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

15th GRUAN Implementation-Coordination Meeting (ICM-15)
Bern
11 March - 15 March 2024

Doc. 5.17
(01.II.2024)

Session 5

GRUAN Site Report for Minamitorishima

(Submitted by Junji Hisamitsu)

Summary and Purpose of this Document

Report from the GRUAN site Minamitorishima for the period January 2022 to December 2023.

Overview

Minamitorishima contributes to GRUAN with its iMS-100 radiosonde, which observes twice a day, and its GNSS IPW operational data stream. Other activities at Minamitorishima include, radiation observation and greenhouse-gases observation. The iMS-100 performs manufacturer-independent ground checks at 0% and 100% RH at SHC prior to launch.

Change and change management

There will be no change in work procedures during the reporting period. All operators will be replaced every three months.

Resourcing

We continue to be asked to significantly reduce the cost of observations. The use of SDF transport aircraft to move to the island may be limited.

Operations

Minamitorishima has problems with balloon bursts near the tropopause and at low altitudes. Therefore, we are considering countermeasures in consultation with balloon makers and radiosonde makers.

Covid-19

NIL

Site assessment and certification

Preparation for site certification of Minamitorishima is in progress by JMA.

GRUAN-related research

NIL

WG-GRUAN interface

NIL

Other archiving centers

MINAMITORISHIMA

- Aerosols observation: WDCA (GAW)
- Surface ozone observation: WDCRG (GAW)

Participation in campaigns

NIL

Future plans

NIL

GRUAN Site Report for Minamitorishima (MTS), 2022

Reported time range is Jan 2022 to Dec 2022
Created by the Lead Centre
Version from 2024-03-01

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	Hisamitsu, Junji
WMO no./name	47991 MINAMITORISHIMA
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	730

1.2 General comments from Lead Centre

1.2.1 Dataflow

For this remote site an intermittent (batch-like) dataflow was established in 2018. Data packages of approximately one month are submitted to the GRUAN LC.

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

Object	Value
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	Hisamitsu, Junji
Started at	-
Defined setups	1 (ROUTINE)
Possible streams	IMS-100

2.1 Lead Centre comments

2.1.1 Data quality

The extensive ground checks are appreciated.

Relatively large fluctuations of RH differences in the ground checks at different RH levels (2.5 %RH and more) are present. Particularly at the 0 %RH check, step-like changes in the otherwise largely constant levels are noticeable. This appears to be related to the quality of the realisation of the 0 %RH environment.

It is noticeable that mean temperature deviations (0.2 K to 0.3 K) are present in the 0 %RH and 100 %RH tests, but less so in the 'room' test, even though all tests are performed at similar absolute temperatures. This might be related to the calibration of the reference sensors, and should be checked.

2.1.2 General

Routine soundings are performed two times per day.

Current operational radiosonde is the Meisei iMS-100.

In general, there is good performance in terms of burst altitude which is regularly 10 hPa and higher. But a large variability in burstpoint altitude is visible which looks like an apparent bimodal distribution 10 hPa and 100 hPa.

