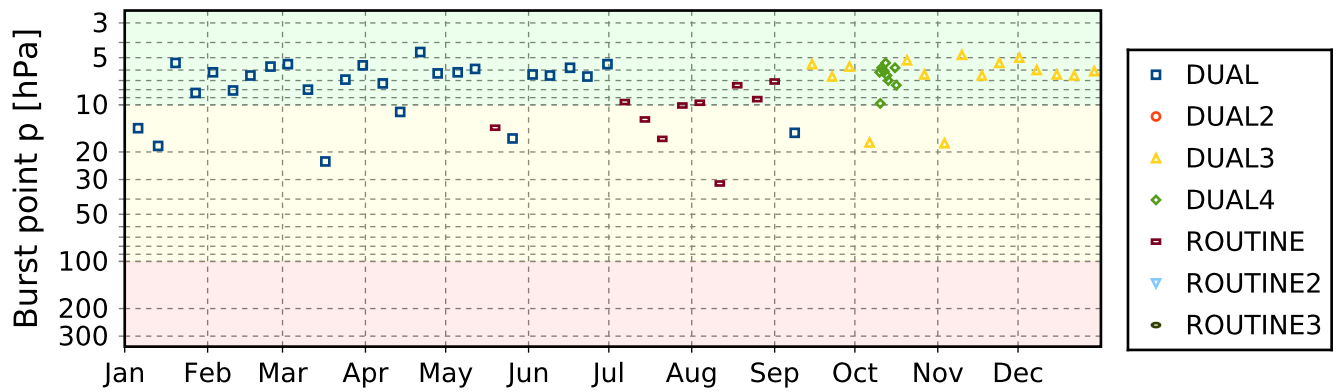
### 3.6.3 Stream: RS92

#### (1) GroundCheck: GC-GC25





### 3.7 Measurement events







# GRUAN Site Report for Minamitorishima (MTS), 2017

Reported time range is Jan 2017 to Dec 2017

Created by the Lead Centre

Version from 2018-04-10

## 1 General GRUAN site information

Object	Value
Station name	Minamitorishima
Unique GRUAN ID	MTS
Geographical position	24.2900 °N, 153.9800 °E, 9.0 m
Operated by	JMA   Japan Meteorological Agency
Main contact	-
WMO no./name	-
Operators	currently 5, changes +0 / -0
Sounding Site	1

### 1.1 General information about GRUAN measurement systems

System	Name	Type	Setups	Measurements
MTS-RS-01	Minamitorishima radiosonde launch site	Sounding Site	1	0

### 1.2 General comments from Lead Centre

No comments available from Lead Centre.

## 2 System: Minamitorishima radiosonde launch site (MTS-RS-01)

<b>Object</b>	<b>Value</b>
System name	Minamitorishima radiosonde launch site
Unique GRUAN ID	MTS-RS-01
System type	Sounding Site (RS - Radiosonde)
Geographical position	24.2900 °N, 153.9800 °E, 9.0 m
Operated by	JMA   Japan Meteorological Agency
Instrument contact	Suzuki, Kenji
Started at	-
Defined setups	1 (ROUTINE)
Possible streams	IMS-100

### 2.1 Lead Centre comments

No comments available from Lead Centre.



# GRUAN Site Report for Syowa (SYO), 2017

Reported time range is Jan 2017 to Dec 2017  
Created by the Lead Centre  
Version from 2018-04-10

## 1 General GRUAN site information

Object	Value
Station name	Syowa
Unique GRUAN ID	SYO
Geographical position	-69.0100 °S, 39.5800 °E, 18.4 m
Operated by	JMA   Japan Meteorological Agency
Main contact	Ogihara, Hiroyuki
WMO no./name	89532 SYOWA
Operators	currently 6, changes +0 / -0
Sounding Site	1

### 1.1 General information about GRUAN measurement systems

System	Name	Type	Setups	Measurements
SYO-RS-01	Syowa Station Radiosonde Launch Site	Sounding Site	2	0

### 1.2 General comments from Lead Centre

No comments available from Lead Centre.

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## 2 System: Syowa Station Radiosonde Launch Site (SYO-RS-01)

<b>Object</b>	<b>Value</b>
System name	Syowa Station Radiosonde Launch Site
Unique GRUAN ID	SYO-RS-01
System type	Sounding Site (RS - Radiosonde)
Geographical position	-69.0053 °S, 39.5811 °E, 18.4 m
Operated by	JMA   Japan Meteorological Agency
Instrument contact	Ogihara, Hiroyuki
Started at	1959-01-01
Defined setups	2 (ROUTINE, ROUTINE2)
Possible streams	RS-11G

### 2.1 Lead Centre comments

No comments available from Lead Centre.