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

13th GRUAN Implementation-Coordination Meeting (ICM-13)
Virtual
15 November - 19 November 2021

Doc. 1.27
(01.X.2021)

Session 1

GRUAN Site Report for Tateno

(Submitted by Hisamitsu Junji)

Summary and Purpose of this Document

Report from the GRUAN site Tateno for the period January to December 2020.

Overview

Tateno contributes to GRUAN with twice-daily radiosonde observations, weekly dual-flight observations with Meisei and Vaisala radiosondes, several times a year multi-payload flight observations, and operational GNSS IPW data streams. The type of radiosonde for daily use is iMS-100 until June 29 and RS41-SG after that, radiosonde for comparison is RS92-SGP, RS41-SGP, RS41-SG, RS-11G, iMS-100, CFH, SKYDEW or MTR. Other activities at Tateno include ground-based meteorological observations, ECC ozone sonde observations, ozone observations using the Dobson ozone spectrophotometer and Brewer spectrophotometer, UV observations using the Brewer spectrophotometer, and radiation observations. RS92, RS41 and iMS-100 are subject to manufacturer-independent ground check is performed in an SHC at 0%RH (except RS92) and 100%RH prior to launch.

Change and change management

- The radiosonde used for routine observations was changed from iMS-100 to RS41-SG on June 29.
- Changed radiosonde for comparison of dual-flight observations from RS92-SGP to RS41-SGP in February, and from RS41-SGP to iMS-100 in July.
- We started to transmit GNSS data of TSK2 of GSI in February.
- GNSS observations at TAT were terminated in October.
- SKYDEW observation started in October.

Resourcing

We continue to be asked to significantly reduce the cost of observations.

Operations

Tateno can't operate dual-flight or special radiosondes like CFH because of safety problems that balloon/equipment fall to urban in the summer.

Covid-19

NIL

Site assessment and certification

Tateno was GRUAN-certified (for the RS92 measurement program) in April 2018.

GRUAN-related research

- Intercomparison observations between iMS-100 and RS92 were conducted once a week except for the summer period. RS92-SGP was changed to RS41-SGP in February, Changed the radiosonde used for regular observations from iMS-100 to RS41-SG and the radiosonde for comparison observations from RS92 to iMS-100 in June.
- Intercomparison of SKYDEW with CFH, iMS-100, RS-11G, and RS41-SG in October.
- Preparing for the revision of GRUAN-TD-5 and certification of iMS-100.
- Comparison observations with iMS-100 and RS41-SGP once a month since November.

WG-GRUAN interface

- Tateno is a center that processes the GDP of RS-11G and iMS-100.
- SUZUKI Kenji is a member of GRUAN task tesm sites.
- IWABUCHI Masami is a member of GRUAN task team radiosondes.

Other archiving centres

TATENO

- Total ozone and ozonesonde observation: WOUDC (GAW)
- Radiation observation: WRMC (BSRN), WRDC (GAW)

Participation in campaigns

NIL

Future plans

NIL

GRUAN Site Report for Tateno (TAT), 2020

Reported time range is Jan 2020 to Dec 2020
Created by the Lead Centre
Version from 2021-10-01

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	Hisamitsu, Junji
WMO no./name	47646 TATENO
Operators	currently 27, changes +3 / -4
Sounding Site	1
GNSS	2

1.1 General information about GRUAN measurement systems

System	Name	Type	Setups	Measurements
TAT-GN-01	GNSS Site TATN	GNSS	1	operational
TAT-GN-02	GNSS Site TSK2	GNSS	1	operational
TAT-RS-01	Tateno Radiosonde Launch Site	Sounding Site	12	733

1.2 General comments from Lead Centre

1.2.1 General

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.

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

Object	Value
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	Hisamitsu, Junji
Started at	-
Defined setups	1 (HOURLY)
Possible streams	-

2.1 Lead Centre comments

2.1.1 Dataflow

Dataflow of GNSS data to GRUAN LC and the GRUAN GNSS processing centre at GFZ has started in December 2018. The current dataflow includes manufacturer raw data, converted raw data (RINEX) and instrument logs, containing all equipment changes.

At moment, data are available from 2017.

Meteorological data is missing, therefore the operational processing as GNSS-PW-GDP cannot be performed at moment.

3 System: GNSS Site TSK2 (TAT-GN-02)

Object	Value
System name	GNSS Site TSK2
Unique GRUAN ID	TAT-GN-02
System type	GNSS (GN - GNSS)
Geographical position	36.1056 °N, 140.0871 °E, 70.0 m
Operated by	JMA | Japan Meteorological Agency
Instrument contact	Hisamitsu, Junji
Started at	2020-11-01
Defined setups	1 (HOURLY)
Possible streams	-

3.1 Lead Centre comments

No comments from Lead Centre.

4 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	Hisamitsu, Junji
Started at	-
Defined setups	12 (ROUTINE, COMPARE, ROUTINE2, DUAL, DUAL2, DUAL3, ROUTINE3, DUAL4, RESEARCH, DUAL5, DUAL6, ROUTINE4)
Possible streams	CFH, IMS-100, RS-11G, RS41, RS92

4.1 Lead Centre comments

4.1.1 Change management

Regularly twin soundings with RS92-SGP and IMS-100 were performed and submitted to the GRUAN LC until January 2020.

Regularly twin soundings with RS41 and IMS-100 were performed and submitted to the GRUAN LC since February 2020.

4.1.2 Dataflow

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

Currently, the dataflow includes streams of Vaisala RS41, Meisei IMS-100 and RS-11G, Vaisala RS92 and CFH water vapor. All launches are promptly submitted using the RsLaunchClient.

4.1.3 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.

Operational radiosonde was changed from Meisei IMS-100 to Vaisala RS41 at 29 June 2020.

