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GLOBAL CLIMATE OBSERVING SYSTEM (GCOS)

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Matera, Italy
23 February – 27 February 2015

Session 8

GRUAN Station Report for Payerne

(Submitted by Rolf Philipona)

Summary and Purpose of Document

Report from the GRUAN station Payerne for the period Mar 2014 to Feb 2015.

GRUAN Station Report for Payerne

Reporting for the period Mar 2014 to Feb 2015
Date: 29-Jan-2015
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Overview

The SRS-C34 radiosonde is in operation since January 2011. Measurements are taken UT00:00 and UT12:00. Data submission of the SRS-C34 GRUAN product using RsLaunchClient started 1 September 2014.
Vaisala RS92-SGP were launched in parallel with SRS-C34 twice per month, one flight during the night and one flight during the day. Data submission were made with RsLaunchClient for the two sondes per flight.
GNSS data are measured regularly since several years. We need information how to submit these data streams to GRUAN.
Lidar measurements are made. Data submission is in preparation.

Change and change management

The data format for SRS-C34 data submission to the Lead Centre has been developed in close collaboration with Michael Sommer from the Lead Centre. The mayor difference between the submission of a Meteolabor versus a Vaisala product is that the Meteolabor product does not only has the raw data as the Vaisala submission has. Instead, Payerne delivers for the SRS-C34 product the raw data, as well as the final calculated values and also includes the uncertainty value for each final calculated data point. Using the GRUAN RsLaunchClient we submit all meta data and the Payerne GRUAN data file to the lead Centre since 1 September 2014.
Starting 1 February 2015 we will launch weekly GRUAN multi-soundings with RS92, RS41 and SRS-C34 radiosondes. We will launch the multi-soundings alternatively one week during day-time and one week during night-time. Once per month the nigh-time sounding will additionally fly a SnowWhite/COBALD sensor for research purposes in collaboration with ETHZ. The multi-soundings will always be launched during standard operation times UTC00:00 and UTC12:00.

Resourcing

We had difficulties with manpower available for GRUAN activities. Therefore we had to reduce to two multi-soundings per week. Before January 2014 we had four flights per month and we will go back to four flights starting February 2015.

Site assessment and certification

End of October 2014 we send our GRUAN site-certification application to the Lead Centre. We received a response with many questions from the WG-GRUAN at the end of the year. We recently returned our answers to the questions of the WG-GRUAN. Basically we agree with the arguments of the WG-GRUAN and we agree that it is better for Payerne to first become GRUAN certified on the basis of weekly Vaisala soundings. We will then get a new Meteolabor radiosonde and in a second step Payerne will become GRUAN certified for the Meteolabor SRS-NEW radiosonde. In the mean time we will continue to submit our SRS-C34 GRUAN product to the lead Centre.

GRUAN related research

As CIMO-Testbed Payerne organised two radiosonde intercomparisons in June 2014, one week with MODEM, Meteolabor and Vaisala RS92 and one week with INTERMET, Meteolabor and Vaisala RS41 radiosondes. During these intercomparisons we always launched two sondes of each type together in order to investigate the reproducibility of the individual radiosondes. These intercomparisons allowed us determining the uncertainty for the Meteolabor radiosonde, and these uncertainty values are presently used in our SRS-C34 GRUAN product. However, since we are planning to introduce the SRS-NEW in the near future we will repeat some of these tests in 2015 and we will then publish the uncertainty values of the Meteolabor SRS-NEW radiosonde.

WG-GRUAN interface

The answers from the WG-GRUAN with regard to our station certification application were very helpful. The collaboration with the GRUAN Lead Centre with regard to a GRUAN product for the Meteolabor radiosonde is very good.

Items for ICM-7 plenary discussions

We should devote most of the time of the ICMs to the original goal of GRUAN, which is the improvement of radiosonde measurements for long-term upper-air climatology, and discuss results related to upper-air climate change monitoring and research.