2.2 GRUAN data products

Product	Version	Soundings received	Available at LC	Distributed by NCEI

2.2.1 Stream: IMS-100

IMS-100		730	730	
IMS-100-GDP	002		728	

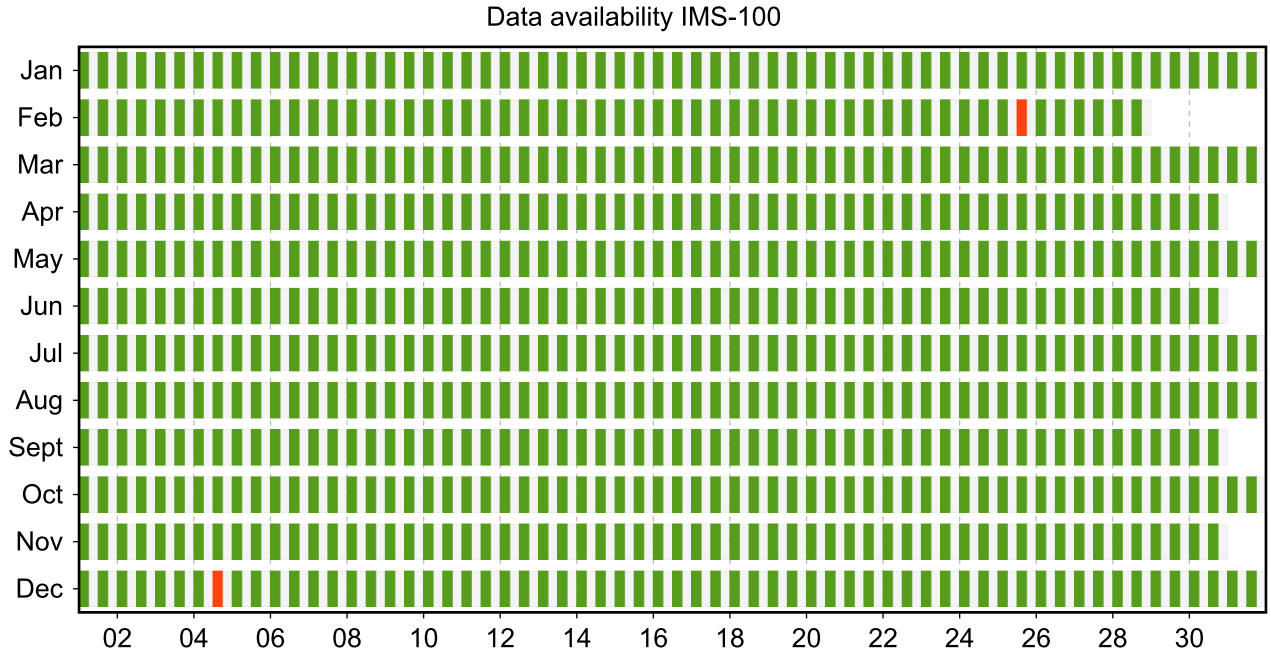
2.3 Availability of data products

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.

2.3.1 Stream: IMS-100



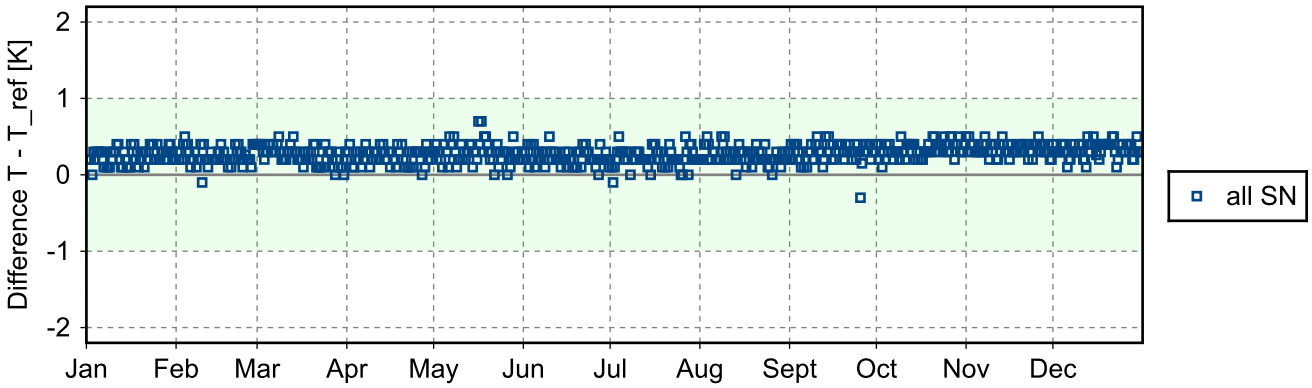
2.4 Instrument combinations of MTS-RS-01