4.2 GRUAN data products

Product	Version	Soundings received	Available at LC	Distributed by NCEI

4.2.1 Stream: CFH

CFH		1	1	

4.2.2 Stream: IMS-100

IMS-100		377	377	
IMS-100-BETA	001		367	
IMS-100-BETA	002		208	

4.2.3 Stream: RS-11G

RS-11G		2	2	
RS-11G-GDP	001		2	

4.2.4 Stream: RS41

RS41		391	391	
RS41-GCA	001		341	
RS41-RAW	001		391	
RS41-EDT	001		388	
RS41-GDP-ALPHA	003		11	
RS41-GDP-ALPHA	004		11	
RS41-GDP-BETA	001		391	
RS41-GDP-BETA	002		94	
RS41-GDP-BETA	003		391	

4.2.5 Stream: RS92

RS92		6	6	
RS92-INT	001		6	
RS92-RAW	002		6	
RS92-EDT	001		6	
RS92-GDP	002		5	

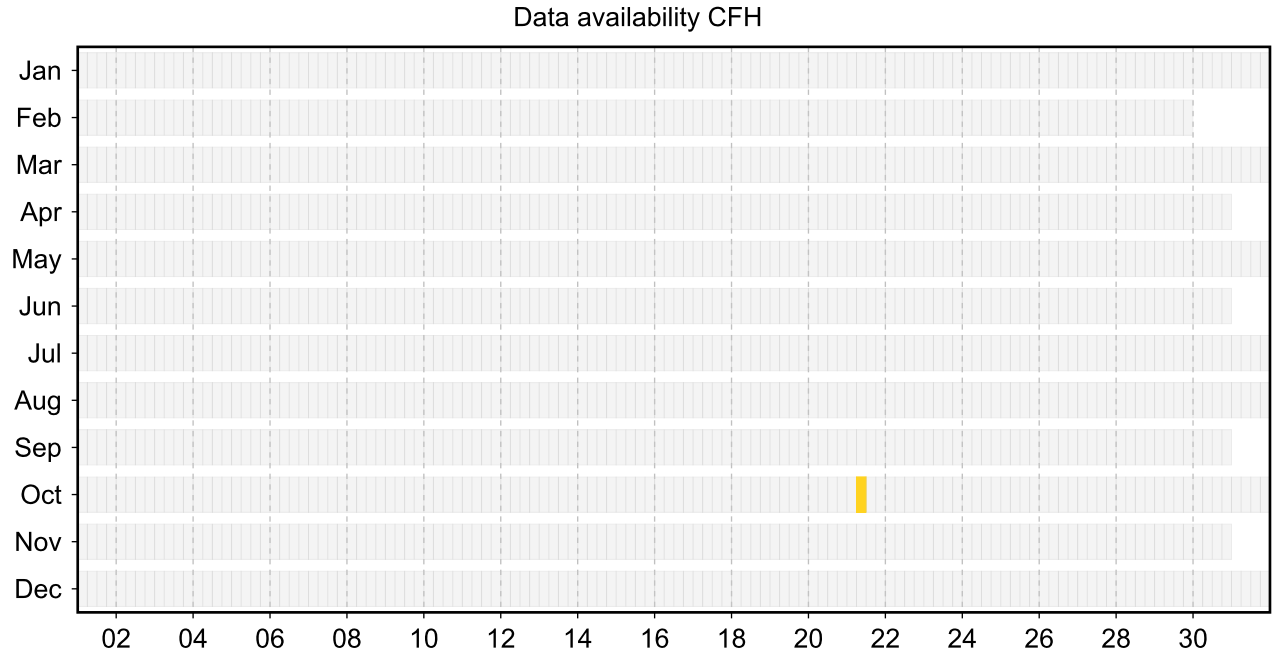
4.3 Availability of data products

Available (green): All steps of data processing have been successfully completed. The data product file is available at LC (e.g. files that didn't pass QA/QC or uncertified GRUAN data products) and/or at NCEI (a certified GRUAN data product file that did pass QA/QC).

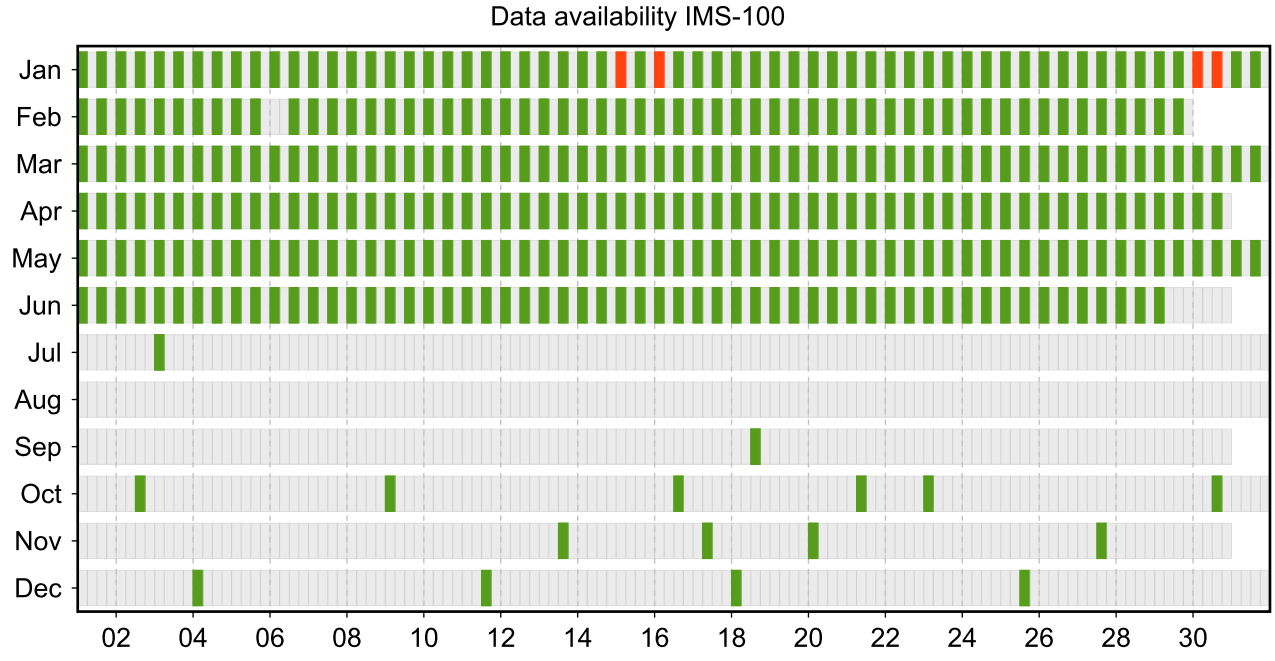
Unprocessed (yellow): The manufacturer-produced file with raw measurement data has been successfully converted into a GRUAN-standardized raw data format (NetCDF). The GRUAN data processing has not been performed or was aborted. Reasons for this may be a still missing GRUAN data processor or a processing-software error.