Future plans

Our Goal is to become GRUAN certified during 2015 on the basis of weekly RS92 soundings. Meanwhile we continue flying daily SRS-C34 and deliver a GRUAN product for these flights (as we do since 1 September 2014). However, during 2015 we will also test a new Meteolabor radiosonde that is presently developed. Our aim is to replace the operational SRS-C34 by the new Meteolabor radiosonde SRS-NEW and deliver an improved daily GRUAN product starting early 2016. Change management will have to be made during 2016 and we hope we will then become GRUAN certified for the daily Meteolabor SRS-NEW radiosonde product.

GRUAN Station Report for Payerne (PAY), 2014

Reported time range is Nov 2013 to Oct 2014
Created by the Lead Centre
Version from 2015-02-11

1 General GRUAN station information

Info	Value
Station name	Payerne
Unique GRUAN ID	PAY
Geographical position	46.8100 °N, 6.9500 °E, 491.0 m
Operated by	MSWISS | Office fédéral de météorologie et climatologie MeteoSuisse
Main contact	Philipona, Rolf
WMO no./name	06610 PAYERNE
Operators	current 12, change +1 / -1
Sounding Site	1
Lidar	1
GNSS	1

1.1 General information about GRUAN measurement systems

System	Type	Setups	Measurements	As scheduled
PAY-GN-01	GNSS	0	0	not scheduled
PAY-LI-01	Lidar	1	0	not scheduled
PAY-RS-01	Sounding Site	5	150	6.69 %

1.2 General comments from Lead Centre

1.2.1 General

Good communications between station and GRUAN LC.

It is strongly recommended that the site uses a manufacturer independent ground check for both radiosondes launched at the site.

1.2.2 GTS

This site regularly sends PTU measurements in the GTS (BUFR format, 3s resolution, 2 times per day).

2 System: GNSS Site PAYE (PAY-GN-01)

Info	Value
System name	GNSS Site PAYE
Unique GRUAN ID	PAY-GN-01
System type	GNSS (GN - GNSS)
Geographical position	46.8121 °N, 6.9439 °E, 548.7 m
Operated by	MSWISS | Office fédéral de météorologie et climatologie MeteoSuisse
Instrument contact	Philipona, Rolf
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: Payerne Raman WV Lidar (RALMO) (PAY-LI-01)

Info	Value
System name	Payerne Raman WV Lidar (RALMO)
Unique GRUAN ID	PAY-LI-01
System type	Lidar (LI - Lidar)
Geographical position	46.8100 °N, 6.9500 °E, 491.0 m
Operated by	MSWISS | Office fédéral de météorologie et climatologie MeteoSuisse
Instrument contact	Martucci, Giovanni
Started at	2013-09-01
Defined setups	1 (TEST-1)
Possible streams	-

3.1 Lead Centre comments

3.1.1 General

The Payerne lidar is the test system for lidars within GRUAN. A first step of collecting metadata has been started in September 2013 using the software LidarRunClient. This software is based on the RsLaunchClient and has been developed in cooperation between the GRUAN Lead Centre and the Task Team Ancillary Measurements.

4 System: Radiosonde Launch Site (PAY-RS-01)

Info	Value
System name	Radiosonde Launch Site
Unique GRUAN ID	PAY-RS-01
System type	Sounding Site (RS - Radiosonde)
Geographical position	46.8100 °N, 6.9500 °E, 491.0 m
Operated by	MSWISS | Office fédéral de météorologie et climatologie MeteoSuisse
Instrument contact	Philipona, Rolf
Started at	-
Defined setups	5 (ROUTINE, OZONE, RESEARCH, SRS-TEST, DUAL)
Possible streams	ECC, RS41, RS92, SRS34

4.1 Lead Centre comments

4.1.1 Dataflow

Dataflow to GRUAN LC running intermittently since September 2011. This dataflow includes streams of the Vaisala RS92-SGP, Vaisala RS41, and Meteolabor SRS-C34. All launches are promptly recorded using the RsLaunchClient.

4.1.2 Data processing

A preliminary GRUAN data product for the Meteolabor SRS-C34 is available since September 2014. This data product includes an estimate of all measurement uncertainties. This is one of the first non-RS92 GRUAN data products.

