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**15th GRUAN Implementation-
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Session 5

Bern

11 March - 15 March 2024

GRUAN Site Report for Lamont

(Submitted by Evan Keeler)

Summary and Purpose of this Document

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

Overview

The ARM Southern Great Plains (SGP) site near Lamont, Oklahoma operated three Vaisala MW41 manual launch systems during 2022-2023. These systems launch RS-41SGP radiosondes. The systems are designated C1, S01, and S02. SGP normal operation conducts 2 flights per day. These flights are on a rotation between 00Z, 06Z, 12Z, and 18Z. These flights are primarily conducted with the C1 system, however when the need arises for a dual flight the other systems will be used. All flight data is sent to the ARM Data Archive for processing and distribution.

Change and change management

The site is continuing its support of the JPSS/RIVAL program. In 2022-2023 the site conducted flights for Phase 10 of the campaign. The 2022-2023 system configuration remained consistent with the 2021 system configuration.

The SGP Vaisala MW41 is operating software version 2.17 in 2022-2023.

Due to the availability of helium and the upcoming AMF3 deployment in Alabama the SGP site will likely not return to regular 4/day launches.

Resourcing

In 2022-2023 SGP continued launching RS-41 radiosondes.

Operations

The operations at SGP deviate from GRUAN procedures in the burst height and the lack of a SHC manufacturer-independent ground check. A SHC manufacturer-independent ground check has been purchased and will be implemented at the site in 2024.

COVID-19

SGP radiosonde operations experienced minimal impacts from COVID-19 during the 2022-2023 period.

Site assessment and certification

SGP has been certified and maintains that certification.

GRUAN-related research

In 2022-2023 the SGP site continued its support of the following field campaigns:

- ARM Radiosondes for Joint Polar Satellite System (JPSS) Validation Field Campaign <https://www.arm.gov/research/campaigns/sgp2024jpssval>

WG-GRUAN interface

We would like to open a dialogue about processing the RS-41 data from the upcoming AMF3 site in Alabama.

Other archiving centers

ARM data is placed only in the ARM Data Archive: <https://www.archive.arm.gov/discovery/>

Participation in campaigns

All ARM field campaign information is available on the ARM website at: <https://www.arm.gov/research/campaigns>

Most supported field campaigns request radiosonde launches to support the targeted research.

Future plans

The SGP site will continue to support the JPSS radiosonde launches in 2024. The SGP site will also continue launching 2 radiosondes a day.

ARM plans to implement the SHC at SGP in 2024.



GRUAN Site Report for Lamont (SGP), 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	Lamont
Unique GRUAN ID	SGP
Geographical position	36.6000 °N, -97.4900 °W, 320.0 m
Operated by	ARM US DOE Atmospheric Radiation Measurement (ARM) Program
Main contact	Keeler, Evan
WMO no./name	74646 LAMONT
Operators	currently 1, changes +0 / -0
Sounding Site	1
GNSS	1

1.1 General information about GRUAN measurement systems

System	Name	Type	Setups	Measurements
SGP-GN-01	GNSS Site SGPO	GNSS	1	operational
SGP-RS-01	Balloon-Borne Sounding System (SONDE) at Lamont	Sounding Site	5	640

1.2 General comments from Lead Centre

1.2.1 General

ARM employs an automated procedure to transmit raw measurement data.

1.2.2 Request

ARM is kindly requested to inform the Lead Centre of any (upcoming) changes in equipment, launch schedule, or procedures so that the metadata database can be kept up-to-date.

It is strongly recommended to use a manufacturer independent ground check (e.g. SHC) for the Vaisala radiosonde.

An appropriate solution should be found to establish a data flow of CFH soundings in cooperation between site (instrument mentor) and LC.

2 System: GNSS Site SGPO (SGP-GN-01)

Object	Value
System name	GNSS Site SGPO
Unique GRUAN ID	SGP-GN-01
System type	GNSS (GN - GNSS)
Geographical position	36.6041 °N, -97.4848 °W, 290.0 m
Operated by	ARM US DOE Atmospheric Radiation Measurement (ARM) Program
Instrument contact	Keeler, Evan
Started at	-
Defined setups	1 (HOURLY)
Possible streams	-

2.1 Lead Centre comments

2.1.1 Dataflow

Measurements are recorded at site since December 2018.