Original (red): The original, manufacturer-produced, raw data file is available (e.g. MWX data file) but was not converted into a GRUAN-standardized raw data format (NetCDF). Reasons for this may be missing data conversion software, a software error, or a corrupt data file.

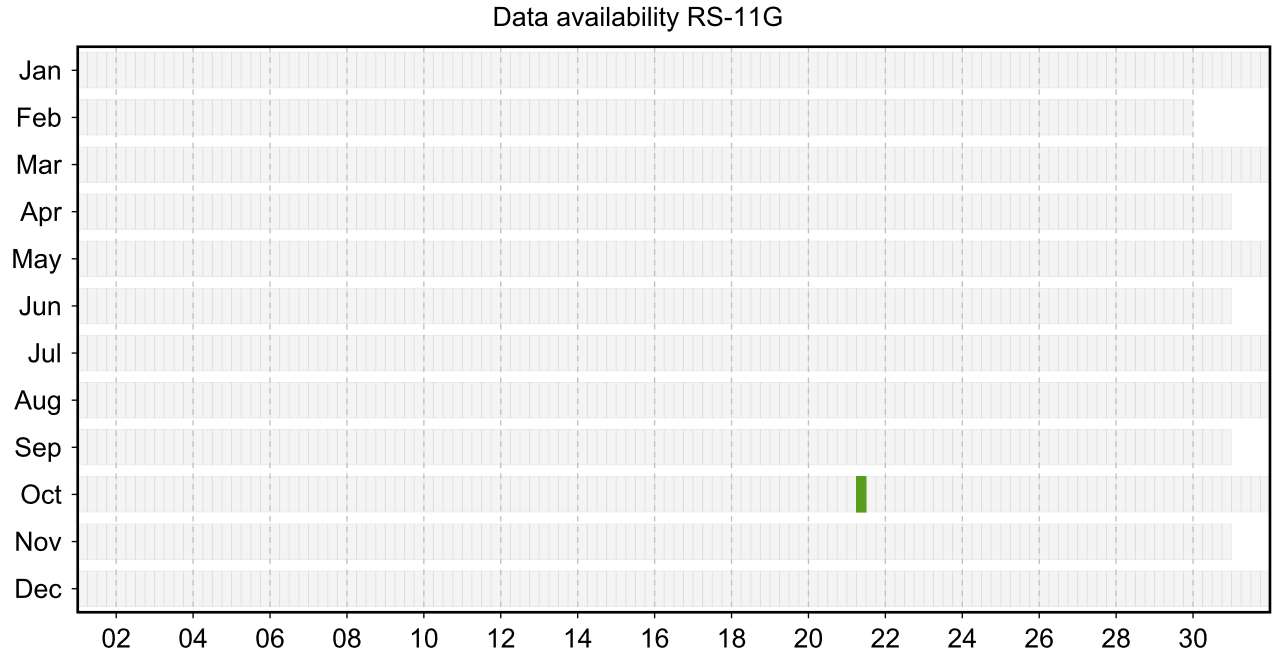