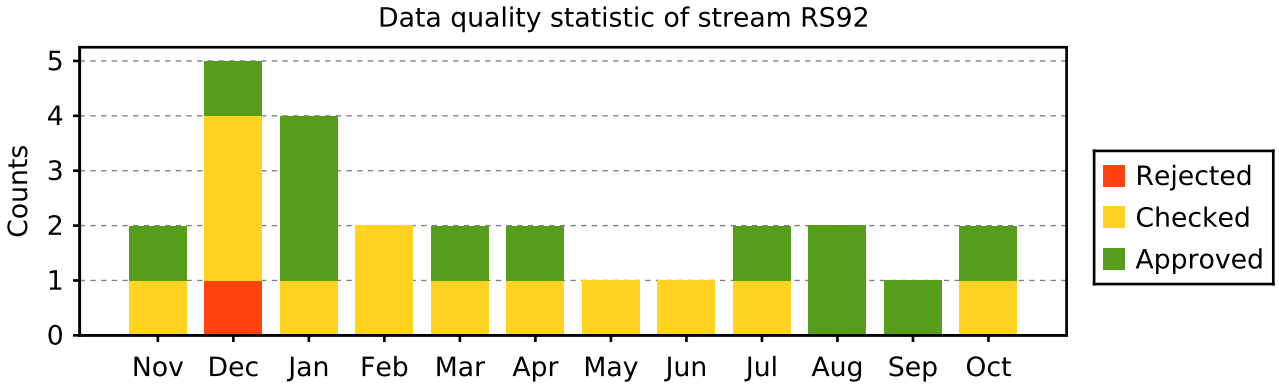
4.2 GRUAN data products

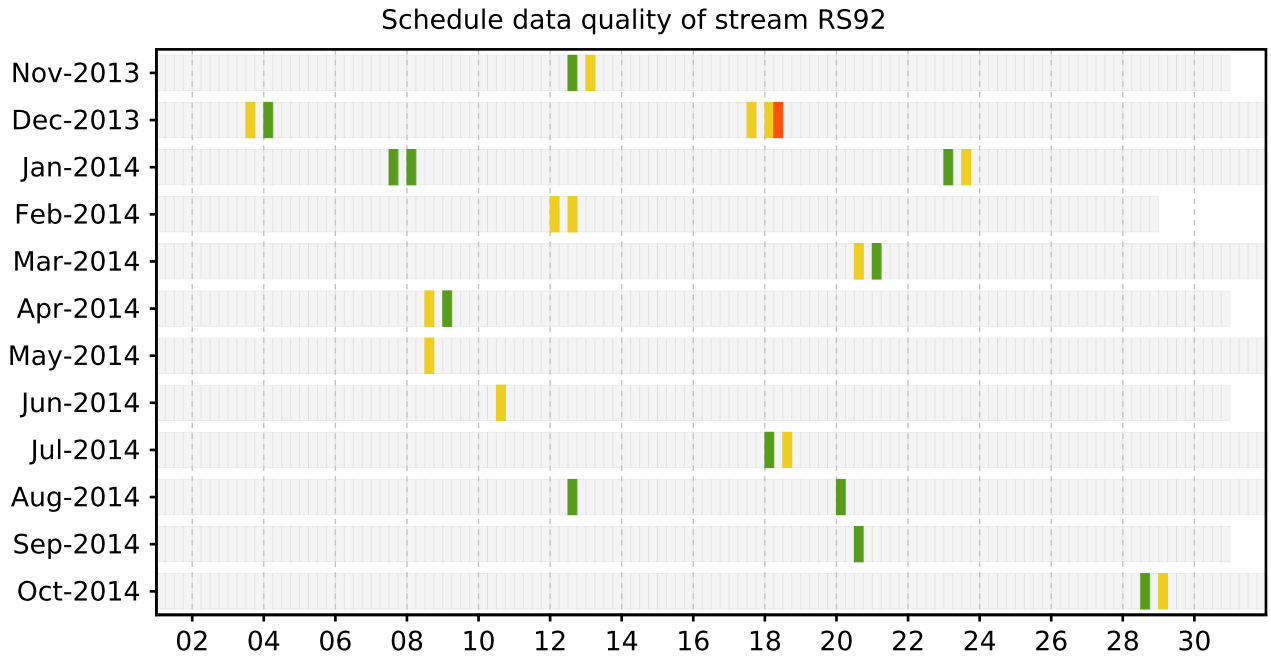
Product	Version	Soundings received	Available at LC	Distributed by NCDC
4.2.1 Stream: RS41				
RS41		5	5	
4.2.2 Stream: RS92				
RS92		27	27	
RS92-RAW	001		26	
RS92-GDP	002		25	12
4.2.3 Stream: SRS34				
SRS34		143	143	