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.

Meteorological data is missing since April 2022, therefore no operational GNSS-PW-GDP processing can be performed since then.

3 System: Balloon-Borne Sounding System (SONDE) at Lamont (SGP-RS-01)

Object	Value
System name	Balloon-Borne Sounding System (SONDE) at Lamont
Unique GRUAN ID	SGP-RS-01
System type	Sounding Site (RS - Radiosonde)
Geographical position	36.6100 °N, -97.4900 °W, 315.0 m
Operated by	ARM US DOE Atmospheric Radiation Measurement (ARM) Program
Instrument contact	Keeler, Evan
Started at	-
Defined setups	5 (ROUTINE, DUAL, CFH, ROUTINE2, ROUTINE3)
Possible streams	CFH, RS41, RS92

3.1 Lead Centre comments

3.1.1 Dataflow

Dataflow is running fully automated from the ARM Archive to the GRUAN LC. Launch metadata are not checked manually. Equipment changes (e.g. balloon, unwinder, ...) are not recorded.

As a consequence it is essential that the Lead Centre is notified of all upcoming changes to be able to maintain a correct metadata record. (This comment applies to all ARM sites in GRUAN.)

Routine soundings are performed up to four times a day using Vaisala RS41-SGP. A few soundings with RS92 are performed.

No data flow of CFH flights is established. An appropriate solution should be found in cooperation between site (instrument mentor) and LC.

3.1.2 General

Recommended burst altitude of 10 hPa is not reached on a regular basis.

3.2 GRUAN data products

Product	Version	Soundings received	Available at LC	Distributed by NCEI
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3.2.1 Stream: RS41

RS41		639	639	
RS41-RAW	001		639	
RS41-EDT	001		637	
RS41-GDP	001		636	

3.2.2 Stream: RS92

RS92		1	1	
RS92-RAW	002		1	
RS92-EDT	001		1	
RS92-GDP	002		1	

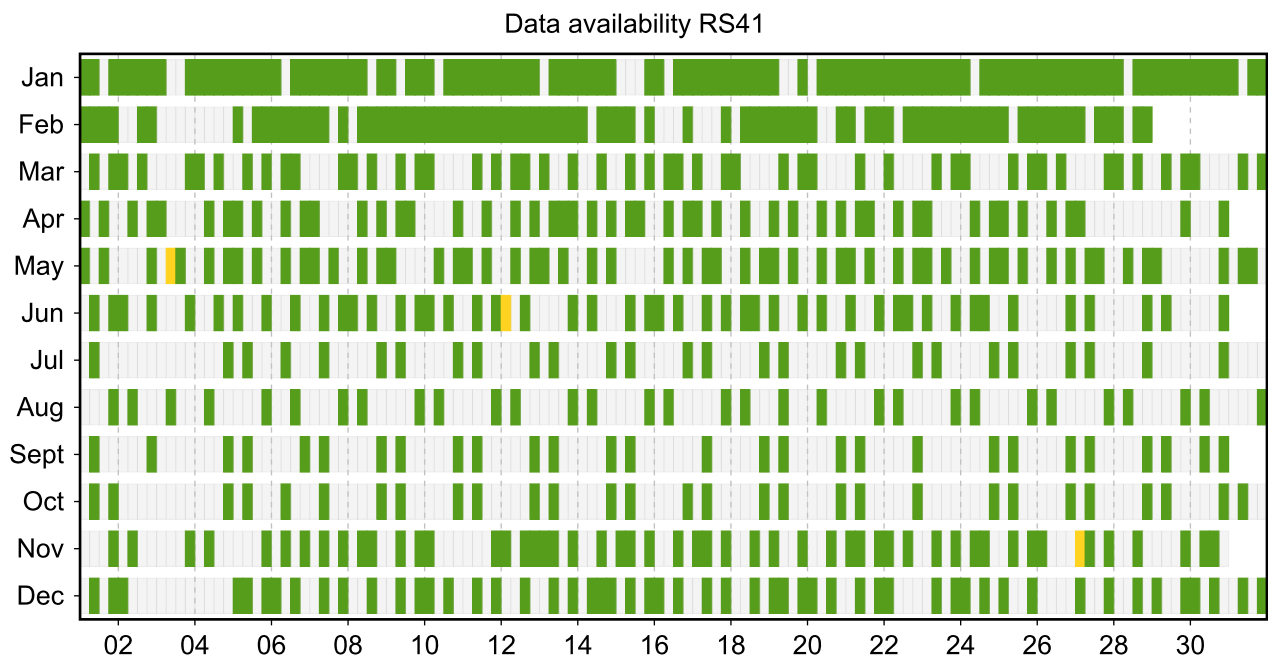
3.3 Availability of data products

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).

