



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

Doc. 1.18  
(23.X.2020)

---

**12th GRUAN Implementation-  
Coordination Meeting (ICM-12)**

---

Session 1

Virtual

16 - 20 November 2020

## GRUAN Site Report for Ross Island

*(Submitted by Richard Querel)*

---

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

Report from the GRUAN site Ross Island for the period January to December 2019.

---



## **Overview**

The candidate GRUAN site, Ross Island, is actively submitting RS41 radiosonde data and a GNSS data stream for GRUAN processing. Both are on-line with established data flow to the Lead Centre (radiosondes) and GFZ (GNSS).

## **Change and change management**

No changes during this reporting period.

## **Resourcing**

No changes to resourcing. Measurement programmes are stable with long-term support.

## **Operations**

SHC ground checks are performed on the RS41 radiosondes.

The McMurdo-launched RS41 radiosondes use small balloons (200 gram), as their primary driver is to provide meteorological support for local aircraft operations and GTS submissions as a GUAN site. Understandably, those balloons cannot reach high altitudes (typical burst height is  $\sim 40$  hPa during Summer and  $\sim 100$  hPa during Winter). There is currently no procedure (or interest in) conditioning their balloons to attain higher altitudes during the Winter period (by dipping in ATK). Balloons are filled with Helium, but a plan is underway to install an on-site Hydrogen generation plant and they will switch to Hydrogen filled balloons once the new plant is operational. Once a peer-reviewed publication providing justification for attaining higher burst heights is available, this might be useful in my discussions with those responsible for funding the McMurdo balloon operations, and hopefully help me convince them that the costs associated with larger balloons are well justified. Also, that the added steps and safety protocols needed for the balloon dipping are worth the effort.

## **Site assessment and certification**

Initial application for site certification has been submitted. Peer-review commentary by the WG has been received and I am working through my response to the WG questions. I intend to resubmit the revised application by the end of December 2020.

## **GRUAN-related research**

Nothing to note.

## **WG-GRUAN interface**

Support letters from the Lead Centre are always helpful to demonstrate value to our management.

## **Other archiving centers**

GUAN, GAW, NDACC, WOUDC

## **Participation in campaigns**

Nothing to report.

## **Future plans**

For the 2021/2022 Antarctic field season, I have an approved proposal to stage a set of trial launches of FPH+ECC packages from Scott Base. The intent is to use the campaign to sort out any logistical issues and problems in advance of establishing a routine (monthly) FPH sounding programme at the Ross Island site. This is of course under a COVID-free scenario. If the mandatory 2-week quarantine is still in place for all travel from NZ to Antarctica (the current set-up), then we will need to revisit this plan.



# GRUAN Site Report for Ross Island (ROS), 2019

Reported time range is Jan 2019 to Dec 2019

Created by the Lead Centre

Version from 2020-11-05

## 1 General GRUAN site information

Object	Value
Station name	RossIsland
Unique GRUAN ID	ROS
Geographical position	-77.8500 °S, 166.6500 °E, 10.0 m
Operated by	COOP-NIWA-USAP-ANZ   Cooperation between NIWA and USAP and Antarctica New Zealand
Main contact	Querel, Richard
WMO no./name	-
Operators	currently 0, changes +0 / -0
Sounding Site	1
GNSS	1

### 1.1 General information about GRUAN measurement systems

System	Name	Type	Setups	Measurements
ROS-GN-01	GNSS site SCTB	GNSS	1	operational
ROS-RS-01	Ross Island Radiosonde Launch Site (McMurdo)	Sounding Site	1	486

### 1.2 General comments from Lead Centre

#### 1.2.1 General

The GRUAN site Ross Island is a distributed site with three places McMurdo Station, Arrival Heights Research Laboratory, and Scott Base.

## 2 System: GNSS site SCTB (ROS-GN-01)

<b>Object</b>	<b>Value</b>
System name	GNSS site SCTB
Unique GRUAN ID	ROS-GN-01
System type	GNSS (GN - GNSS)
Geographical position	-77.5056 °S, 166.4529 °E, -18.9 m
Operated by	USAP   United States Antarctic Program
Instrument contact	Querel, Richard
Started at	2019-01-01
Defined setups	1 (HOURLY)
Possible streams	-

### 2.1 Lead Centre comments

#### 2.1.1 Dataflow

Dataflow of GNSS data to GRUAN LC and to the GRUAN GNSS processing centre at GFZ has started in March 2019. The current dataflow to GRUAN LC includes instrument logs, and processed data.

The operational processing as GNSS-PW-GDP is performed.