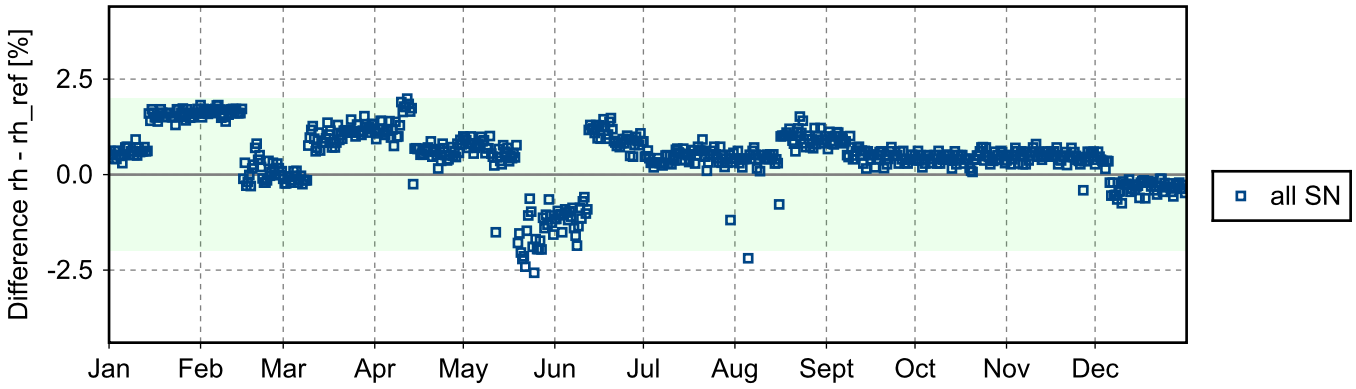
Count	Instrument combination
730	IMS-100

