



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

Doc. 7.16  
(13.IV.2018)

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**10th GRUAN Implementation-  
Coordination Meeting (ICM-10)**

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Session 7

Potsdam, Germany

23 - 27 April 2018

## GRUAN Site Report for Potenza

*(Submitted by Fabio Madonna)*

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

Report from the GRUAN site Potenza for the period January to December 2017.

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# GRUAN Site Report for Potenza (POT)

Reporting for the period January to December 2017

Date: 29-March-2018

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## Overview

Currently, only radiosonde data are provided to the GRUAN archive. For the GPS, CNR has recently restarted the interaction with GFZ to submit the GNSS data to provide a GRUAN Potenza GNSS data stream from the two antennas operating at the site (Trimble and Novatel). Within the last year Potenza site spent a significant effort to perform an RS41-RS92 intercomparison experiment using Climate chamber and a wind tunnel in cooperation with the italian NMI (INRiM). First results will be presented at ICM-10

## Change and change management

One weekly launch is performed on Thursday about 30-60 minutes after sunset using the manual station (including the use of the SHC in the launch procedure). Due to the need to perform a major maintenance, the autolauncher will be not operated until end of 2018.

GPS-RO overpasses are taken in consideration though at the moment the launch scheduling has been not changed yet to meet the overpasses.

RS41 are routinely used for the weekly launches. A few extra (dual) launches are expected with the RS92 and RS41 measuring in parallel during 2018.

The periodic use of Potenza calibration chamber Kambic KK-105 for the monitoring of the radiosonde performance before the launch is under consideration.

A reference hygrometer will be used in the calibration chamber in 2018 to check the radiosonde RH values.

In the Potenza site description, for unknown reason the altitude was wrongly reported. This should be 760 m asl (see <https://www.gruan.org/network/sites/potenza/> ).

## Resourcing

Potenza is continuing to support GRUAN activities using not dedicated funds. In 2019, the Potenza site should be acknowledged as an IT relevant infrastructure and funded to perform 2 launches per week and also to have one monthly sounding with instruments to measure stratospheric water vapour.

## Operations

No challenges or deviation in the Potenza site operation must be noted.

## Site assessment and certification

Potenza site has been certified on 29 April 2015.

## GRUAN-related research

- Assessment of the traceability chain for the aerosol lidar products
- Identification of metadata standards for the discovery and measurements metadata from existing ground based network for the GAIA-CLIM project.
- RS41 vs RS92 intercomparison to study the performance the time constant of the two sondes using climate chambers and the EDDIE wind tunnel operated at the Italian NMI (INRiM)
- CNR is leading the C3S 311a Lot 3 contract for the harmonization of GRUAN and IGRA radiosounding historical data archive. CNR is currently ingesting all the GRUAN data and it will be able to offer soon another option for the users to access the same data
- In the contribution to TT measurement scheduling an combination, CNR is investigating the impact of radiosonde measurement scheduling on the calculation of trends and uncertainties in the historical datasets
- Assesement of IASI vs RAOB mismatch uncertainties in cooperation with the univeristy of Bergamo.

**Publications:** F. Finazzi, A. Fassò, F. Madonna, I. Negri, B. Sun, Statistical harmonization and uncertainty assessment in the comparison of satellite and radiosonde climate variables, *Environmetrics*, in press, preprint arXiv:1803.05835, 2018.

## **WG-GRUAN interface**

A request to IT Met Service to get a WMO index was sent in March 2017. CNR has not yet received an answer. Support have been already requested to GCOS secretariat. WG-GRUAN could further support CNR in this process

## **Items for ICM-10 plenary discussions**

- Management of change from RS92 to RS41
- Establishment of other GRUAN products (GPS, Raman lidar, MWR)
- Use of collocation and redundancy studies to serve GRUAN community
- GRUAN scheduling for satellite validation

## **Other archiving centers**

- Referring strictly to those dataset relevant for GRUAN
- GNSS data are also archived on the RING (Italian Integrated GPS network)
- aerosol and clouds are available via ACTRIS data portal ([actris.nilu.no](http://actris.nilu.no))

## **Participation in campaigns**

Nothing to consider

## **Future plans**

- Submission of new request for a WMO index to solicit the Met Service
- Conclude the investigation of the RS41 vs RS92 intercomparison using climate chambers and wind tunnel
- Work on a paper to study the impact of radiosonde scheduling on the study of climate trends and uncertainties