4.3.1 Stream: CFH



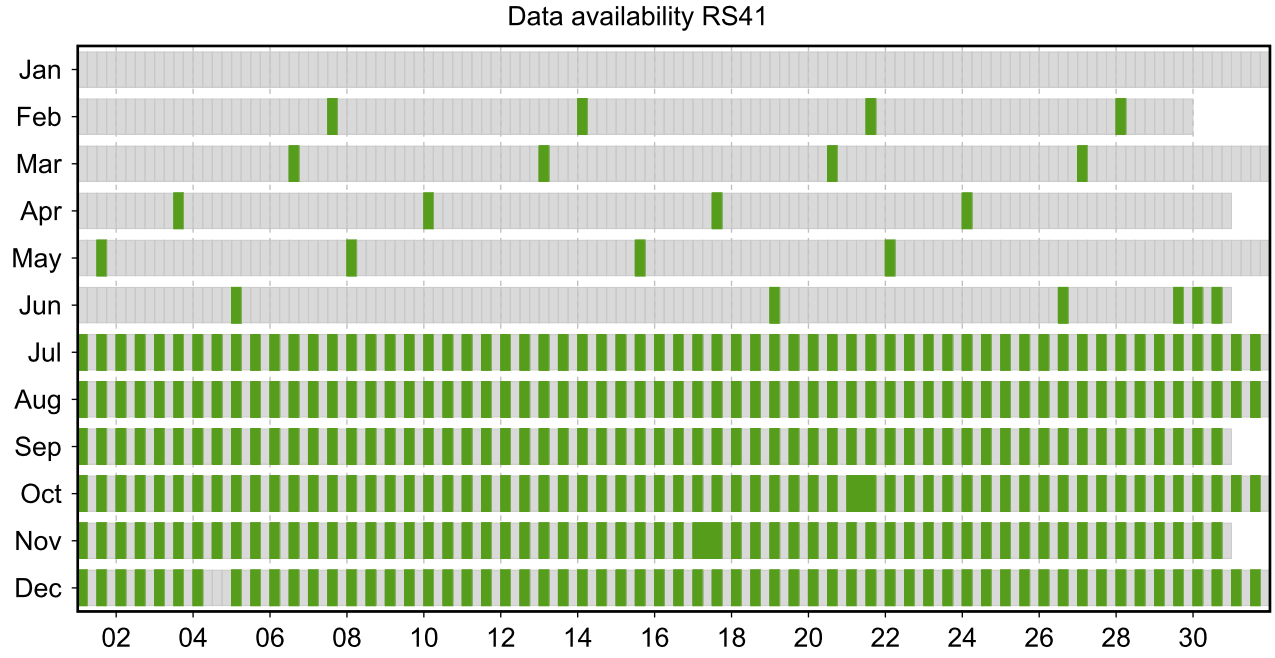
4.3.2 Stream: IMS-100



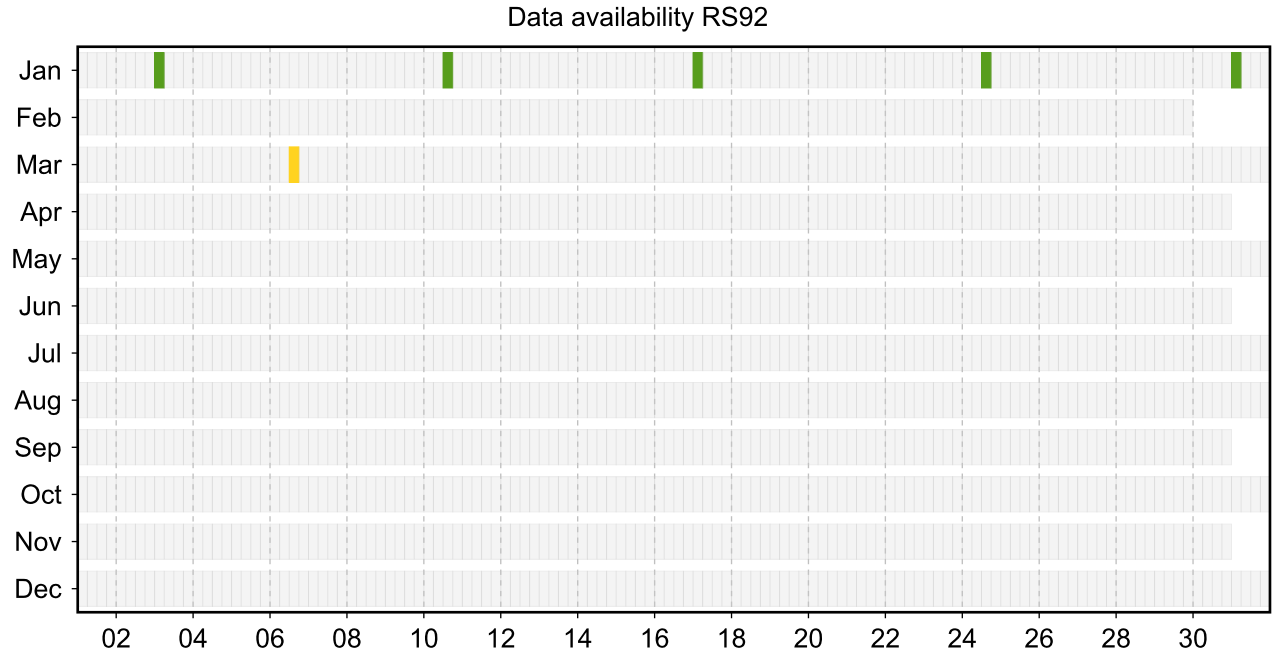
4.3.3 Stream: RS-11G



4.3.4 Stream: RS41



4.3.5 Stream: RS92



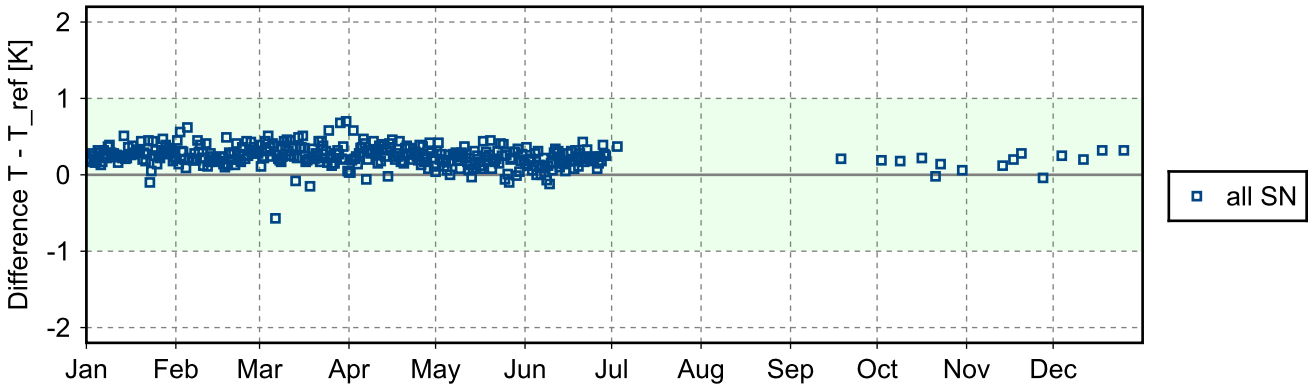
4.4 Instrument combinations of TAT-RS-01