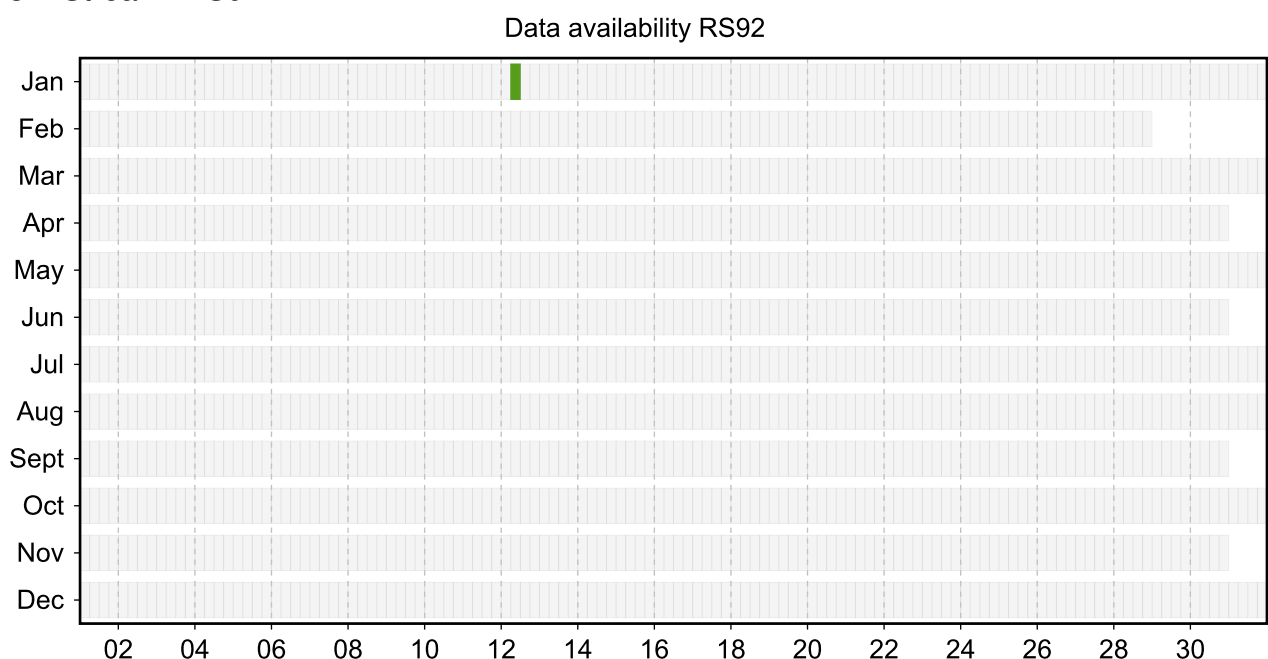
Unprocessed (yellow): The manufacturer-produced file with raw measurement data has been successfully converted into a GRUAN-standardized raw data format (NetCDF). The GRUAN data processing has not been performed or was aborted. Reasons for this may be a still missing GRUAN data processor or a processing-software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