4.3 Data quality of current GRUAN data products

Month	Count	GRUAN Data Quality			Issues				
		Approved	Checked	Rejected	Meta-data	Process.	Press	Temp	RH
4.3.1 Stream: RS92 (Product: RS92-GDP-002)									
Nov 13	2	1	1						1

Month	Count	GRUAN Data Quality			Issues				
		Approved	Checked	Rejected	Meta-data	Process.	Press	Temp	RH
Dec 13	5	1	3	1				1	3
Jan 14	4	3	1					1	
Feb 14	2		2					1	1
Mar 14	2	1	1					1	
Apr 14	2	1	1					1	
May 14	1		1					1	1
Jun 14	1		1					1	
Jul 14	2	1	1						1
Aug 14	2	2							
Sep 14	1	1							
Oct 14	2	1	1						1
	26	**12**	**13**	**1**				**7**	**8**





4.4 Instrument combinations of PAY-RS-01

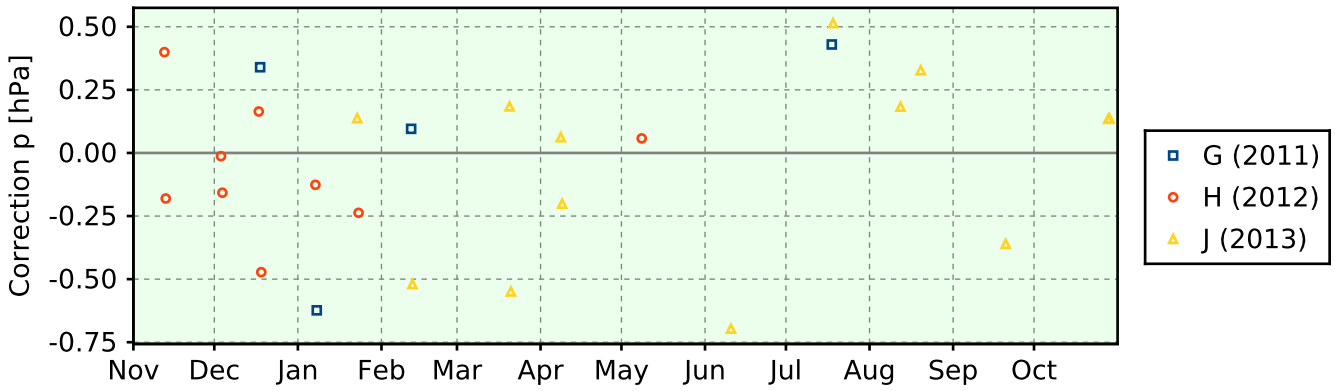
Count	Instrument combination

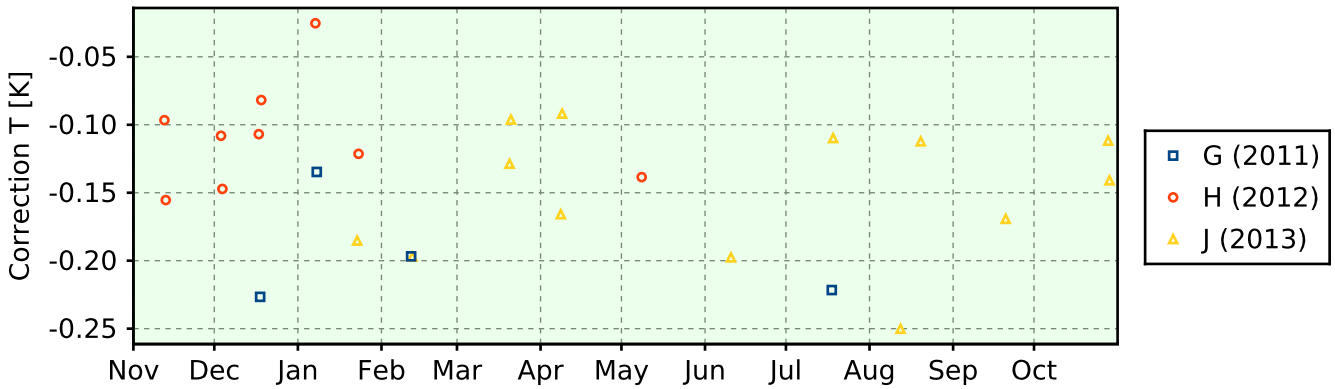
Count	Instrument combination
5	RS41, RS92, SRS34
7	RS92
15	RS92, SRS34
123	SRS34