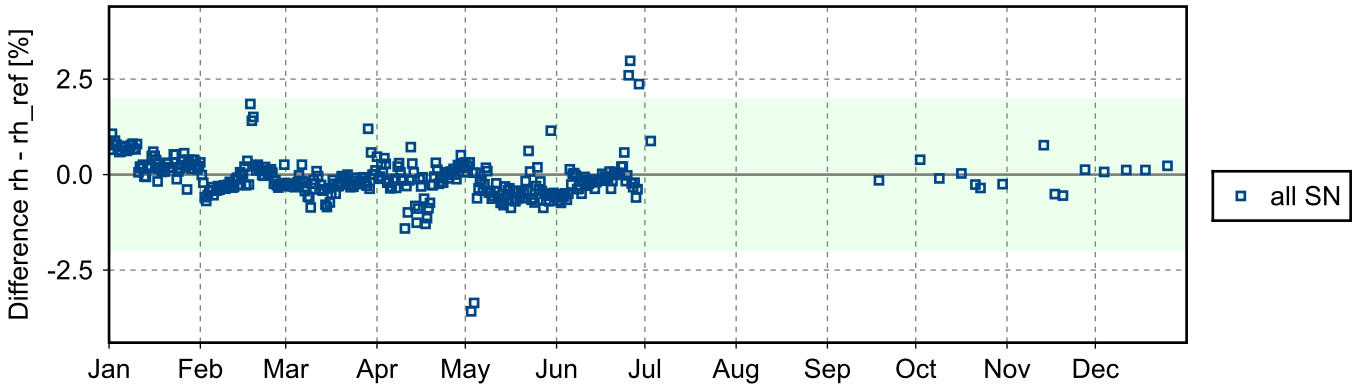
Count	Instrument combination
1	CFH, IMS-100, 2x RS-11G, RS41
336	IMS-100
34	IMS-100, RS41
6	IMS-100, RS92
356	RS41

4.5 Instrument ground check

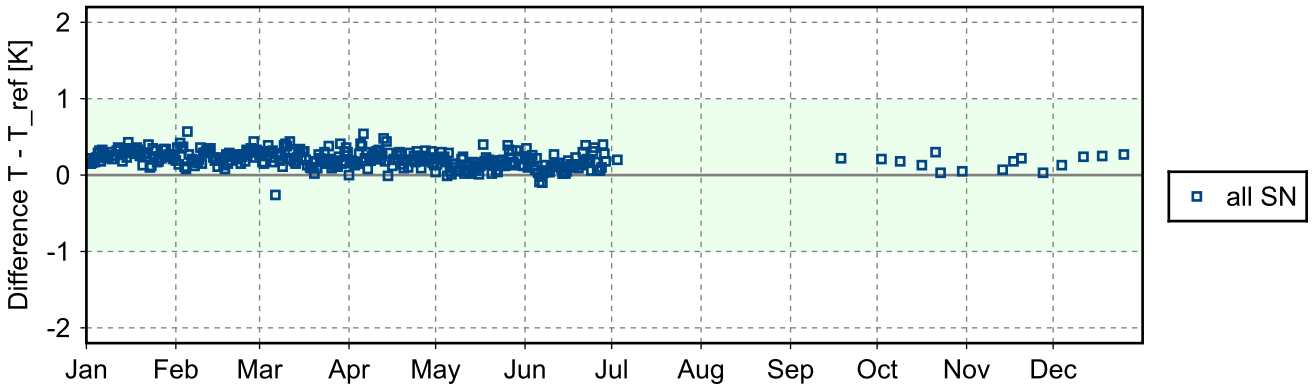
4.5.1 Stream: IMS-100

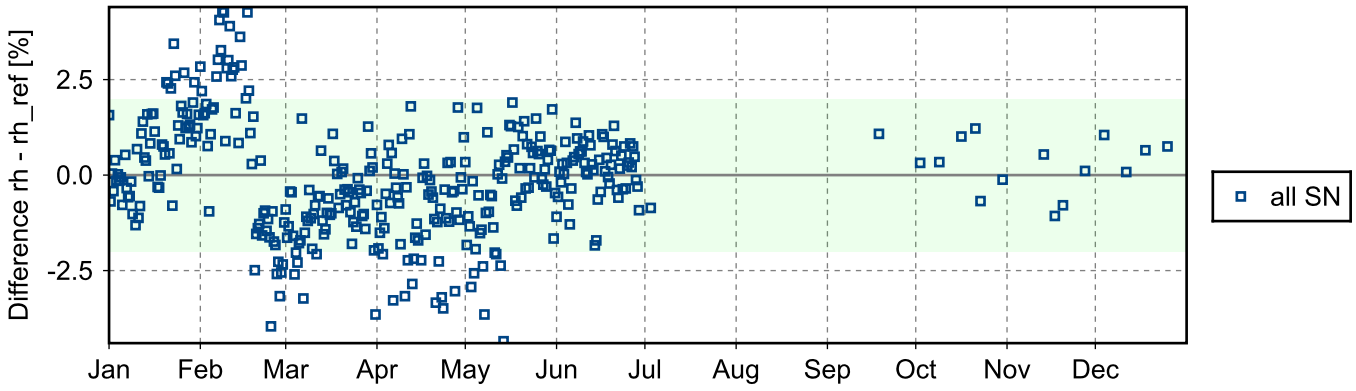
(1) GroundCheck: GC-TU(0)