3.3.1 Stream: RS41



3.3.2 Stream: RS92



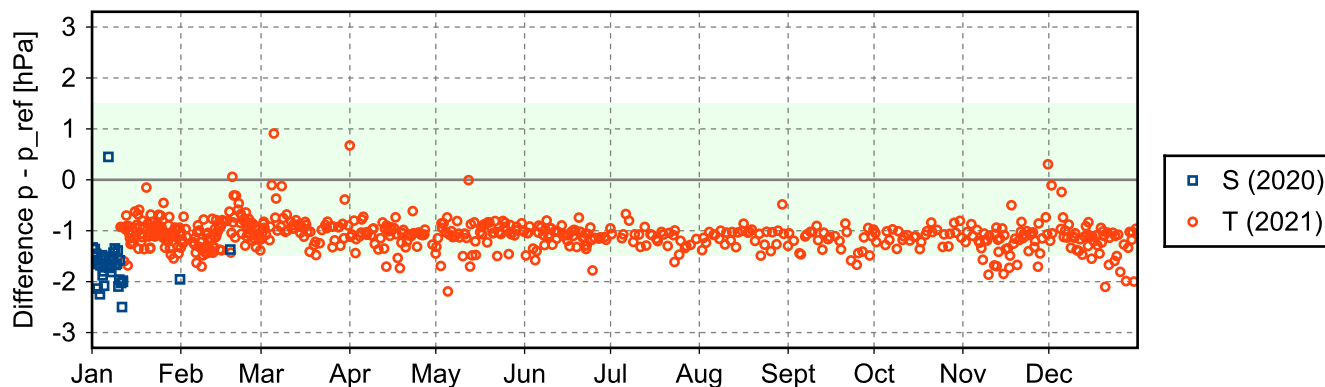
3.4 Instrument combinations of SGP-RS-01

Count	Instrument combination
639	RS41
1	RS92

3.5 Instrument ground check

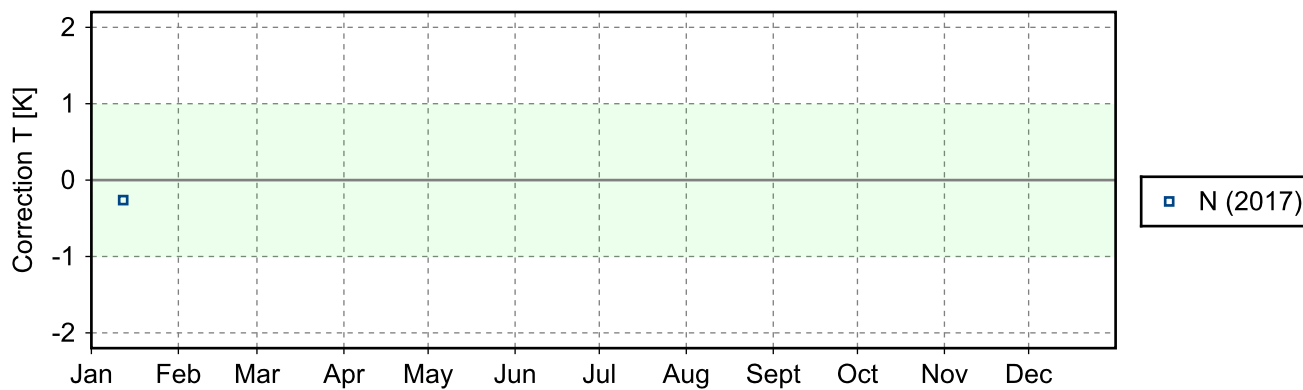
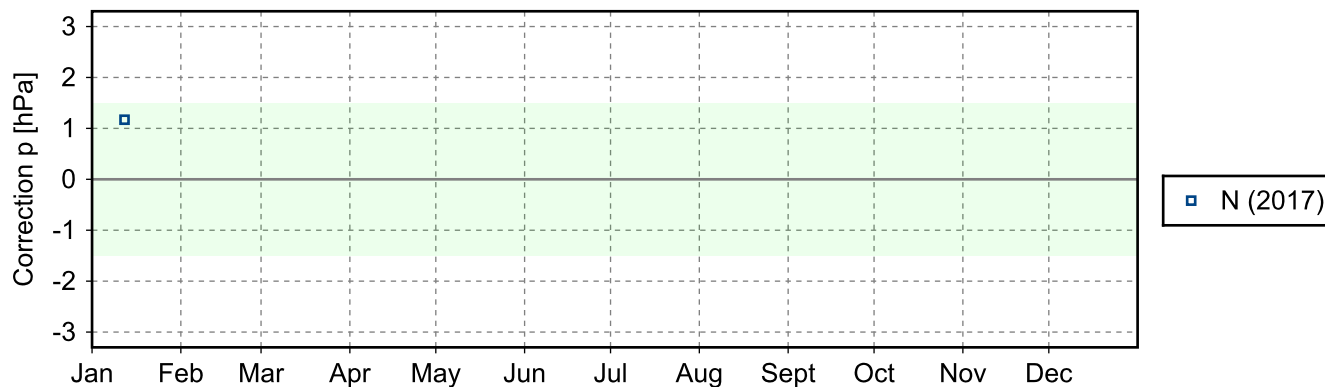
3.5.1 Stream: RS41