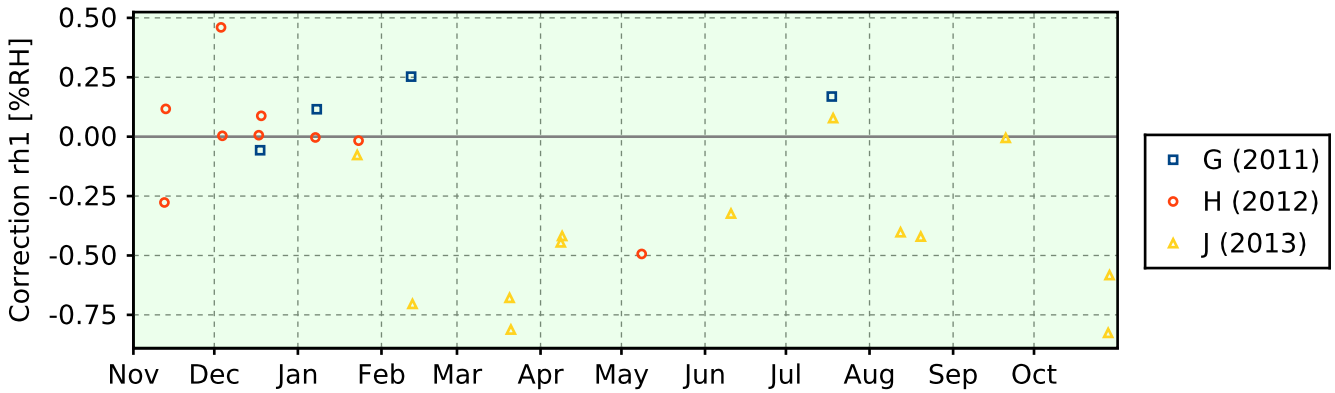
4.5 Instrument ground check

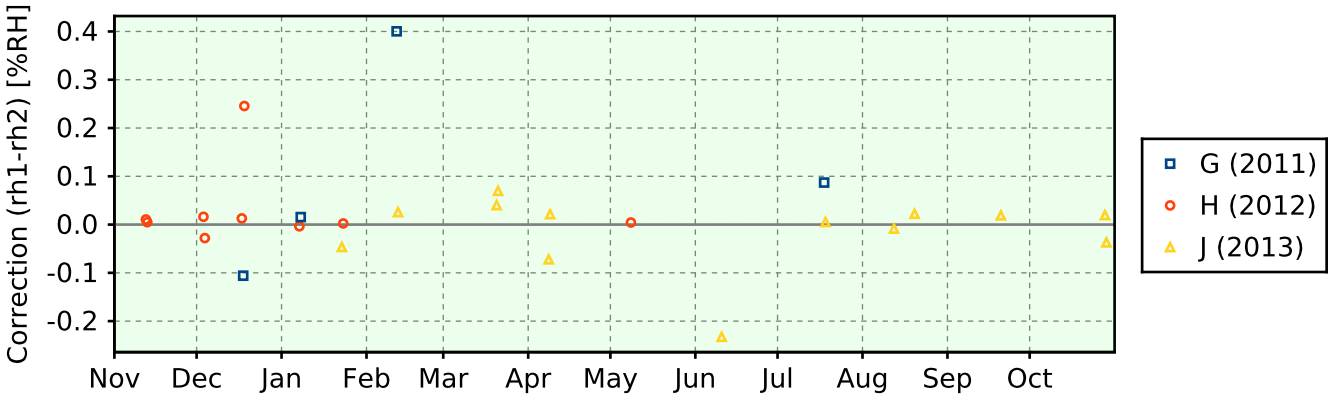
4.5.1 Stream: RS92

4.5.1.1 GroundCheck: GC25