2.5 Instrument ground check

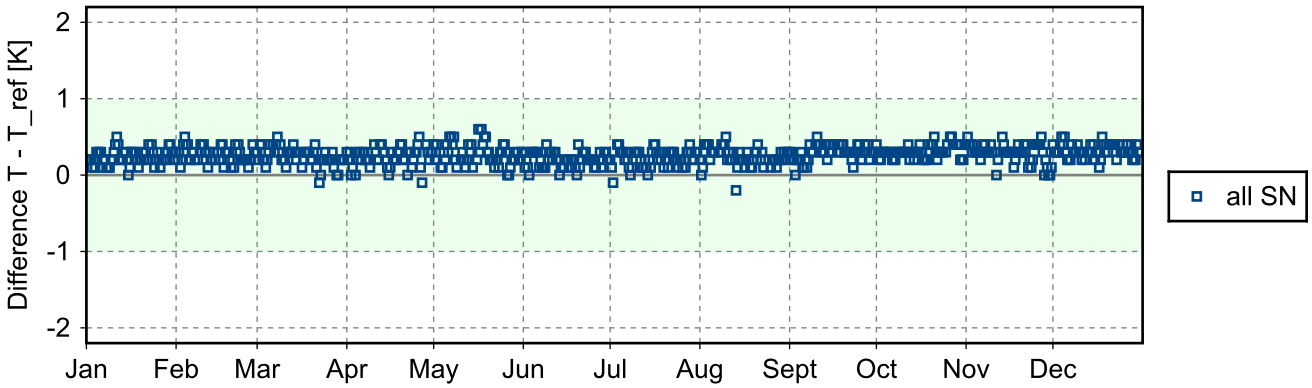
2.5.1 Stream: IMS-100

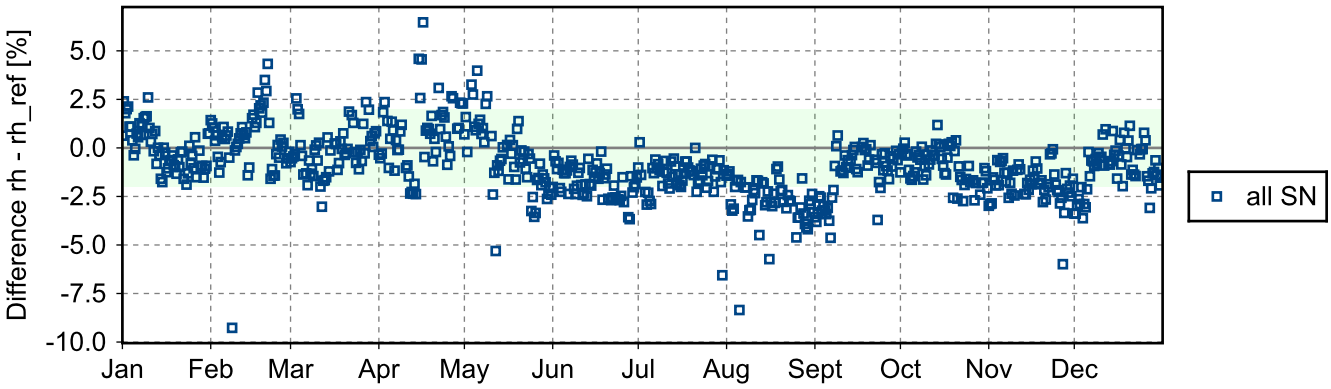
(1) GroundCheck: GC-TU(0)



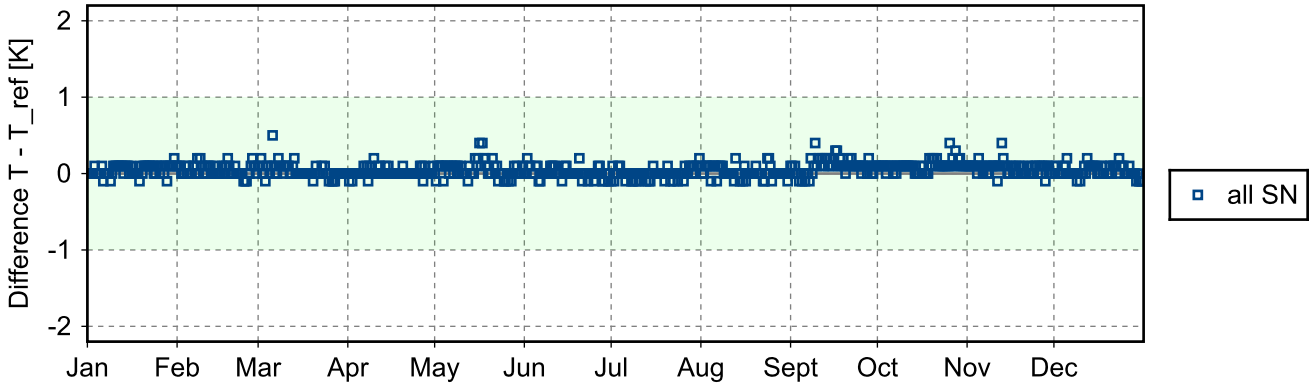


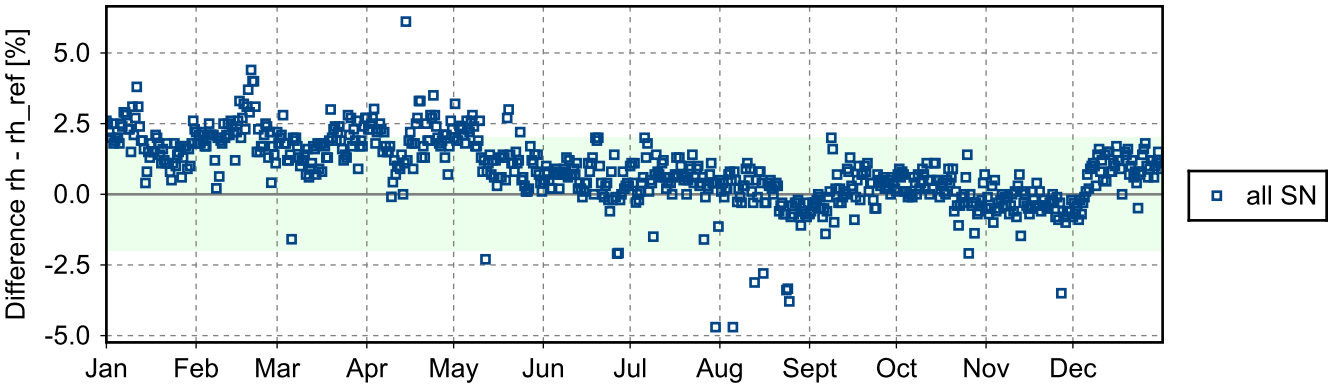
(2) GroundCheck: GC-TU(100)