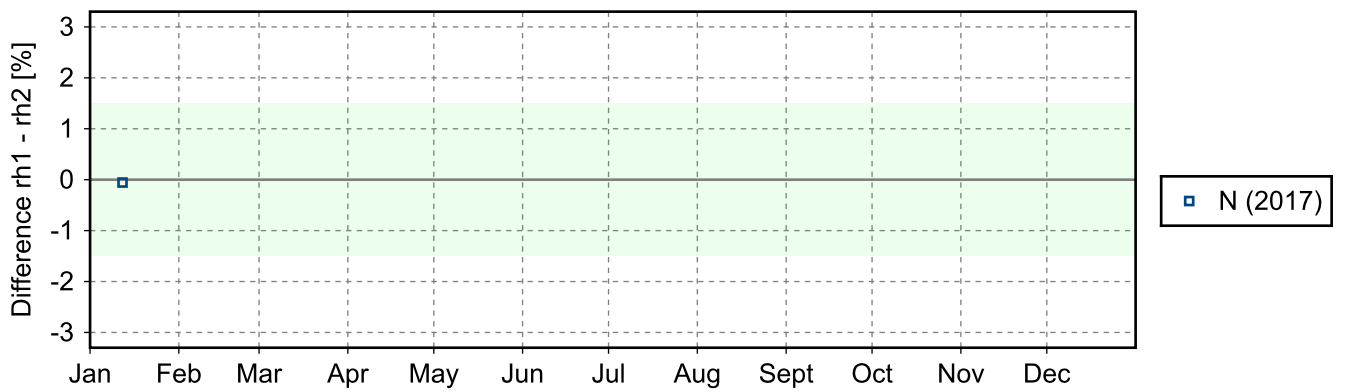
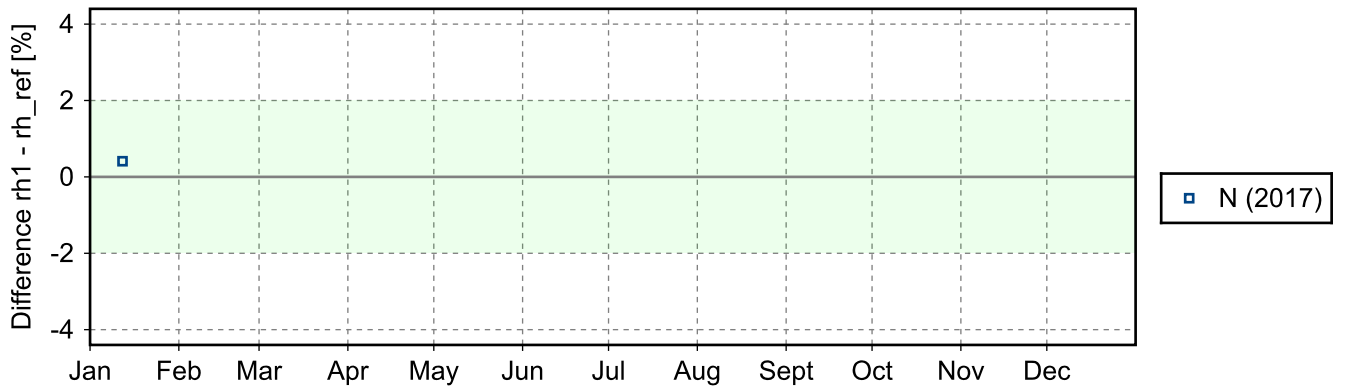
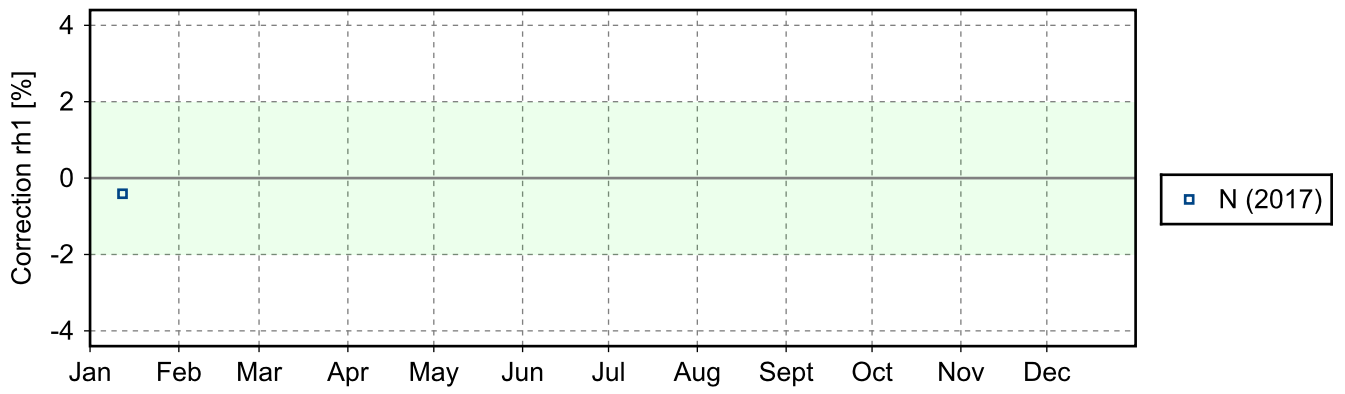
(1) GroundCheck: GC-RI41



