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GLOBAL CLIMATE OBSERVING
SYSTEM (GCOS)

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**13th GRUAN Implementation-
Coordination Meeting (ICM-13)**

Session 1

Virtual

15 November - 19 November 2021

GRUAN Site Report for TRappesPalaiseau

(Submitted by Jean-Charles Dupont)

Summary and Purpose of this Document

Report from the GRUAN site TRappesPalaiseau for the period January to December 2020.

Overview

TRappesPalaiseau (TRP) and La Réunion (REU) sites send every day the raw data and level 1 product for the M10 radiosondes launched with automatic radiosonde system. A reviewed certification document has been sent at the beginning of March 2021 for M10 radiosonde at TRP and REU sites. M10 GRUAN Data Product is sent to the GRUAN data center since end of February 2021.

Change and change management

There is no change in 2020.

Resourcing

In 2020, there is no change in resources.

Operations

In 2020, we do not have problem to reach the burst point at 10hPa. We do have operational difficulties. We should be able to follow the GRUAN operating procedure for a long-term period.

Covid-19

In 2020, we do not have major problem to ensure the radiosonde but it was a very strong work to reach our objective. The Automatic Radiosonde Launcher is here a very big advantage during this period ...

Site assessment and certification

We have submitted the certification documents at the beginning of September for the first version, a second version has been sent at the beginning of March 2021. We would like to have certified sites with Meteomodem M10 sounde for TrappesPalaiseau (TRP) and La Réunion (REU) at mid 2021.

GRUAN-related research

- We have collaborations with ACTRIS network and more precisely with the lidar community to provide input parameters such as vertical profile of temperature, humidity and pressure, used to derived geophysical atmospheric parameters from IPRAL backscatter signal.

- We have collaboration with EProfile network and more precisely with Automatic Lidar and Ceilometer (ALC) community to better monitor and understand the variability of the boundary layer height. Vertical profiles of temperature and wind intensity are here used to compare and evaluate some algorithms, CABAM and STRATFINDER (<https://www.lmd.polytechnique.fr/sirta/mla/>, Kotthaus, S and CSB Grimmond, Q J R Met Soc, 2018), based on ALC vertical profile.
- We have collaboration with ACTRIS-cloud network to study the fog life cycle processes and try to better understand the formation and the dissipation period. Temperature and humidity vertical variability above the fog layer has a significant impact of the fog development intensity and so a better characterization can help us to better forecast the life cycle of the fog layer.

WG-GRUAN interface

Have certified sites with M10 sensor at TrappesPalaiseau (TRP) and La Réunion (REU).

Other archiving centers

SIRTA observatory submit data in several international network

- BSRN for radiation,
- AERONET for the sun-photometer,
- ACTRIS for research lidar (IPRAL), cloud radar and microwave radiometer,
- EPROFILE for automatic lidar (ALC) and UHF radar,
- RGP-IGN for the GNSS sensor

Participation in campaigns

Several experiments in Lindenberg laboratories to better characterize M10 radiosonde (and the future M20 radiosonde).

Dual sonde to compare and evaluate M10 / M10 radiosondes.

Several experiments in Ecole Polytechnique laboratories to characterize M20 radiosonde for temperature.

One field experiment to compare the vertical profile of temperature and relative humidity along the first ground surface and 200m agl to quantify the impact of the Automatic Radiosonde Launcher (ARL) on these values.

Future plans

Certification of M10 radiosonde for the sites TRappesPalaiseau (TRP) and La Réunion (REU) sites and improve the quality of the M10 GDP with new field experiments in laboratories or in dual flights. Development of the procedures, tests and field experiments for the Meteomodem M20 radiosonde.



GRUAN Site Report for TrappesPalaiseau (TRP), 2020

Reported time range is Jan 2020 to Dec 2020

Created by the Lead Centre

Version from 2021-04-27

1 General GRUAN site information

Object	Value
Station name	TrappesPalaiseau
Unique GRUAN ID	TRP
Geographical position	48.7730 °N, 2.0080 °E, 168.0 m
Operated by	COOP-MF-IPSL Cooperation between Meteo-France and IPSL
Main contact	Dupont, Jean-Charles
WMO no./name	07145 TRAPPES
Operators	currently 3, changes +0 / -0
Sounding Site	1
Lidar	1
GNSS	1

1.1 General information about GRUAN measurement systems

System	Name	Type	Setups	Measurements
TRP-GN-01	GNSS site at SIRT	GNSS	0	not operational
TRP-LI-01	IRPAL Multi-Wavelength Lidar for Aerosol, Cloud and Water Vapour Profiling	Lidar	0	0
TRP-RS-01	Trappes radiosonde launch site	Sounding Site	1	699

1.2 General comments from Lead Centre

1.2.1 General

The GRUAN site TrappesPalaiseau is a distributed site with two places Trappes and Palaiseau.

