



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

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**15th GRUAN Implementation-  
Coordination Meeting (ICM-15)**

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Session 5

Bern

11 March - 15 March 2024

## GRUAN Site Report for Paramaribo

*(Submitted by Ankie Piters)*

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

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

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## **Overview**

Paramaribo is a GRUAN candidate station. Data submission started in October 2022. Routine data consist of ozonesonde+radiosonde measurements (once a week), and an additional radiosonde (once a week). Data submission was temporarily stopped in July 2023 because of software problems and lack of human resources to resolve it. All historical data since October 2017 have been submitted in 2022. A GNSS instrument installation by GFZ is foreseen in 2024. Measurements by NOAA with frost-point hygrometers are planned to start in 2024, 4 launches per year.

## **Change and change management**

Weekly radiosonde launch times have been changed to local solar noon since May 2023. Larger balloons (TX600) are being used for the radiosondes since November 2022 to be able to reach the 10 hPa level more frequently.

## **Resourcing**

It is sometimes challenging to find the resources to maintain the data stream.

## **Operations**

In 2022 and 2023 17% of the ozonesonde+radiosonde combination did not reach 10 hPa. For the radiosondes there was a considerable improvement after November 2022, when we started to use larger balloons: Jan-Oct 2022 only 8% reached 10 hPa, while Nov 2022-Dec 2023 this was 83%. Due to logistic problems the launch frequency of the ozone soundings had to be reduced to once every two weeks, instead of once every week, between April 2022 and June 2023.

## **Covid-19**

There were no covid-related issues in 2022/23.

## **Site assessment and certification**

Regular data submission started in October 2022. Historical data from October 2017 have been added. Data submission temporarily stopped in June 2023, but will continue in 2024. GNSS data stream will be added in 2024. Next steps in certification process can be taken.

## **GRUAN-related research**

n/a

## **WG-GRUAN interface**

n/a

## **Other archiving centers**

NDACC, SHADOZ, WOUDC, BSRN

## **Participation in campaigns**

n/a

## **Future plans**

- Datastream will be further automated
- GNSS instrument will be installed
- Start of FPH measurements
- Historic data will be submitted



# GRUAN Site Report for Paramaribo (PMO), 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	Paramaribo
Unique GRUAN ID	PMO
Geographical position	5.8100 °N, -55.2100 °W, 4.0 m
Operated by	MDS   Meteorologische Dienst Suriname
Main contact	Piters, Ankie
WMO no./name	0-20008-0-PMO Paramaribo
Operators	currently 0, changes +0 / -0
Sounding Site	1

### 1.1 General information about GRUAN measurement systems

System	Name	Type	Setups	Measurements
PMO-RS-01	Paramaribo Radiosonde Launch Site	Sounding Site	7	63

### 1.2 General comments from Lead Centre

#### 1.2.1 General

New dataflow of radiosonde data was started in September 2022.

## 2 System: Paramaribo Radiosonde Launch Site (PMO-RS-01)

Object	Value
System name	Paramaribo Radiosonde Launch Site
Unique GRUAN ID	PMO-RS-01
System type	Sounding Site (RS - Radiosonde)
Geographical position	5.8056 °N, -55.2144 °W, 3.0 m
Operated by	MDS   Meteorologische Dienst Suriname
Instrument contact	Piters, Ankie
Started at	1999-09-02
Defined setups	7 (OZONE, SUNRISE, SUNSET, OZONE2, OZONE3, OZONE4, NOON)
Possible streams	ECC, RS41, RS92

### 2.1 Lead Centre comments

#### 2.1.1 Dataflow

Operational dataflow of radiosonde measurement data to the GRUAN LC since September 2022. The dataflow includes radiosoundings with Vaisala RS41-SG and ECC Ozone. All data are transmitted using the GRUAN tool gtRsl.

#### 2.1.2 Data quality

Large pressure differences (approx. 2 hPa) during the manufacturer ground check are detected (S series).

#### 2.1.3 General

There is good performance in terms of burst altitude which is regularly 10 hPa and higher.