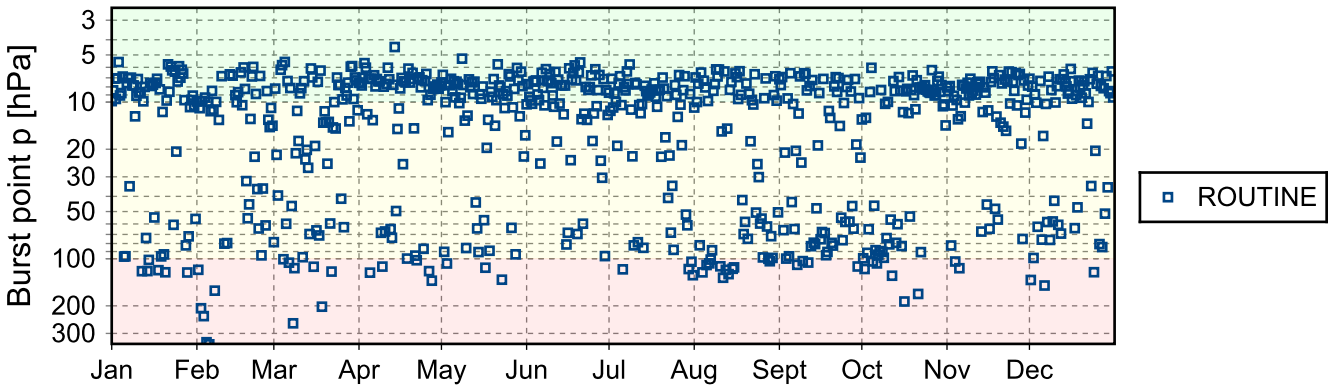


(3) GroundCheck: GC-TU(room)





2.6 Measurement events



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IMS-100-GDP	002		724	

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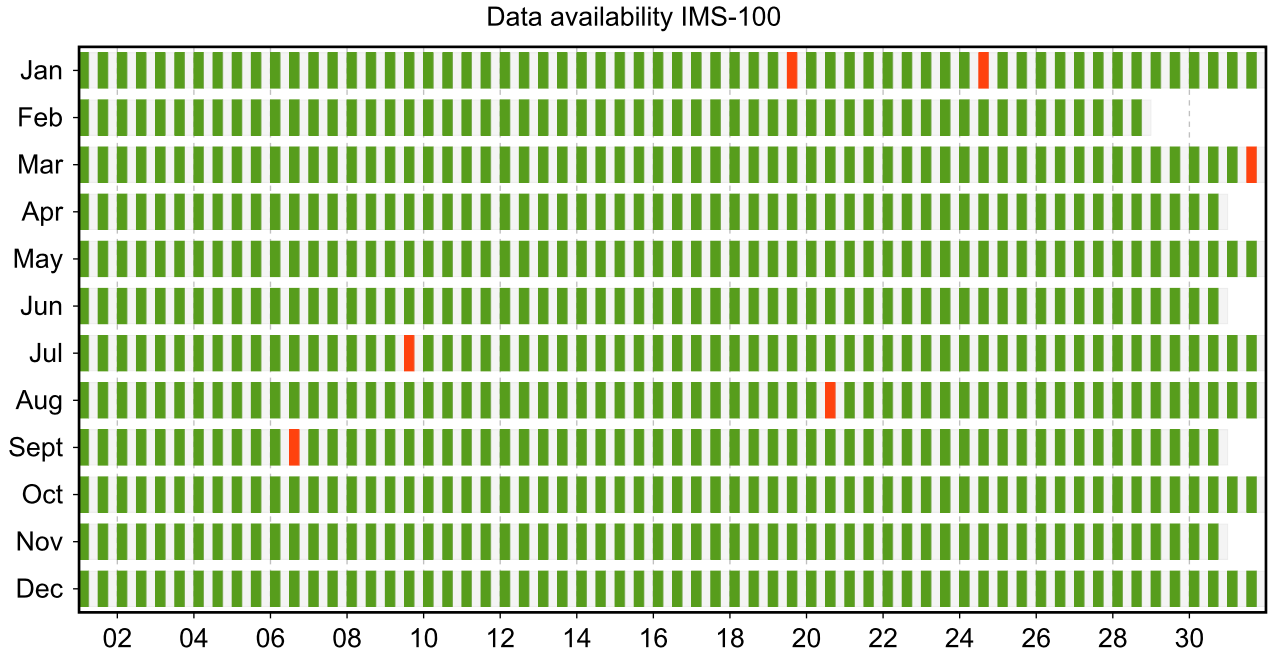