# GRUAN Site Report for Potenza (POT), 2017

Reported time range is Jan 2017 to Dec 2017

Created by the Lead Centre

Version from 2018-04-06

## 1 General GRUAN site information

Object	Value
Station name	Potenza
Unique GRUAN ID	POT
Geographical position	40.6000 °N, 15.7200 °E, 720.0 m
Operated by	IMAA   Istituto di Metodologie per l'Analisi Ambientale, part of: CNR   Consiglio Nazionale delle Ricerche
Main contact	Madonna, Fabio
WMO no./name	-
Operators	currently 3, changes +0 / -0
Sounding Site	1
GNSS	1

### 1.1 General information about GRUAN measurement systems

System	Name	Type	Setups	Measurements
POT-GN-01	GNSS Site TITO	GNSS	0	not operational
POT-RS-01	Potenza Radiosonde Launch Site	Sounding Site	5	43

### 1.2 General comments from Lead Centre

No comments available from Lead Centre.

## 2 System: GNSS Site TITO (POT-GN-01)

<b>Object</b>	<b>Value</b>
System name	GNSS Site TITO
Unique GRUAN ID	POT-GN-01
System type	GNSS (GN - GNSS)
Geographical position	40.6013 °N, 15.7237 °E, 818.2 m
Operated by	IMAA   Istituto di Metodologie per l'Analisi Ambientale, part of: CNR   Consiglio Nazionale delle Ricerche
Instrument contact	Madonna, Fabio
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: Potenza Radiosonde Launch Site (POT-RS-01)

Object	Value
System name	Potenza Radiosonde Launch Site
Unique GRUAN ID	POT-RS-01
System type	Sounding Site (RS - Radiosonde)
Geographical position	40.6010 °N, 15.7237 °E, 760.0 m
Operated by	IMAA   Istituto di Metodologie per l'Analisi Ambientale, part of: CNR   Consiglio Nazionale delle Ricerche
Instrument contact	Madonna, Fabio
Started at	-
Defined setups	5 (OZONE, ROUTINE, ROUTINE2, RESEARCH, ROUTINE3)
Possible streams	ECC, RS41, RS92

#### 3.1 Lead Centre comments

##### 3.1.1 Dataflow

Sonde dataflow to GRUAN LC is operational since February 2011.

##### 3.1.2 General

Routine soundings are performed one time per week with Vaisala RS41-SG.

#### 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		42	42	
RS41-RAW	001		42	
RS41-EDT	001		42	

##### 3.2.2 Stream: RS92

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



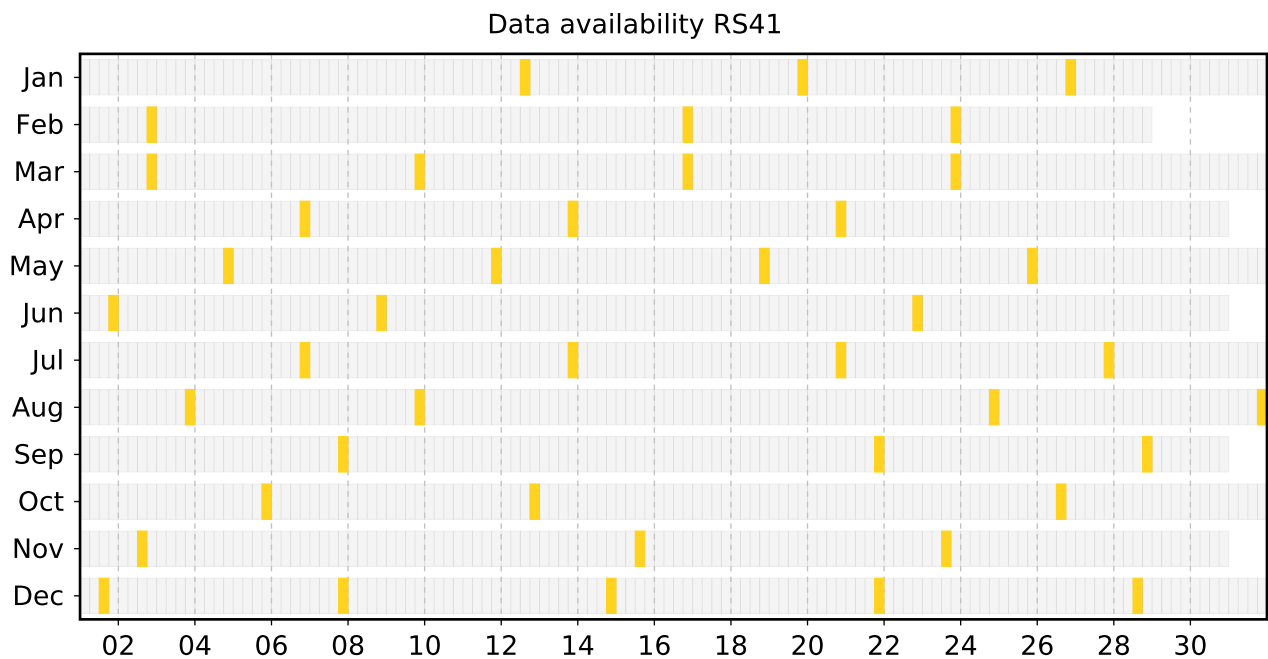
### 3.3 Data availability of data products

