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GLOBAL CLIMATE OBSERVING
SYSTEM (GCOS)

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**6th GRUAN Implementation-
Coordination Meeting (ICM-6)**
Greenbelt, USA
10 March – 14 March 2014

Session 6

GRUAN Station Report for Payerne

(Submitted by Rolf Philipona)

Summary and Purpose of Document

Report from the GRUAN station Payerne for the period Feb 2013 to Feb 2014.



GRUAN Station Report for Payerne

Reporting for the period Feb 2013 to Feb 2014

Date: 21.02.2014

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Overview

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.

The SRS-C34 radiosonde is in operation since January 2011. Measurements are taken UT00:00 and UT12:00. Data submission is in preparation. We hope to be able to submit SRS-C34 data during 2014 for all measurements since 2011.

Vaisala RS92-SGP are launched in parallel with SRS-C34 every two weeks. In the future we will launch this multisoundings only once per month, one flight during the night and one flight during the day. Data submission will be made with RsLaunchClient for the two sondes per flight.

Change and change management

So far we made multisoundings between SRS-C34 and RS92-SGP every two weeks. Starting January 2014 we will make multisoundings only once per month with one sounding during nighttime and one during daytime.

Resourcing

No specific changes.

Site assessment and certification

We have submitted a first draft of the certification document. We hope to be able to submit the data in 2014 and then become certified by the end of this year.

GRUAN related research

We investigated the upper air temperature trends above Switzerland from 1959 to 2011 and compared the measurements with surface measurements in the lower troposphere. A paper appeared in July 2013.

E. Brocard, P. Jeannet, M. Begert, G. Levrat, R. Philipona, G. Romanens, S.C. Scherrer, 2013: Upper air temperature trends above Switzerland 1959-2011. *J. Geophysical Research*, **118**, 4303-4317, doi:10.1002/jgrd.50438.

We investigated the radiation errors on upper-air radiosonde temperature measurements. A paper on this issue was published in October 2013.

R. Philipona, A. Kräuchi, G. Romanens, G. Levrat, P. Ruppert, E. Brocard, P. Jeannet, D. Ruffieux, B. Calpini, 2013: Solar and thermal radiation errors on upper-air radiosonde temperature measurements. *J. of Atmospheric and Oceanic Technology*, **30**, 2382-2393, doi:10.1175/JTECH-D-13-00047.1

We have made several dual and triple soundings in order to determine the reproducibility of radiosondes and to determine the uncertainty of the measured parameters.

We are testing a new humidity sensor for the SRS-C34 radiosonde.

We conducted a radiosonde intercomparison between the MODEM, Meteolabor and Vaisala radiosondes. Results are in preparation.

WG-GRUAN interface

Most important at the moment is a good collaboration with the lead center and the task teams.

Items for ICM-6 plenary discussions

Unfortunately I cannot make it to ICM-6.

Future plans

Get the measured radiosonde data to the lead center in 2014. Bilateral intercomparisons with other radiosonde manufacturers.



GRUAN Station Report for Payerne (PAY), 2013

Reported time range is Nov 2012 to Oct 2013

Created by the Lead Centre

Version from 2014-02-20

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 +0 / -0
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	4	45	14.71 %

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 General

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	Philipona, Rolf
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	4 (ROUTINE, OZONE, RESEARCH, SRS-TEST)
Possible streams	ECC, RS92, SRS34

4.1 Lead Centre comments

4.1.1 Dataflow

Dataflow to GRUAN LC running intermittently since September 2011. Regular dual launches using the Meteolabor SRS-C34 and the Vaisala RS92-SGP are already being conducted. It is expected that these dual launches will be transmitted and properly stored using RsLaunchClient starting in January 2014.

4.1.2 Data processing

A preliminary GRUAN data product for the Meteolabor SRS-C34 is in preparation at Payerne. This data product will include an estimate of all measurement uncertainties. This will be one of the first non-RS92 GRUAN data products.

4.1.3 Data quality

Number of soundings too low for a significant statistics.