### 3 System: Ross Island Radiosonde Launch Site (McMurdo) (ROS-RS-01)

Object	Value
System name	Ross Island Radiosonde Launch Site (McMurdo)
Unique GRUAN ID	ROS-RS-01
System type	Sounding Site (RS - Radiosonde)
Geographical position	-77.8500 °S, 166.6300 °E, 10.0 m
Operated by	USAP   United States Antarctic Program
Instrument contact	Querel, Richard
Started at	-
Defined setups	1 (ROUTINE)
Possible streams	RS41

#### 3.1 Lead Centre comments

##### 3.1.1 Dataflow

Sonde dataflow to the GRUAN LC is operational since December 2018.

##### 3.1.2 General

Routine soundings using Vaisala RS41-SG are performed two times per day.

During the dark winter months, the height of the burst point is significantly lower than during the rest of the year. This could be significantly improved by treating the balloons in an oil bath before launch.

#### 3.2 GRUAN data products

Product	Version	Soundings received	Available at LC	Distributed by NCEI
---------	---------	--------------------	-----------------	---------------------

##### 3.2.1 Stream: RS41

RS41		486	486	
RS41-RAW	001		484	
RS41-EDT	001		484	
RS41-GDP-BETA	001		211	

### 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



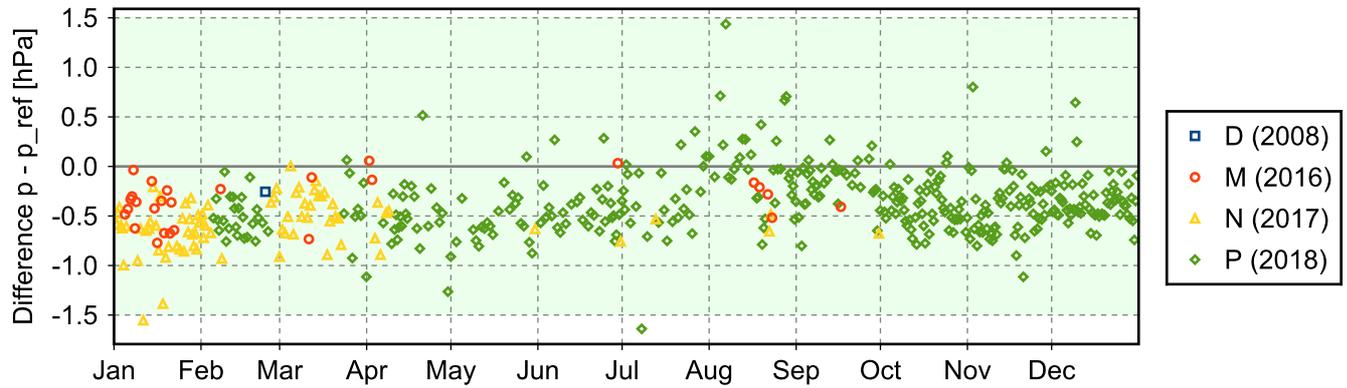
### 3.4 Instrument combinations of ROS-RS-01

Count	Instrument combination
486	RS41

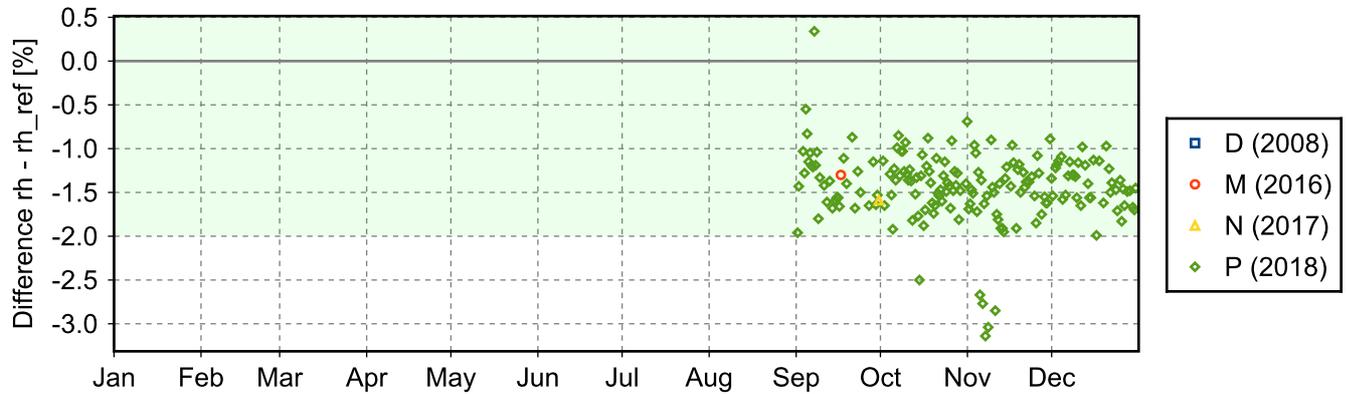
### 3.5 Instrument ground check

#### 3.5.1 Stream: RS41

(1) GroundCheck: GC-RI41



(2) GroundCheck: GC-SHC



### 3.6 Measurement events