2.4 Instrument combinations of MTS-RS-01

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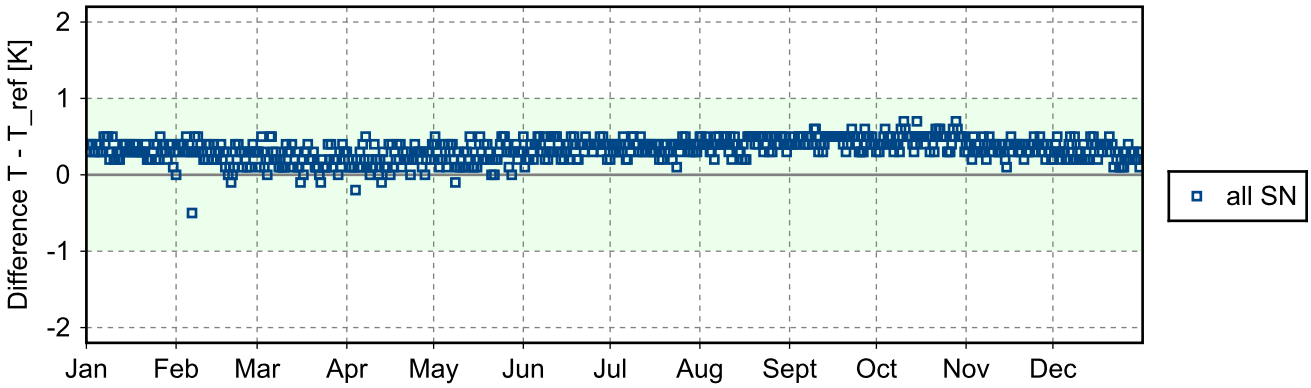
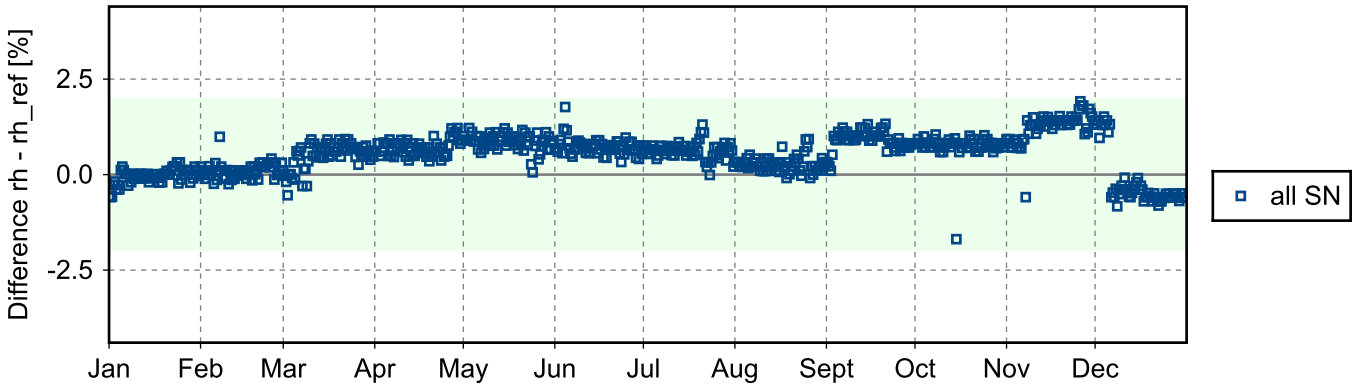
2.5 Instrument ground check