2 System: GNSS site at SIRTA (TRP-GN-01)

Object	Value
System name	GNSS site at SIRTA
Unique GRUAN ID	TRP-GN-01
System type	GNSS (GN - GNSS)
Geographical position	48.7130 °N, 2.2080 °E, 156.0 m
Operated by	SIRTA Site Instrumental de Recherche par Télédétection Atmosphériques, part of: IPSL Institut Pierre-Simon Laplace
Instrument contact	Dupont, Jean-Charles
Started at	2008-01-01
Defined setups	-
Possible streams	-

2.1 Lead Centre comments

2.1.1 Dataflow

No GNSS dataflow to LC has been established yet.

3 System: IRPAL Multi-Wavelength Lidar for Aerosol, Cloud and Water Vapour

Object	Value
System name	IRPAL Multi-Wavelength Lidar for Aerosol, Cloud and Water Vapour Profiling
Unique GRUAN ID	TRP-LI-01
System type	Lidar (LI - Lidar)
Geographical position	48.7130 °N, 2.2080 °E, 156.0 m
Operated by	SIRTA Site Instrumental de Recherche par Télédétection Atmosphériques, part of: IPSL Institut Pierre-Simon Laplace
Instrument contact	Haeffelin, Martial
Started at	2015-06-01
Defined setups	-
Possible streams	-

3.1 Lead Centre comments

3.1.1 Dataflow

No dataflow of lidar measurements to LC has been established yet.

4 System: Trappes radiosonde launch site (TRP-RS-01)

Object	Value
System name	Trappes radiosonde launch site
Unique GRUAN ID	TRP-RS-01
System type	Sounding Site (RS - Radiosonde)
Geographical position	48.7730 °N, 2.0080 °E, 168.0 m
Operated by	MF Meteo-France
Instrument contact	Marin, Frédéric
Started at	2015-04-01
Defined setups	1 (AUTO1)
Possible streams	M10

4.1 Lead Centre comments

4.1.1 Dataflow

Sonde dataflow to the GRUAN LC is operational in a fully automated mode since September 2019.

4.2 GRUAN data products

Product	Version	Soundings received	Available at LC	Distributed by NCEI
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4.2.1 Stream: M10

M10		699	699	
M10-GDP-BETA	001		16	

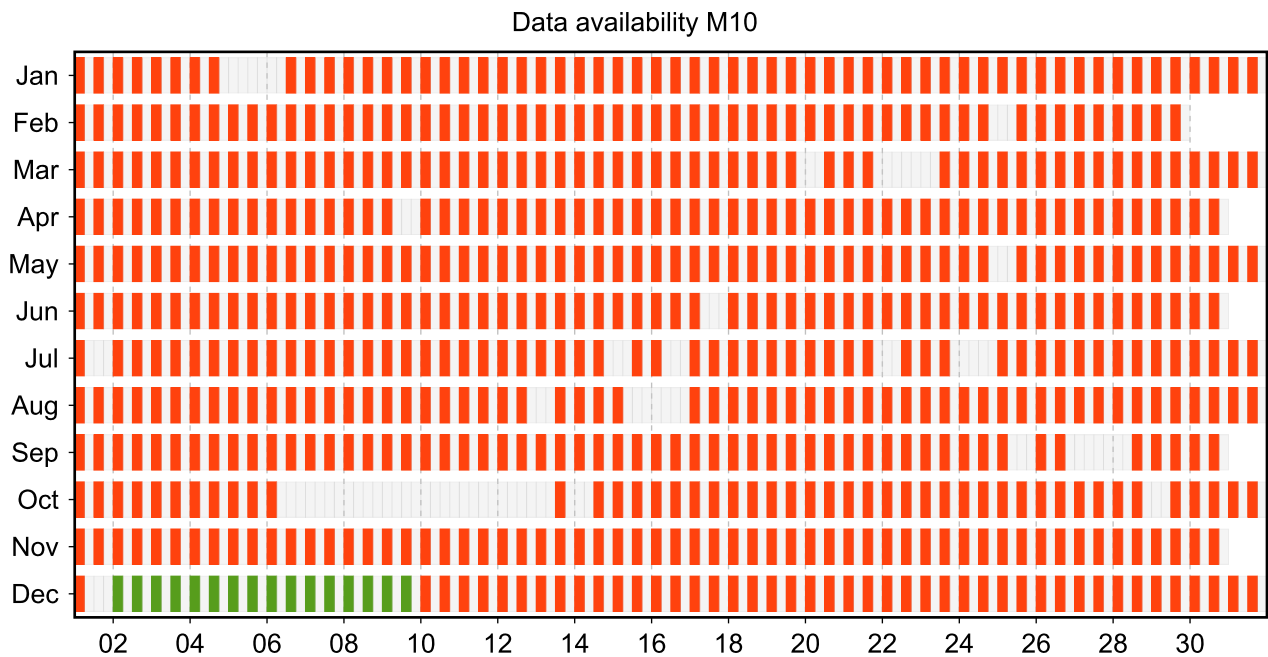
4.3 Availability of data products

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.

4.3.1 Stream: M10



4.4 Instrument combinations of TRP-RS-01

Count	Instrument combination
699	M10

4.5 Instrument ground check

4.5.1 Stream: M10

(1) GroundCheck: GC-SHC

(2) GroundCheck: GC-TU(room)

4.6 Measurement events