### 2.2 GRUAN data products

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

ECC		31	31	
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#### 2.2.2 Stream: RS41

RS41		63	63	
RS41-RAW	001		63	
RS41-EDT	001		62	
RS41-GDP	001		62	

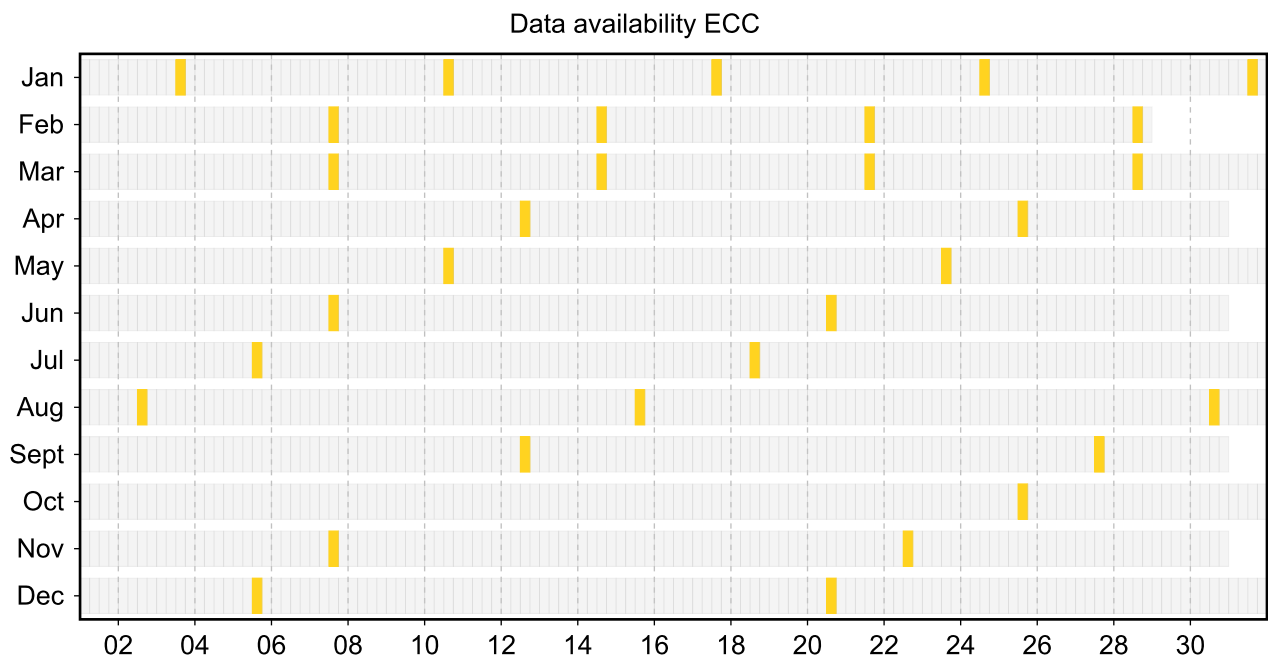
## 2.3 Availability of data products

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).

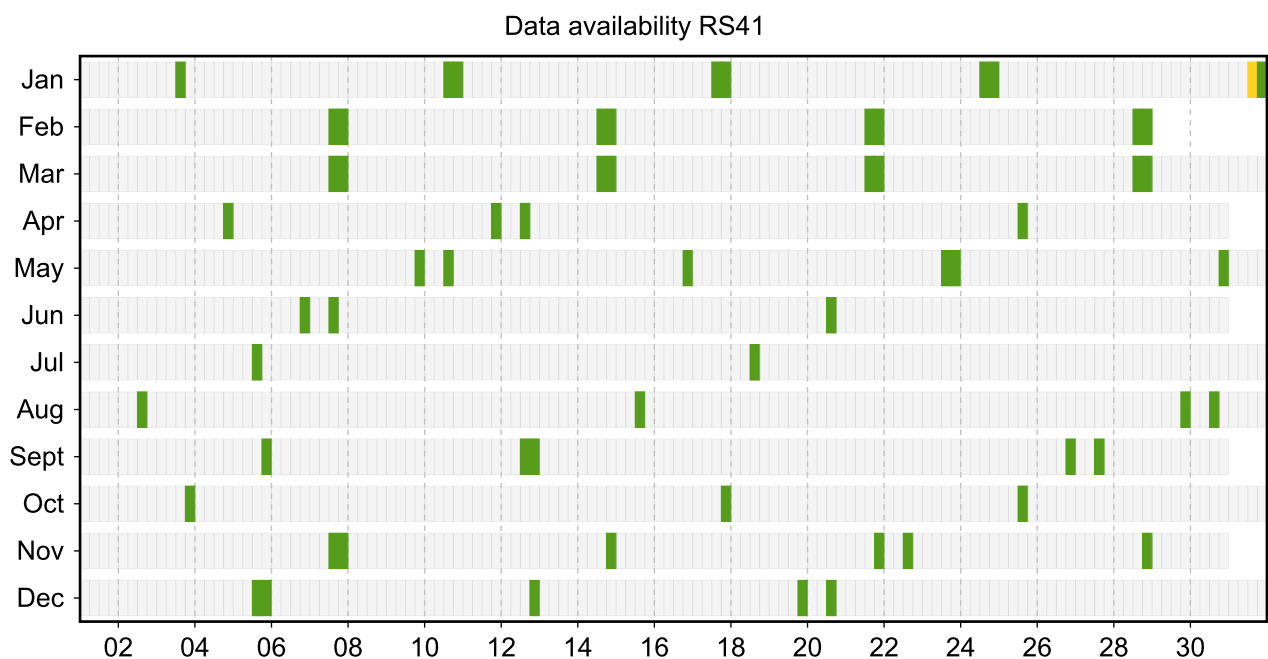
Unprocessed (yellow): The manufacturer-produced file with raw measurement data has been successfully converted into a GRUAN-standardized raw data format (NetCDF). The GRUAN data processing has not been performed or was aborted. Reasons for this may be a still missing GRUAN data processor or a processing-software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