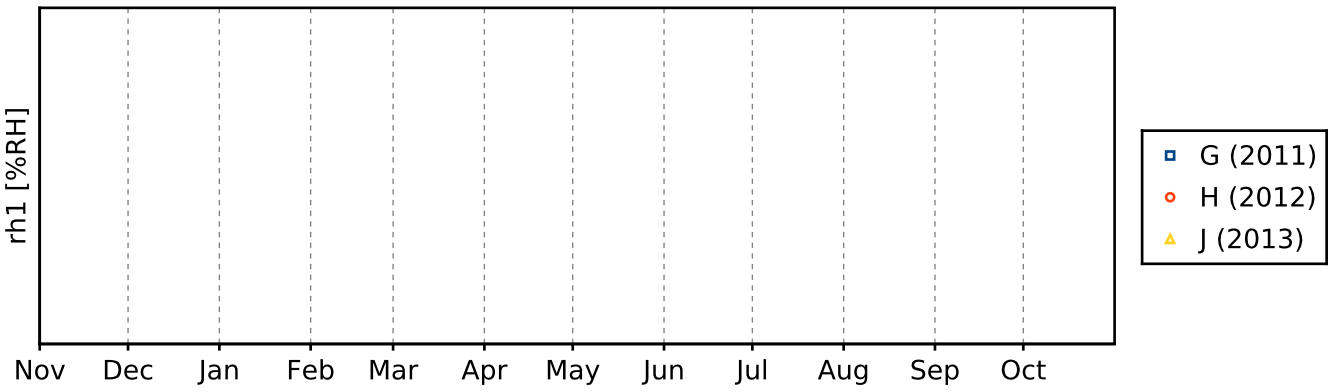


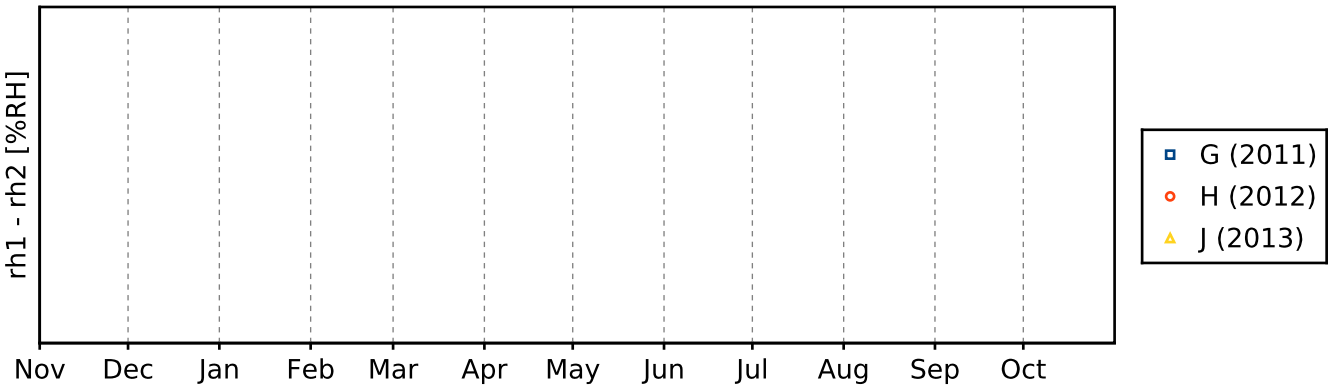


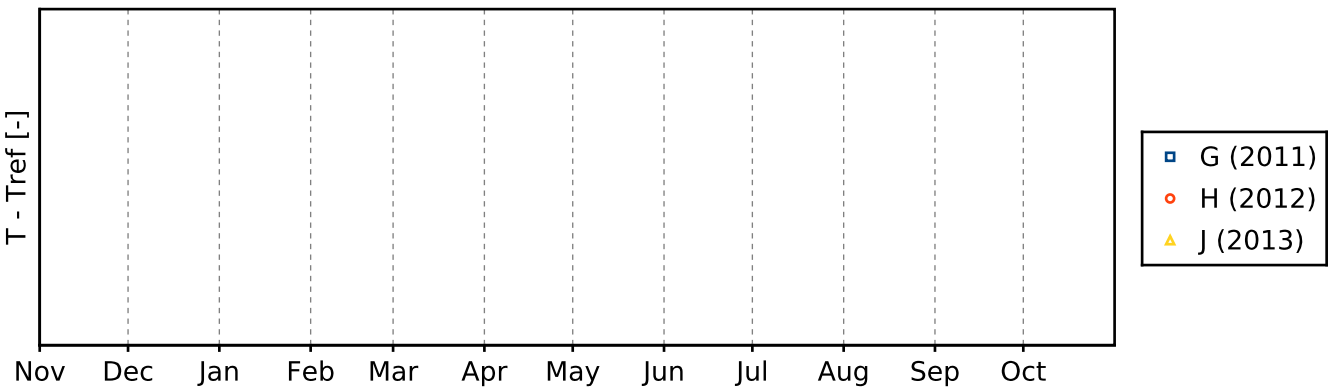




4.5.1.2 GroundCheck: SHC

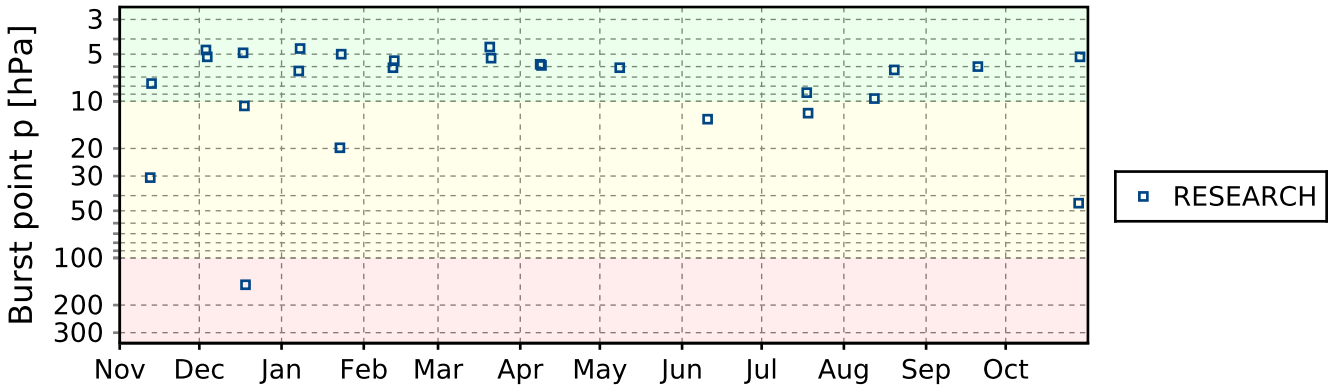






4.6 Measurement events

4.6.1 Stream: RS92


Burst point p [hPa]
3
5
10
20
30
50
100
200
300
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
RESEARCH