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GRUAN Site Report for Cabauw

(Submitted by Arnoud Apituley)

Summary and Purpose of this Document

Report from the GRUAN site Cabauw for the period January to December 2021.

Overview

The distributed site Cabauw/De Bilt executes Vaisala RS41 radiosonde launches (00 UTC) and ECC ozone sonde launches (weekly), including SHC calibration. The observations are operational, but the data stream to the GRUAN Leadcenter has been stalled due to IT issues and understaffing in the support. At the time of this reporting, the issues have largely been resolved (Oct. 2022) and a test with the leadcenter is pending for approval of the data stream. At the Cabauw site, a GNSS station is operational, as well as a suite of ancillary observations, including water vapor Raman lidar, microwave radiometer and cloud observations. Where possible, data are contributing to the GRUAN data streams, and/or the development of data streams.

Change and change management

Operating procedures have not been changed during the reporting period. New equipment has become operational in the ancillary observation programme. In particular the cloud profiling suite has been upgraded in December 2019 with a new 35/94 GHz dual frequency cloud radar and a new microwave radiometer. Since the old 35 GHz cloud radar was broken, no overlapping time series could be collected. Note that the Cabauw observation programme is a joint responsibility of the Dutch atmospheric research community (KNMI, TU-Delft, TNO, WUR, RIVM, UU, VU). The Cabauw site is managed by KNMI. The surroundings of the site remain unchanged. The Cabauw page on the GRUAN website is current.

Resourcing

KNMI was understaffed over the past years in several critical positions, including IT support and scientific staff involved in the support of GRUAN operations. These problems have been addressed and new staffing has been appointed in these positions, with tasking for GRUAN also assigned to those people.

Operations

- The 10 hPa burst level for radio soundings is targeted.
- A project for the change over from helium to hydrogen as a filling gas for the balloons has been started. In this project, the use of auto launchers will be considered.
- The use of the RSLaunch client is replaced by the use of a script provided by the GRUAN Leadcenter. Implementation has been completed now up to the test phase with upload to the

Leadcenter.

Covid-19

The number of radio sonde launches was increased from 00 UTC to include also 12 UTC during the period March 2020 up to July 2020 to compensate for the reduction of air traffic and therefore aircraft vertical profiles as a consequence of the COVID lockdown. These data will also be contributed to the GRUAN database. Some inefficiency was experienced since people were forced to work from home and essential informal contact was very limited.

Site assessment and certification

An audit report was submitted for recertification.

GRUAN-related research

The Cabauw site contributes to the ground based ancillary data task team and aims to help getting a data stream going for Raman lidar water vapour profiles.

WG-GRUAN interface

Not applicable.

Other archiving centers

ACTRIS, ICOS, GAW, BSRN

Participation in campaigns

In September 2019 a Sentinel-5p/TROPOMI validation campaign took place in Cabauw. Two NDACC/TOLNET NASA lidars participated and these data could be used for a study of Raman water vapor lidar measurements, e.g. a water vapor Raman lidar intercomparison. This study has not started yet.

Future plans

- Datastream will be further automated

- The backlog of RS41 data will be submitted
- Data for the Lidar data product will be made available



GRUAN Site Report for Cabauw (CAB), 2021

Reported time range is Jan 2021 to Dec 2021

Created by the Lead Centre

Version from 2022-11-15

1 General GRUAN site information

Object	Value
Station name	Cabauw
Unique GRUAN ID	CAB
Geographical position	51.9700 °N, 4.9200 °E, 1.0 m
Operated by	KNMI Koninklijk Nederlands Meteorologisch Instituut
Main contact	Apituley, Arnoud
WMO no./name	06260 DE BILT AWS
Operators	currently 0, changes +0 / -0
Sounding Site	1
GNSS	1

1.1 General information about GRUAN measurement systems

System	Name	Type	Setups	Measurements
CAB-GN-01	GNSS Site CBW1	GNSS	1	operational
CAB-RS-01	Radiosonde Launch Site (De Bilt)	Sounding Site	4	0

1.2 General comments from Lead Centre

1.2.1 General

Operational data flow of RS41 soundings was restarted in November 2022. A transmission of data of missing years is requested.

2 System: GNSS Site CBW1 (CAB-GN-01)

Object	Value
System name	GNSS Site CBW1
Unique GRUAN ID	CAB-GN-01
System type	GNSS (GN - GNSS)
Geographical position	51.5810 °N, 4.5534 °E, 46.0 m
Operated by	KNMI Koninklijk Nederlands Meteorologisch Instituut
Instrument contact	Apituley, Arnoud
Started at	2019-05-16
Defined setups	1 (HOURLY)
Possible streams	-

2.1 Lead Centre comments

2.1.1 Dataflow

No GNSS dataflow to LC has been established yet.

3 System: Radiosonde Launch Site (De Bilt) (CAB-RS-01)

Object	Value
System name	Radiosonde Launch Site (De Bilt)
Unique GRUAN ID	CAB-RS-01
System type	Sounding Site (RS - Radiosonde)
Geographical position	52.1000 °N, 5.1800 °E, 1.0 m
Operated by	KNMI Koninklijk Nederlands Meteorologisch Instituut
Instrument contact	Apituley, Arnoud
Started at	-
Defined setups	4 (ROUTINE, OZONE, ROUTINE2, OZONE2)
Possible streams	RS41, RS92

3.1 Lead Centre comments

3.1.1 Dataflow

Sonde dataflow to the GRUAN LC was operational in a fully automated mode from January 2011 until 15 January 2017.

Dataflow has been interrupted since the change of the operational radiosonde from RS92 to RS41 on 15 January 2017.

Operational data flow of RS41 soundings was restarted in November 2022. A transmission of data of missing years is requested.