Available (green): All steps of processing have been successfully completed. The data file is available at LC (e.g. unapproved or uncertified GRUAN data products) and at NCEI (approved and certified GRUAN data products).

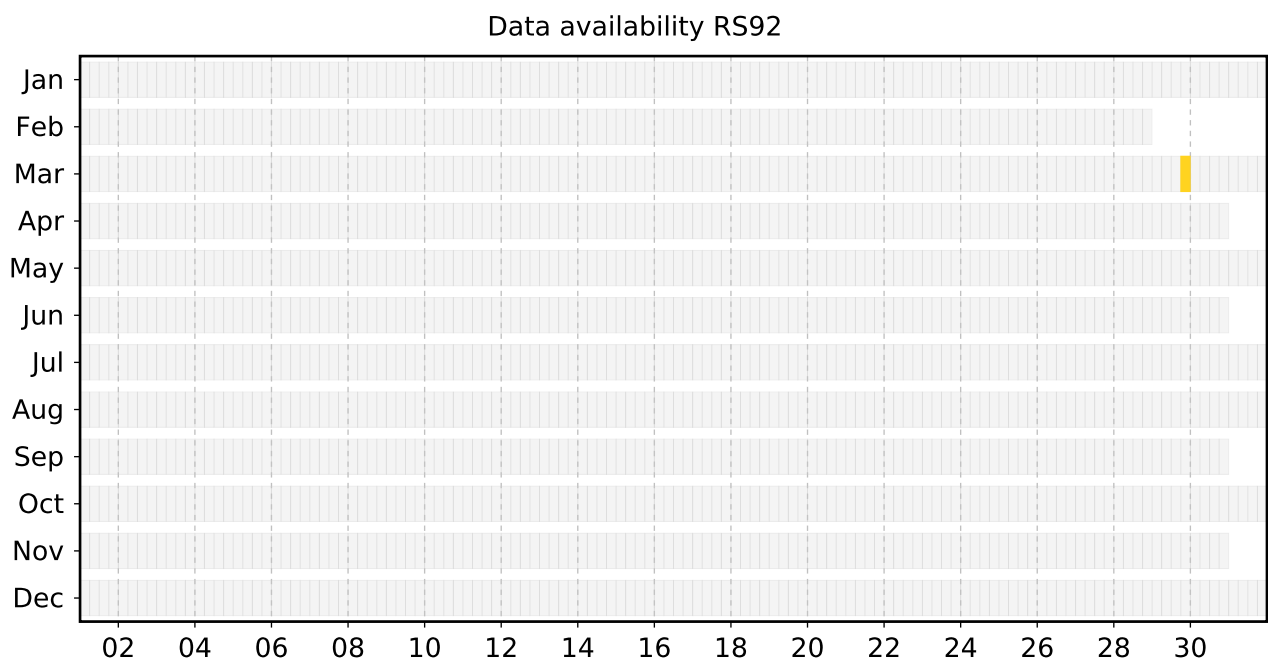
Unprocessed (yellow): The raw data file has been successfully converted to a GRUAN standardized raw data file format (NetCDF). The processing (e.g. GRUAN data processing) has not yet been done, or has not been completed. Reason may be a processing routine which does not yet exist, or software errors.

Original (red): The original raw data file is available (e.g. MWX). The raw data file was not converted to a GRUAN standardized raw data file format (NetCDF). Reason may be a converting routine which does not yet exist, or a corrupt original raw data file, or software errors.