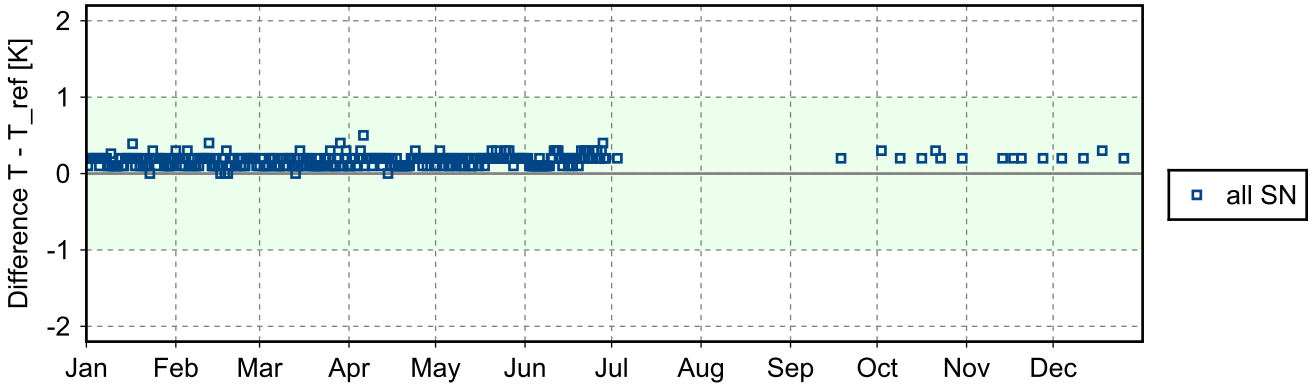


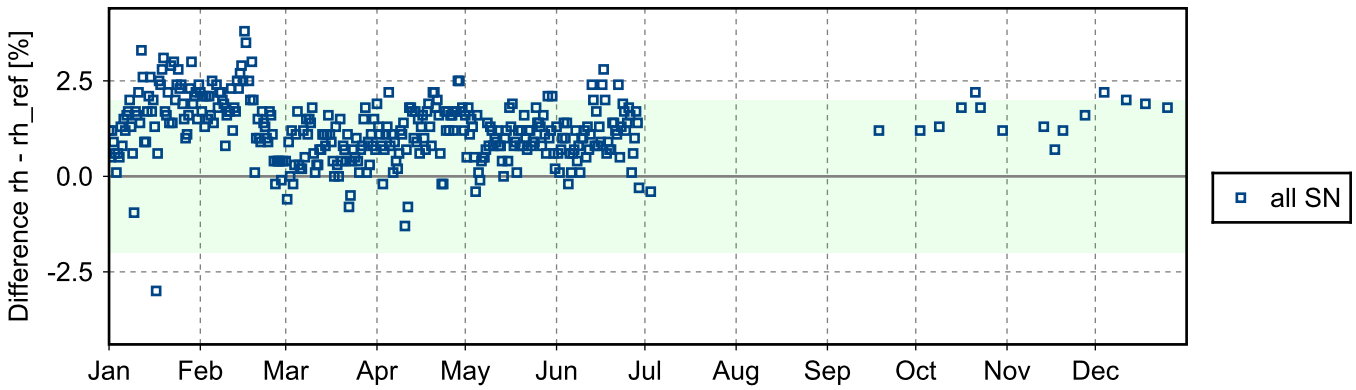
(2) GroundCheck: GC-TU(100)





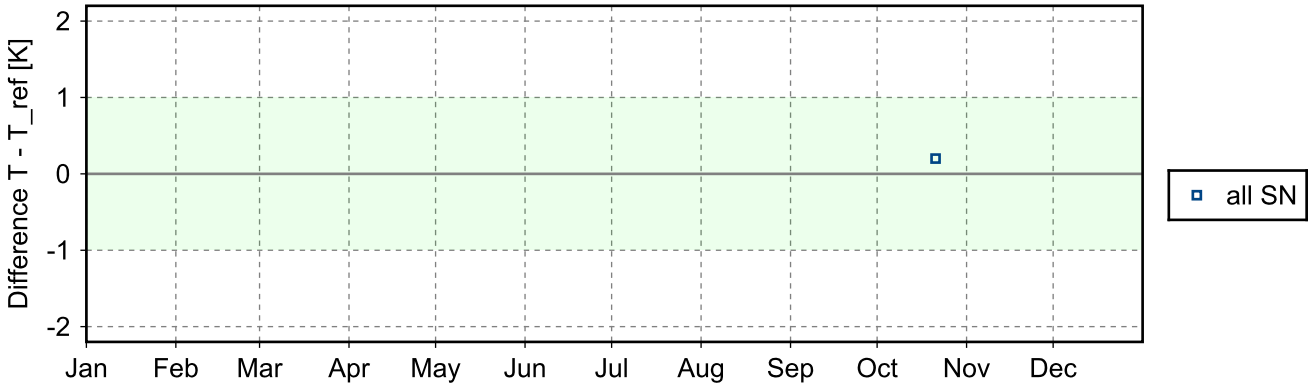
(3) GroundCheck: GC-TU(room)