### 2.3.2 Stream: RS41



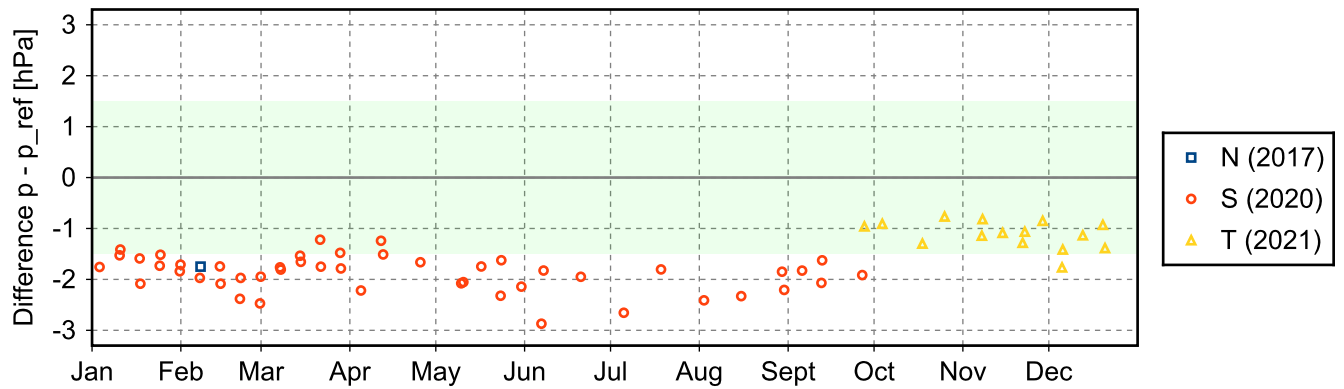
## 2.4 Instrument combinations of PMO-RS-01