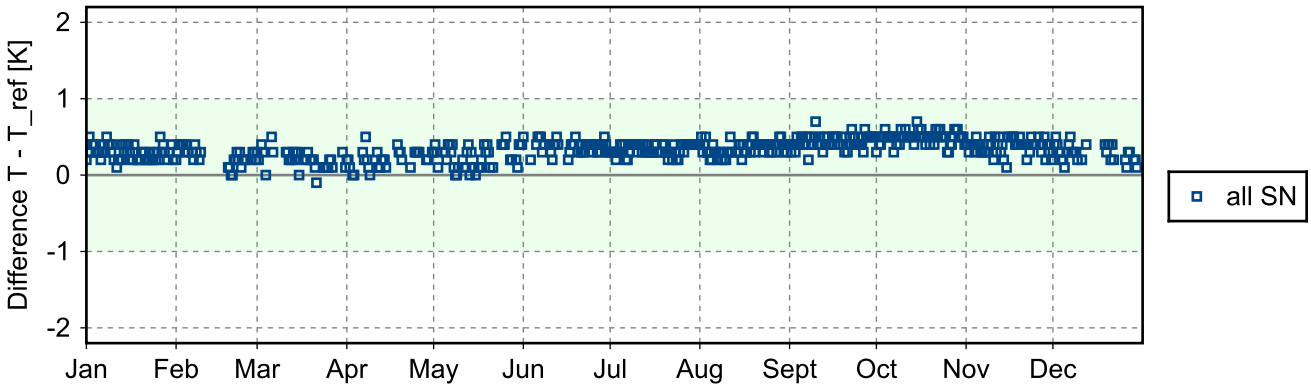
2.5.1 Stream: IMS-100

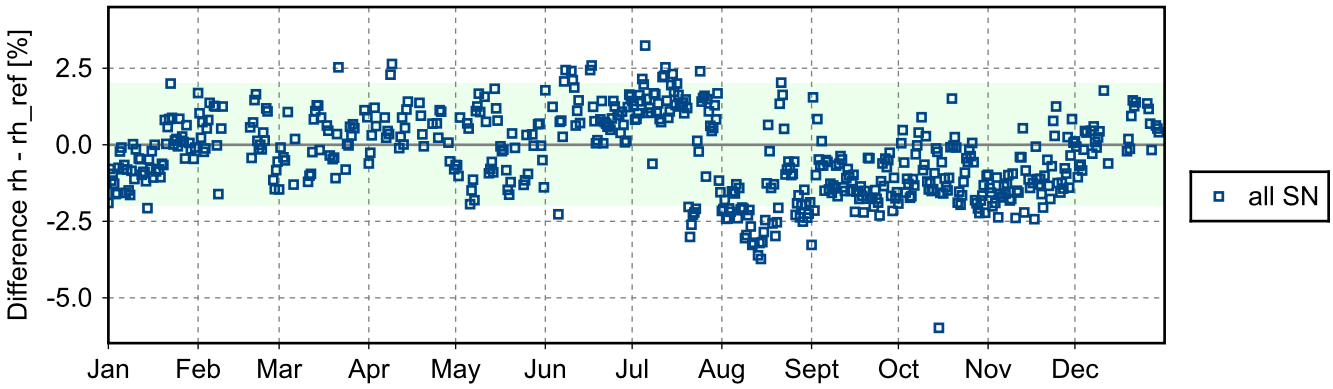
(1) GroundCheck: GC-TU(0)