#### 3.3.1 Stream: RS41



#### 3.3.2 Stream: RS92



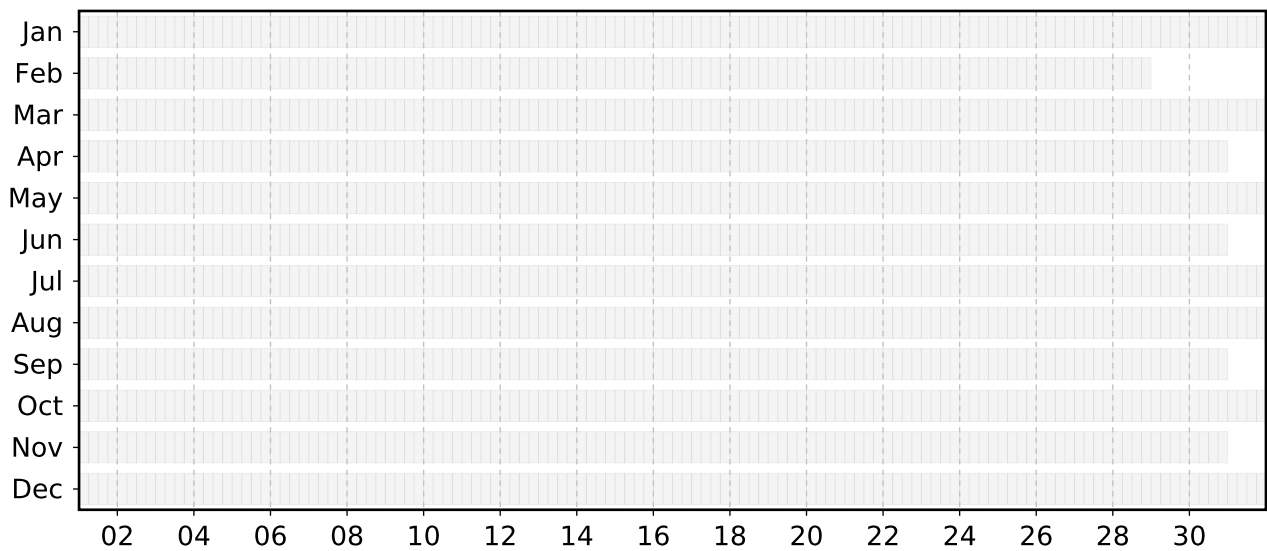
### 3.4 Data quality of current GRUAN data products

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

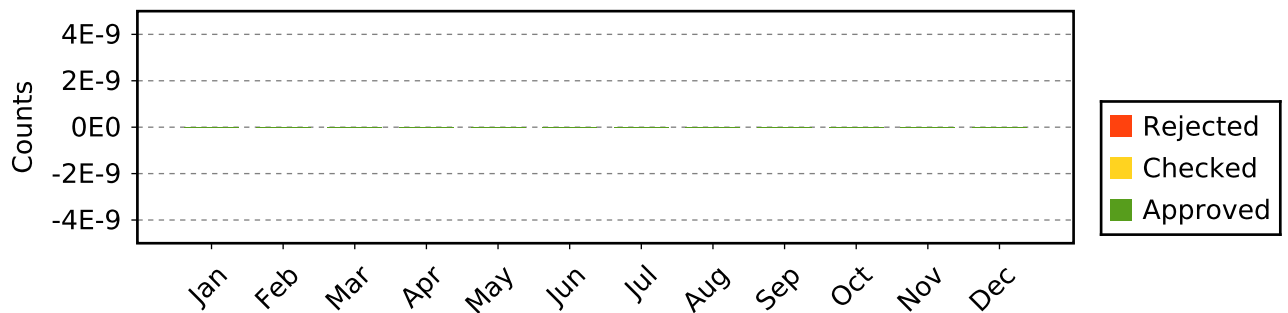
#### 3.4.1 Stream: RS92 (Product: RS92-GDP-002)

Month	Total	Approved	Checked	Rejected	Meta-data	Process.	Press	Temp	RH
Jan									
Feb									
Mar									
Apr									
May									
Jun									
Jul									
Aug									
Sep									
Oct									
Nov									
Dec									
<b>Sum</b>									

Data quality of stream RS92



Data quality statistic of stream RS92



### 3.5 Instrument combinations of POT-RS-01

Count	Instrument combination
42	RS41
1	RS92

### 3.6 Instrument ground check

#### 3.6.1 Stream: RS41

(1) GroundCheck: GC-SHC

#### 3.6.2 Stream: RS92

(1) GroundCheck: GC-SHC

### 3.7 Measurement events