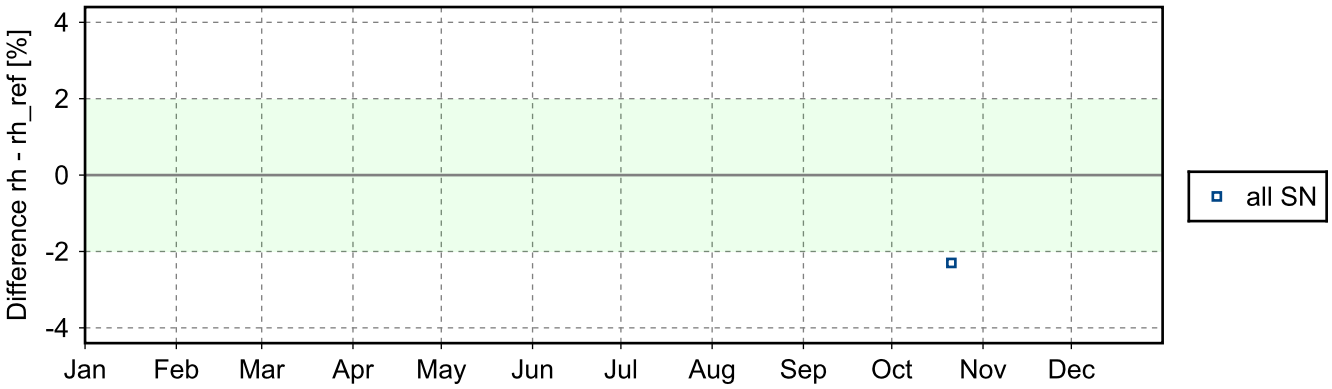




4.5.2 Stream: RS-11G

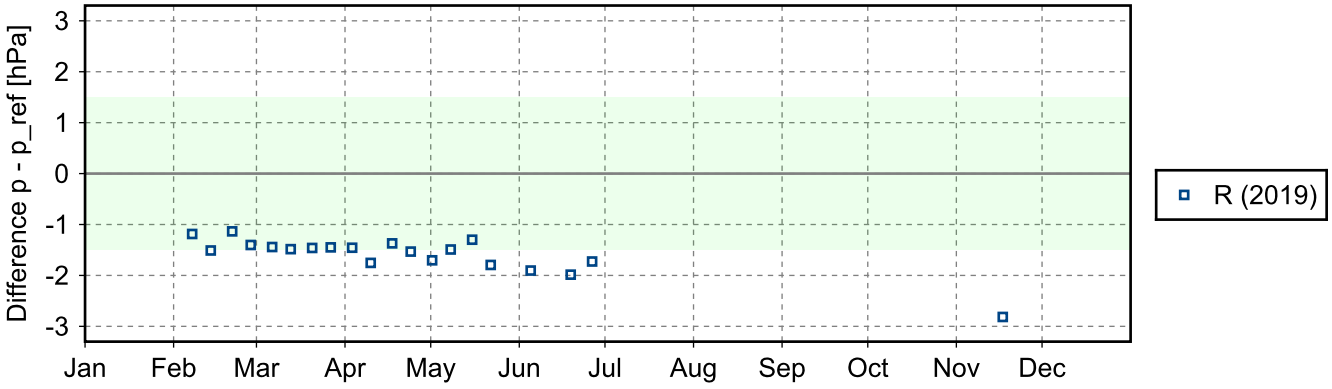
(1) GroundCheck: GC-TU(room)