Count	Instrument combination
31	ECC, RS41
32	RS41

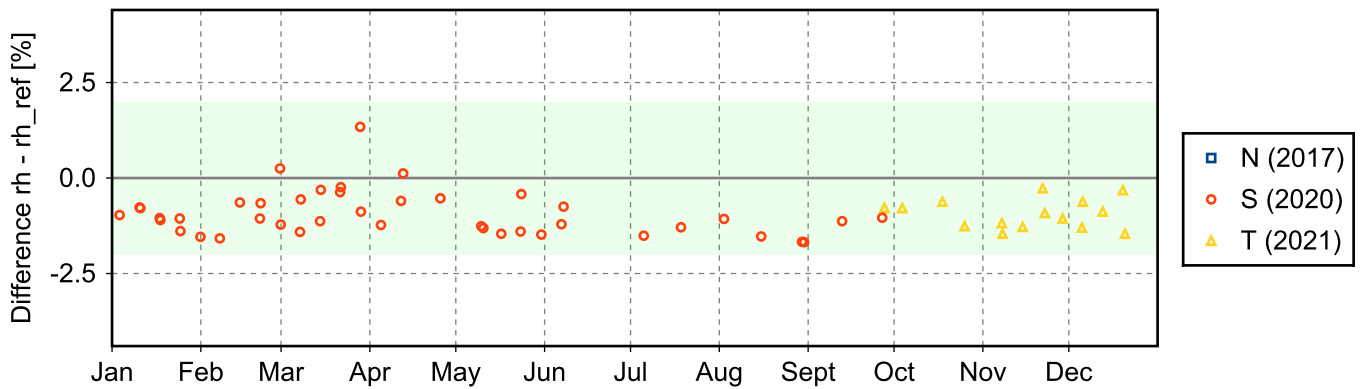
## 2.5 Instrument ground check

### 2.5.1 Stream: RS41

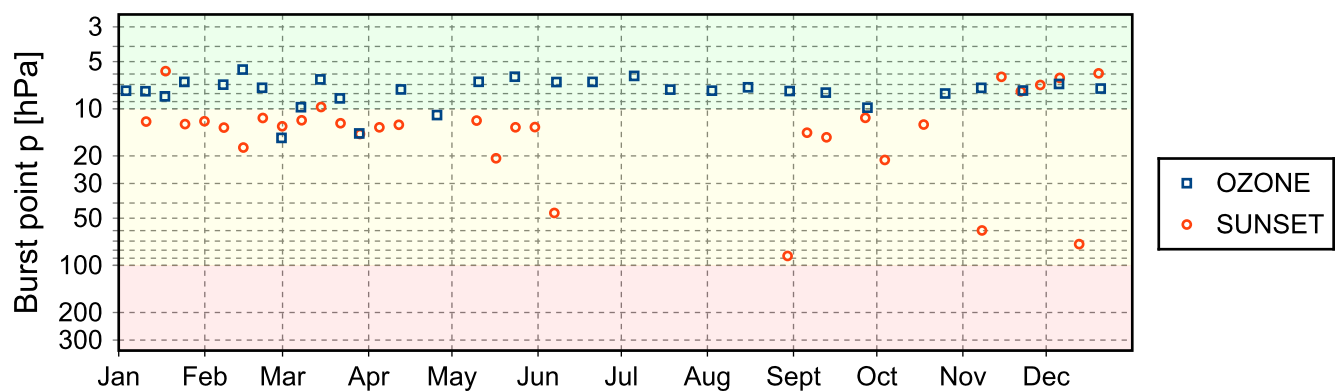
(1) GroundCheck: GC-RI41



(2) GroundCheck: GC-SHC



## 2.6 Measurement events







# GRUAN Site Report for Paramaribo (PMO), 2023

Reported time range is Jan 2023 to Dec 2023

Created by the Lead Centre

Version from 2024-03-01

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Unique GRUAN ID	PMO
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WMO no./name	0-20008-0-PMO Paramaribo
Operators	currently 0, changes +0 / -0
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### 1.1 General information about GRUAN measurement systems

System	Name	Type	Setups	Measurements
PMO-RS-01	Paramaribo Radiosonde Launch Site	Sounding Site	7	76

### 1.2 General comments from Lead Centre

No comments from Lead Centre.

## 2 System: Paramaribo Radiosonde Launch Site (PMO-RS-01)

Object	Value
System name	Paramaribo Radiosonde Launch Site
Unique GRUAN ID	PMO-RS-01
System type	Sounding Site (RS - Radiosonde)
Geographical position	5.8056 °N, -55.2144 °W, 3.0 m
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Instrument contact	Piters, Ankie
Started at	1999-09-02
Defined setups	7 (OZONE, SUNRISE, SUNSET, OZONE2, OZONE3, OZONE4, NOON)
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Operational dataflow of radiosonde measurement data to the GRUAN LC since September 2022. The dataflow includes radiosoundings with Vaisala RS41-SG and ECC Ozone. All data are transmitted using the GRUAN tool gtRsl.

Data flow has been interrupted since August 2023.

#### 2.1.2 General

There is good performance in terms of burst altitude which is regularly 10 hPa and higher.

### 2.2 GRUAN data products

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

ECC		38	38	
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#### 2.2.2 Stream: RS41