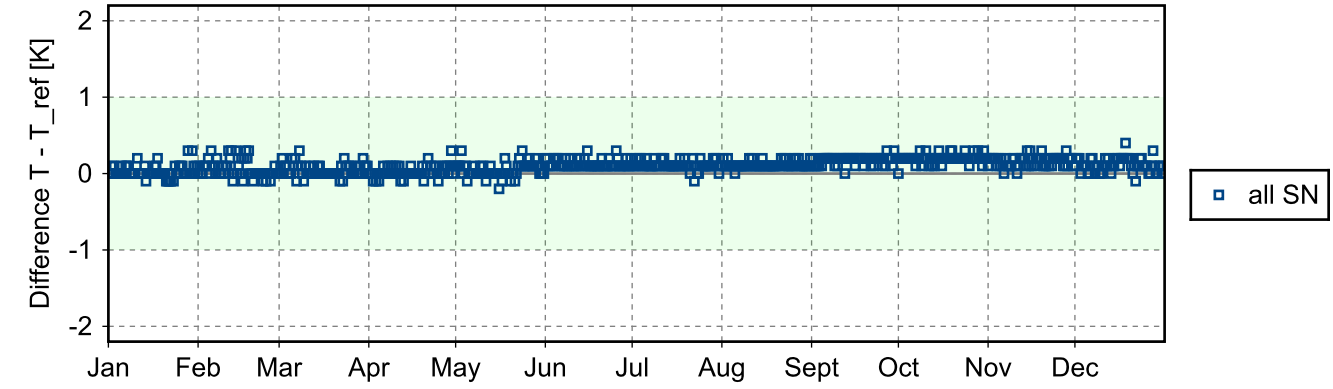


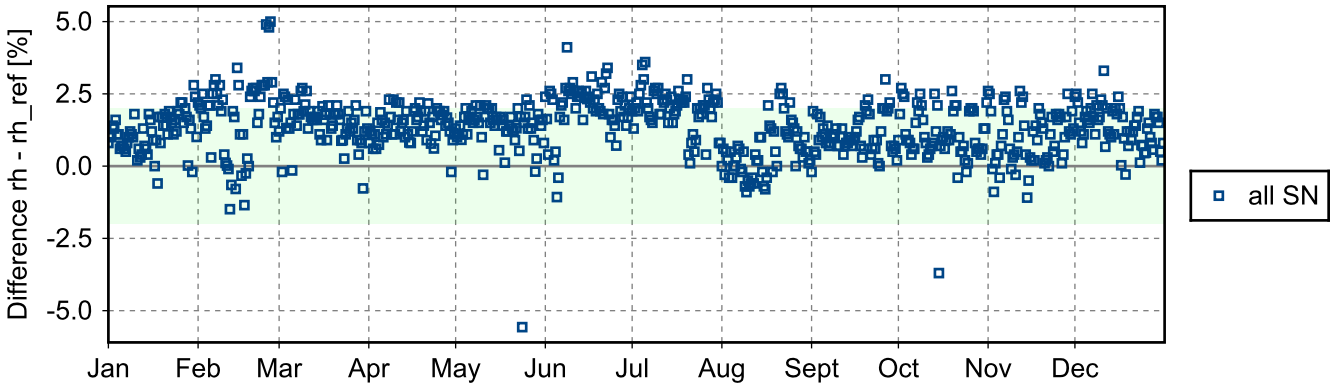
(2) GroundCheck: GC-TU(100)





(3) GroundCheck: GC-TU(room)





2.6 Measurement events