4.2 GRUAN data products

Product	Version	Soundings received	Available at LC	Distributed by NCDC
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4.2.1 Stream: RS92

RS92		44	44	
RS92-RAW	001		44	
RS92-GDP	001		4	
RS92-GDP	002		40	20

4.2.1 Stream: SRS34

SRS34		1	1	
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4.3 Data quality of current GRUAN data products

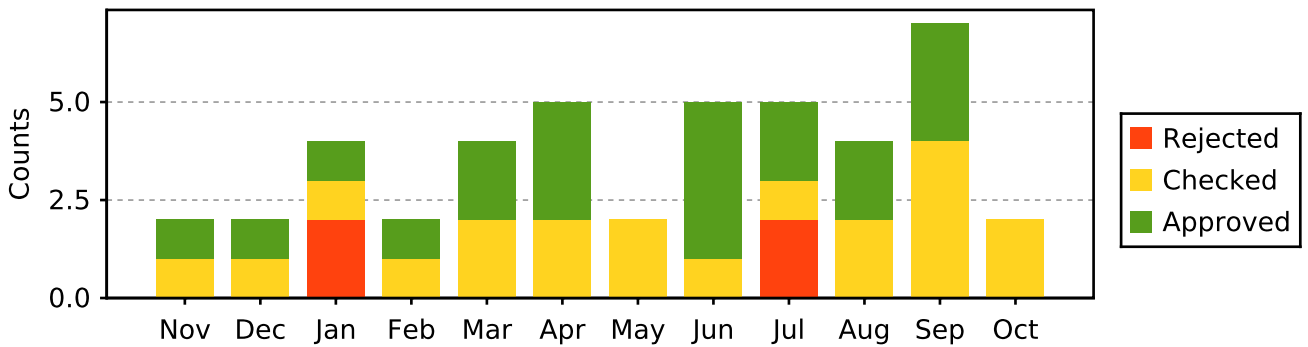
Month	Count	GRUAN Data Quality			Issues				
		Approved	Checked	Rejected	Meta-data	Process.	Press	Temp	RH

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		Approved	Checked	Rejected	Meta-data	Process.	Press	Temp	RH

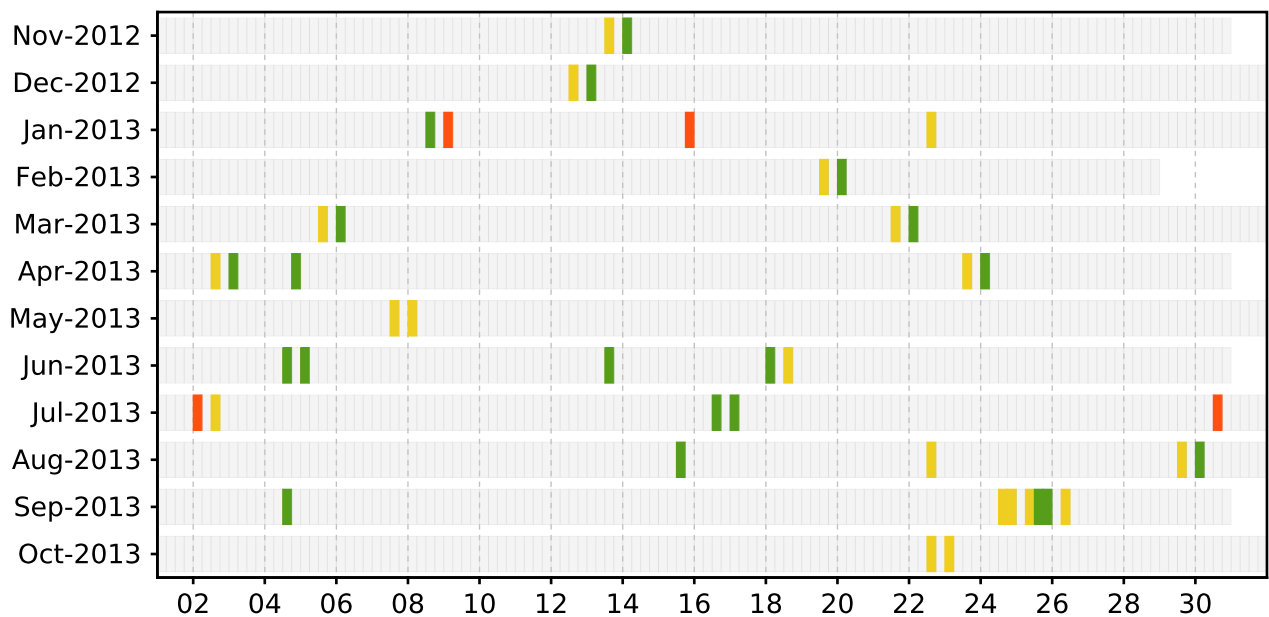
4.3.1 Stream: RS92 (Product: RS92-GDP-002)