RS41		76	76	
RS41-RAW	001		76	
RS41-EDT	001		76	
RS41-GDP	001		75	

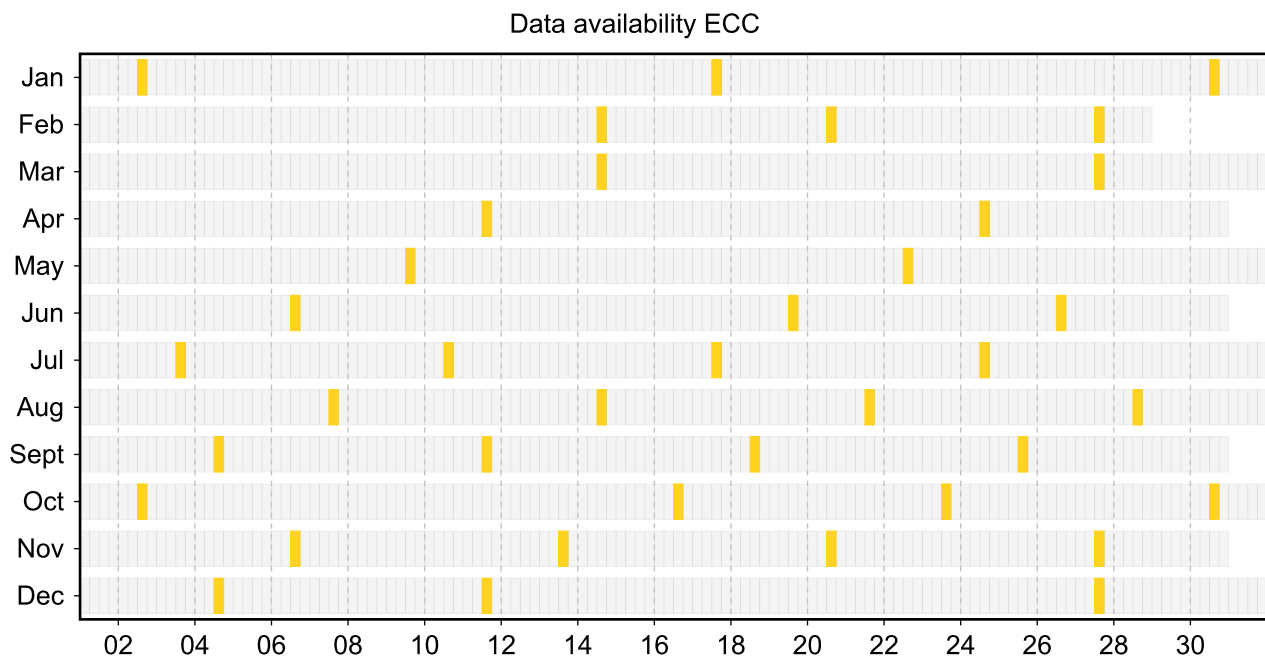
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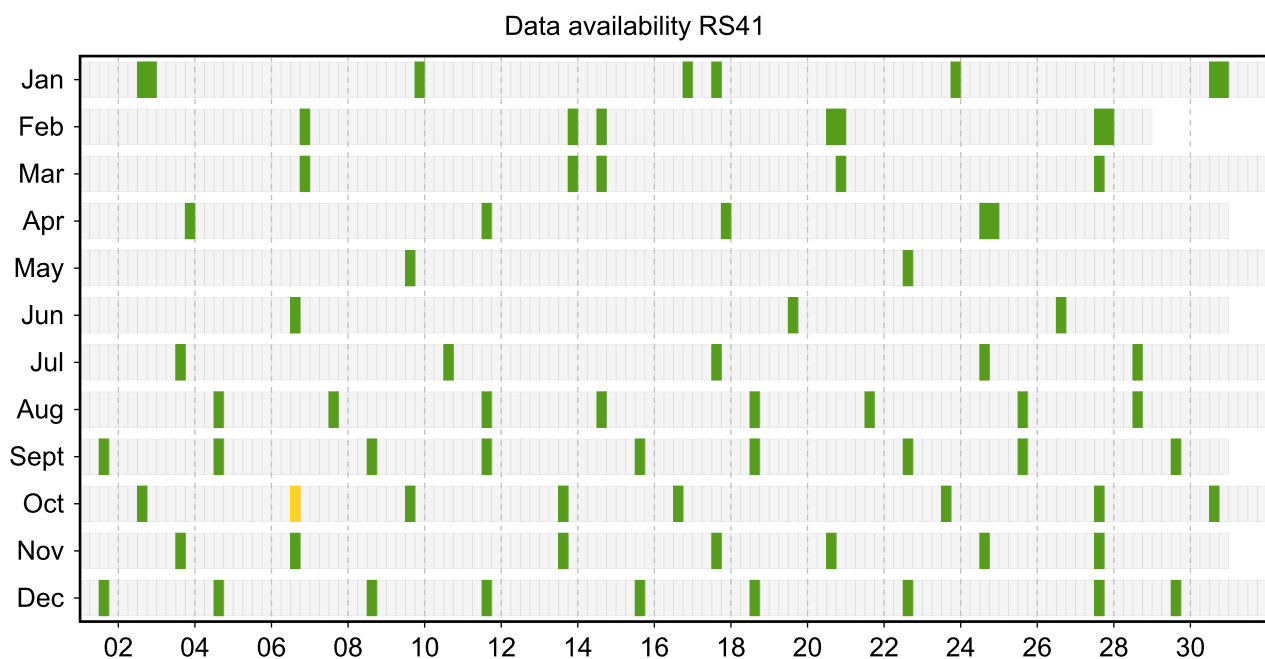
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### 2.3.2 Stream: RS41