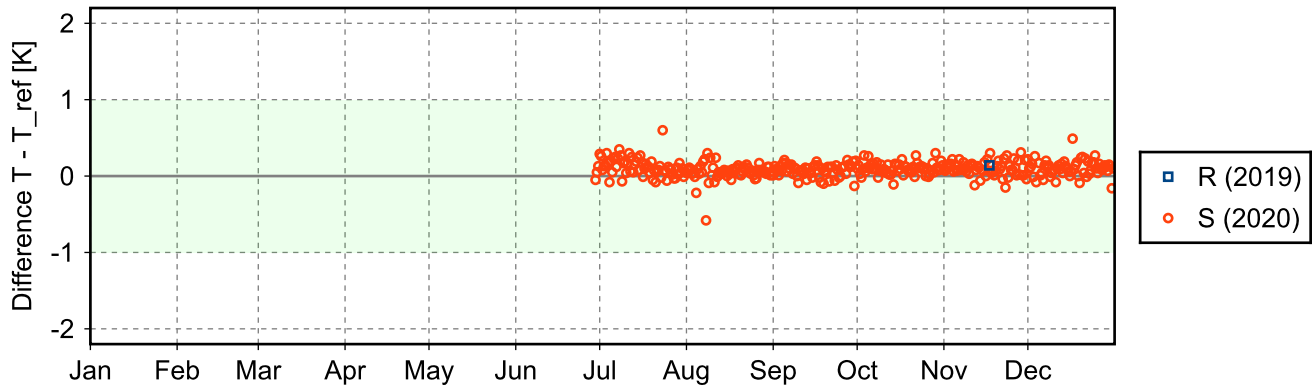


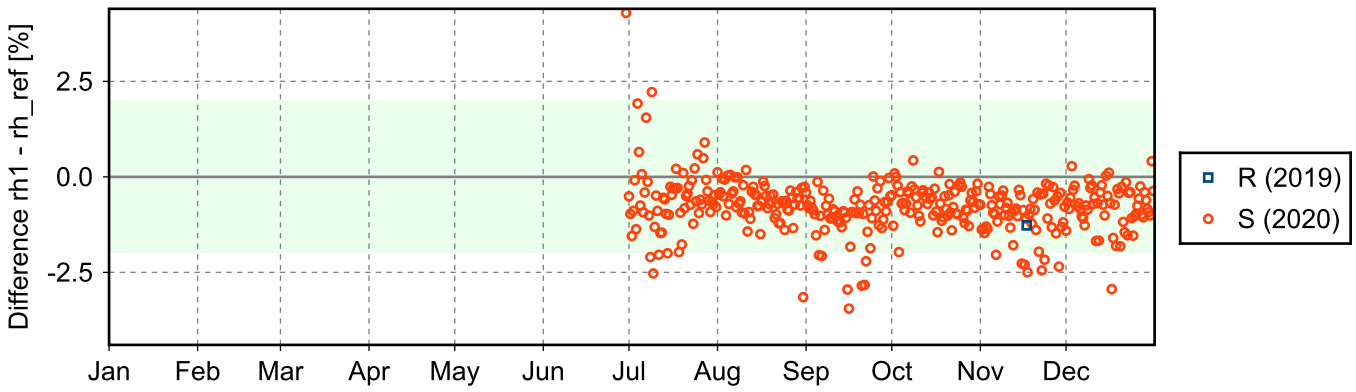
4.5.3 Stream: RS41

(1) GroundCheck: GC-RI41



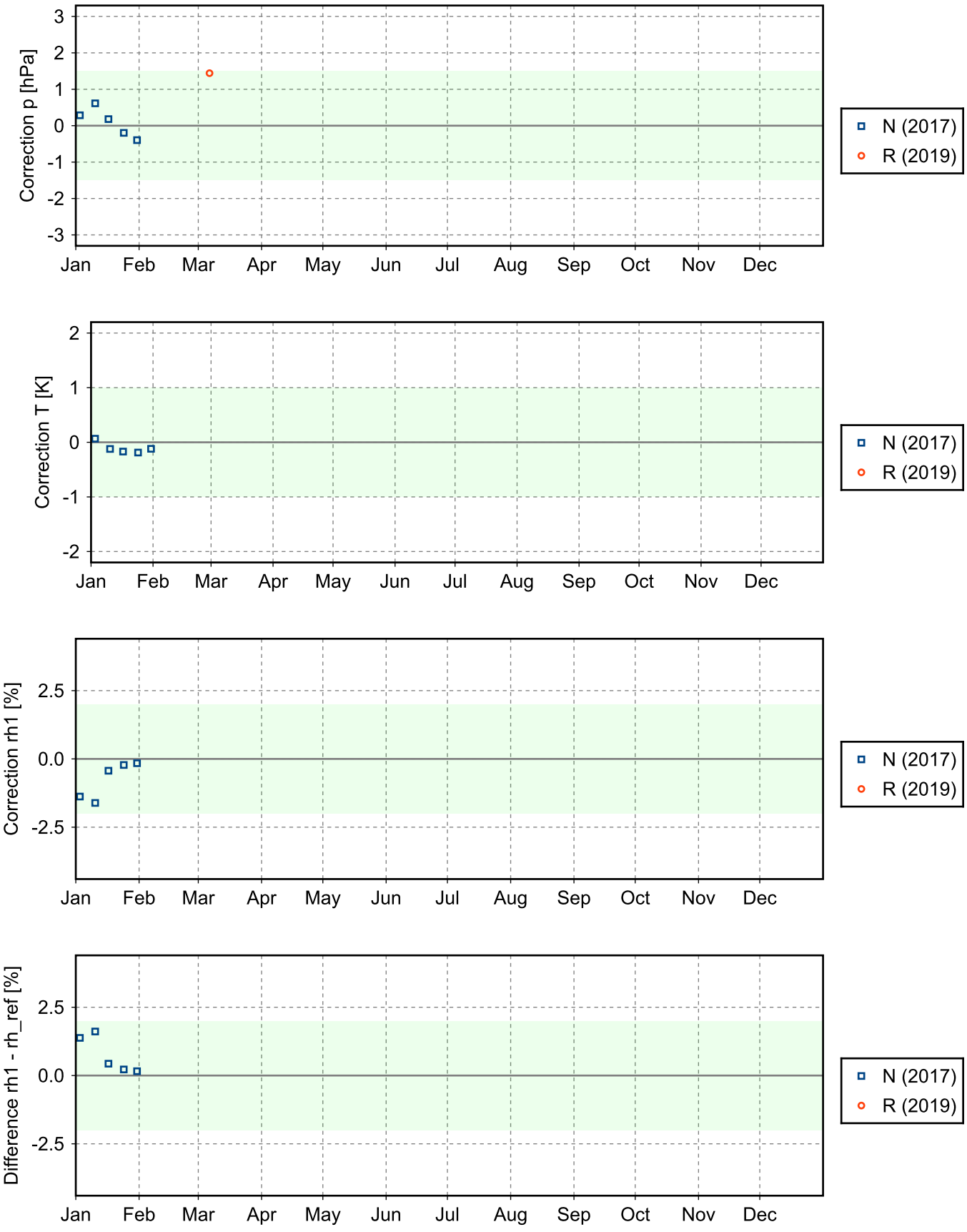
(2) GroundCheck: GC-SHC

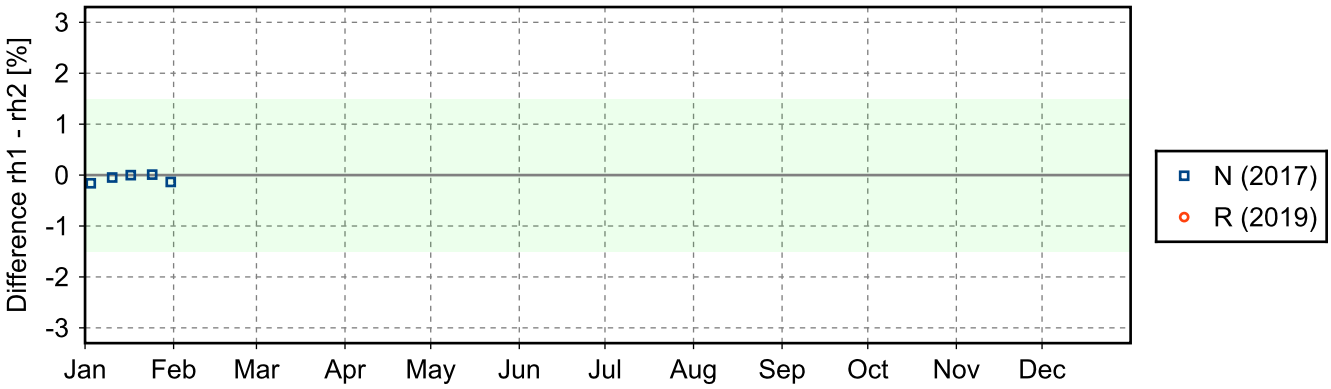




4.5.4 Stream: RS92

(1) GroundCheck: GC-GC25





4.6 Measurement events