Nov 12	2	1	1					1	
Dec 12	2	1	1					1	
Jan 13	4	1	1	2				1	1
Feb 13	2	1	1					1	
Mar 13	4	2	2					2	
Apr 13	5	3	2					2	1
May 13	2		2				1	1	
Jun 13	5	4	1					1	
Jul 13	5	2	1	2			1	1	
Aug 13	4	2	2					2	
Sep 13	7	3	4					3	3
Oct 13	2		2					1	2
Total	44	20	20	4			2	17	7

Data quality statistic of stream RS92



Schedule data quality of stream RS92



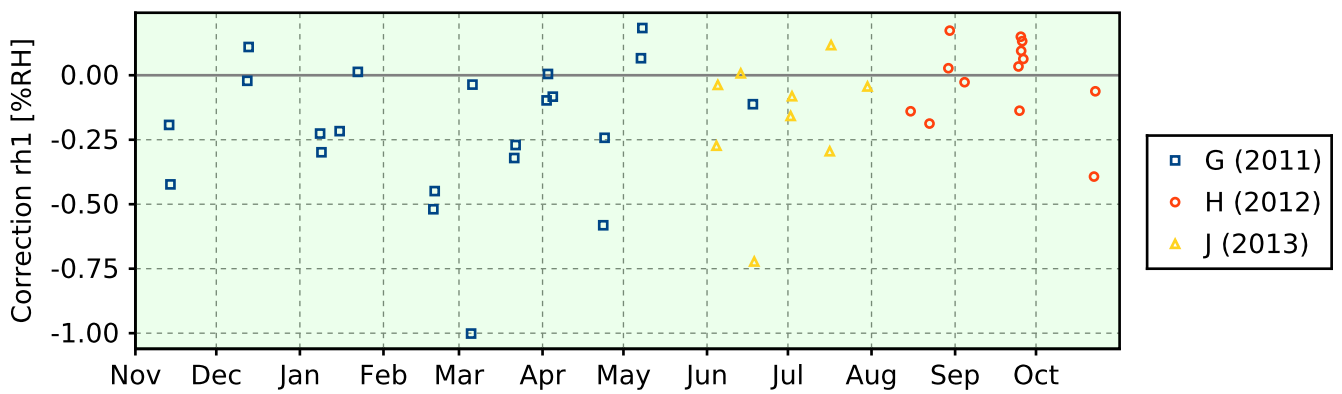
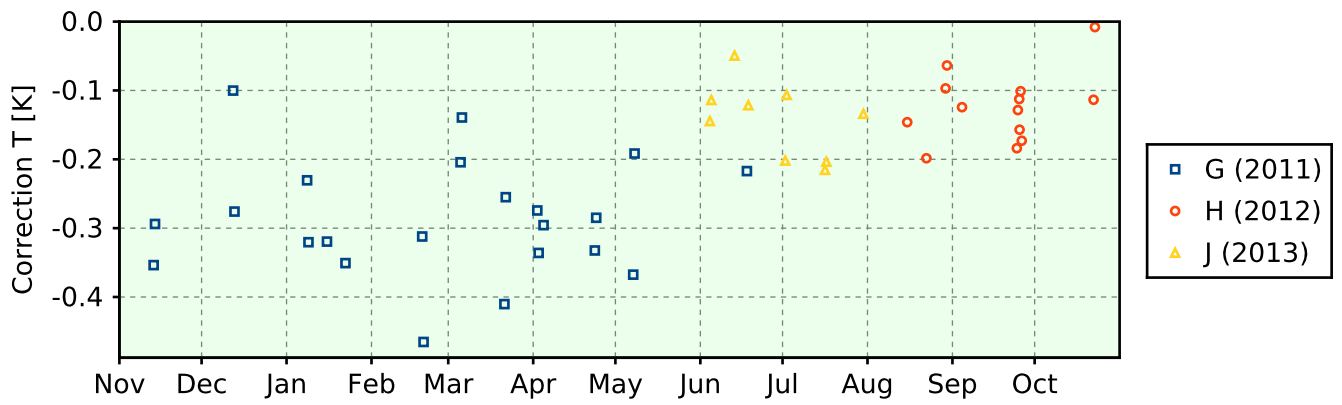
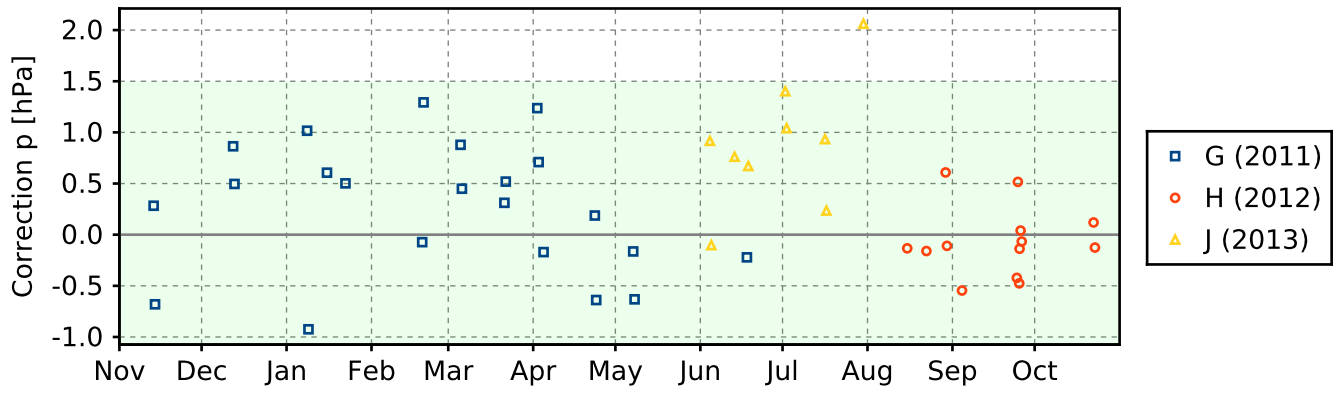
4.4 Instrument combinations of PAY-RS-01