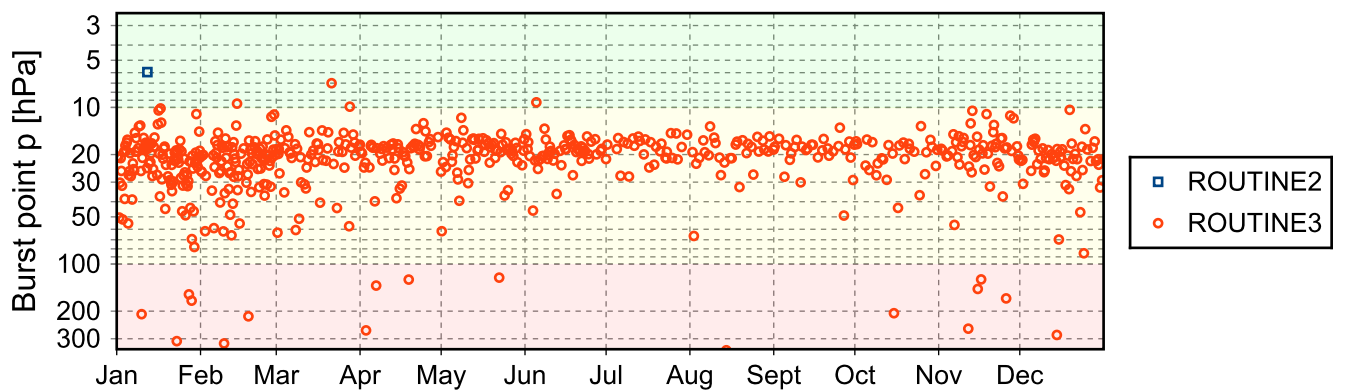
3.5.2 Stream: RS92

(1) GroundCheck: GC-GC25





3.6 Measurement events





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SGP-RS-01	Balloon-Borne Sounding System (SONDE) at Lamont	Sounding Site	5	925

1.2 General comments from Lead Centre

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Instrument contact	Keeler, Evan
Started at	-
Defined setups	1 (HOURLY)
Possible streams	-

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3.2.1 Stream: RS41

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RS41-RAW	001		925	
RS41-EDT	001		917	
RS41-GDP	001		912	