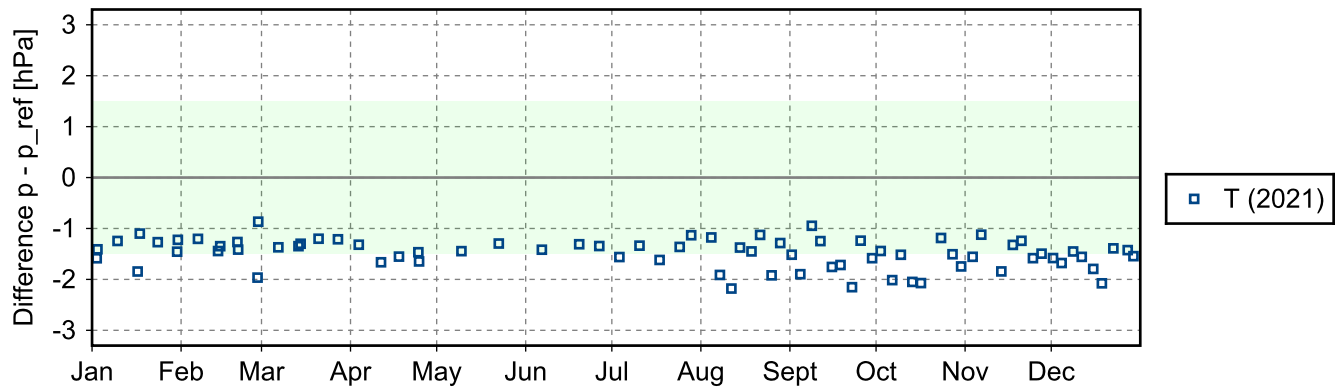
## 2.4 Instrument combinations of PMO-RS-01

Count	Instrument combination
38	ECC, RS41
38	RS41

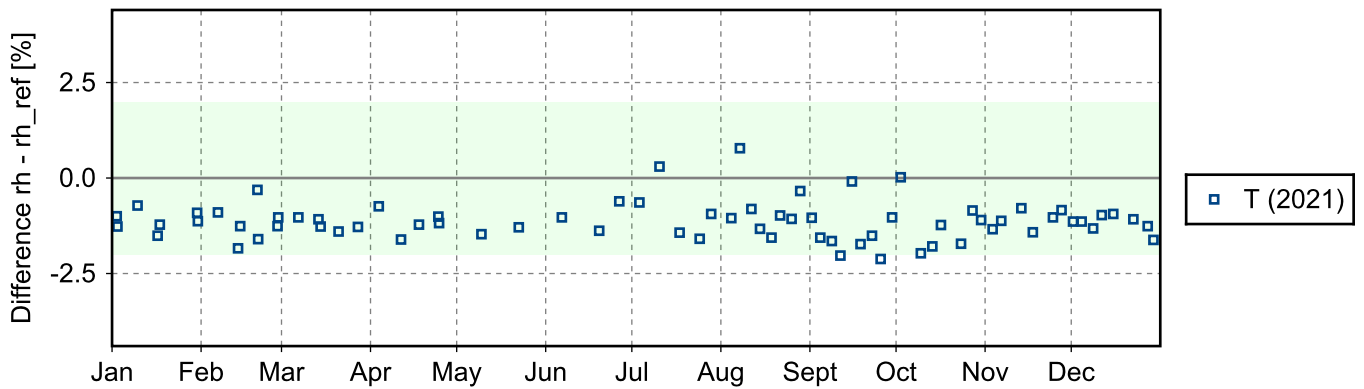
## 2.5 Instrument ground check

### 2.5.1 Stream: RS41

(1) GroundCheck: GC-RI41



(2) GroundCheck: GC-SHC



## 2.6 Measurement events