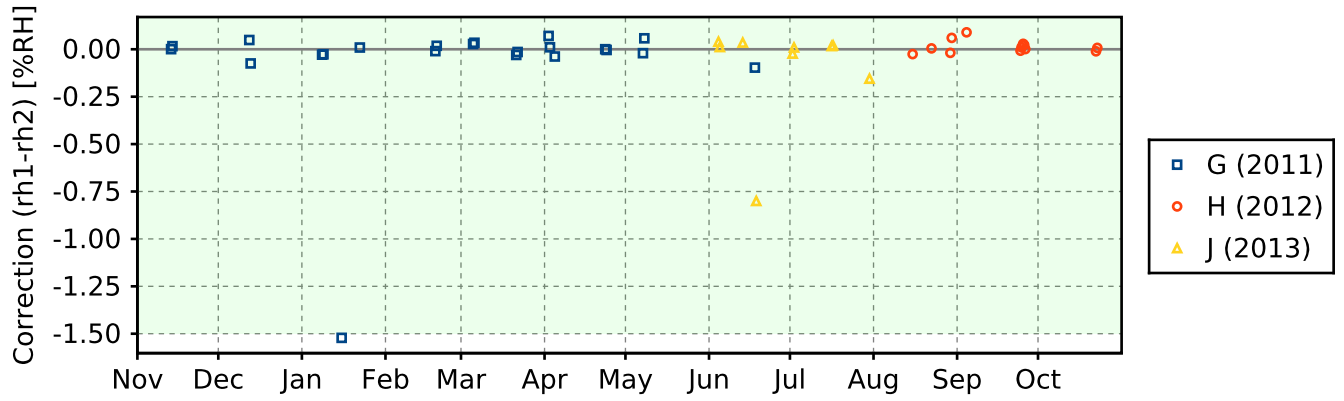
Count	Instrument combination
44	RS92
1	SRS34

4.5 Instrument ground check

4.5.1 Stream: RS92

4.5.1.1 GroundCheck: GC25





4.5.1.2 GroundCheck: SHC