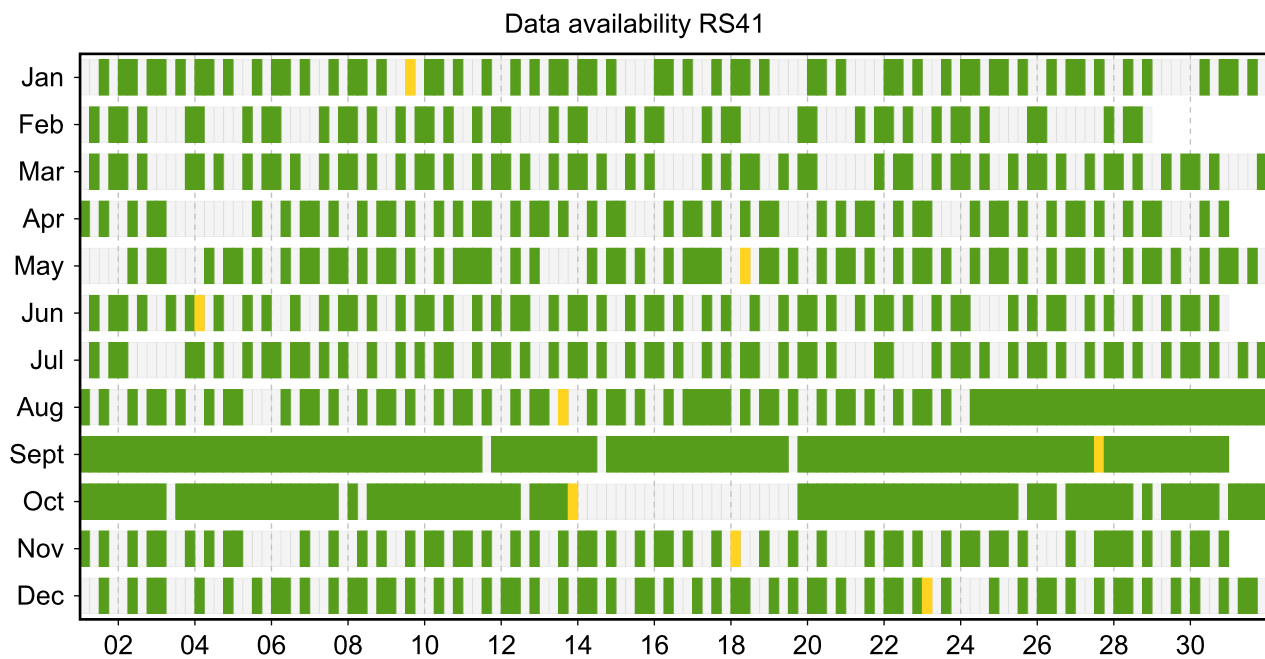
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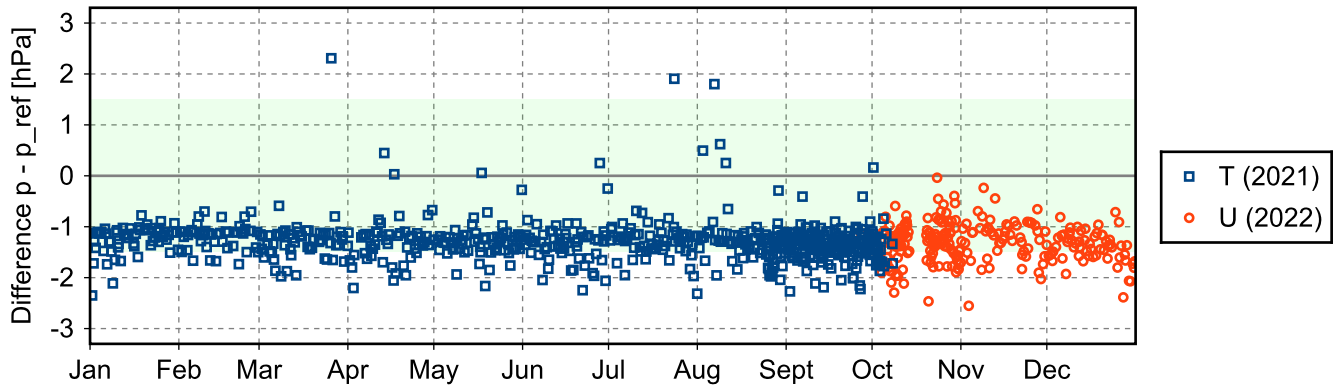
3.4 Instrument combinations of SGP-RS-01

Count	Instrument combination
925	RS41

3.5 Instrument ground check

3.5.1 Stream: RS41

(1) GroundCheck: GC-R141



3.6 Measurement events

