



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

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

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Session 1

Virtual

16 - 20 November 2020

## GRUAN Site Report for Dolgoprudny

*(Submitted by Alexey Lykov)*

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

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

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## **Overview**

Currently, only routine radio sounding is performed. RS41-SGP radiosondes are manually launched periodically as part of comparisons with Russian prototype new radiosondes. From 2017 to the present, more than 60 launches of the RS41-SGP radiosondes and more than 20 releases of MODEM M2K2DS radiosondes have been accumulated. A database of radiosounding in the BUFR code has been created, which includes additional launches of GRUAN probes. After preliminary processing and systematization of metadata, they can be included in the GRUAN database in Lindenberg. The station has a laboratory with a climatic chamber and reference calibrated temperature and humidity sensors, which is used for preliminary comparisons of radiosonde sensors before flight. The database, in addition to the upper-air data, also includes data from the SABER satellite, AMDAR aircraft data and GFS forecast data, which can be used for joint processing of flight profiles. Work is underway to improve and test prototypes of the FLASH stratospheric hygrometer in conjunction with RS41 radiosondes and SFH hygrometers. The launches are carried out as soon as the instruments scheduled soon. There are several GNSS stations for water vapor measurement, but all require maintenance and data processing programs to calculate the total water vapor content. Remote measurements presented by Micro Rain RADAR (MRR-2) with data from 2014, microwave profiler RPG-TEMPRO with profiles for temperature and humidity up to 10 km from 2014 and Precipitation Occurrence Sensor System (POSS) data on precipitation from 2017 -2019.

## **Change and change management**

During the reporting period, there was no change in measurement programs, operating procedures, operators, instruments or expendables, data processing algorithms as well as in location of instruments and their operating environments. In this year the software of the DigiCora MW41 station was improved to version 2.15.

## **Resourcing**

The station carries out GRUAN activities using not dedicated funds. At the moment, the stock of RS41 radiosondes has been used up and launches are being made only by purchasing a small number of them for comparison campaigns. There is a small stock of M2K2DS probes of about 50 pcs. However, there is no funding for regular launches.

## **Operations**

No operational challenges or deviations from GRUAN procedures must be reported for the site of Dolgoprudny. For more than 70 % of launches performed during the reporting period the burstpoint pressure was below 10 hPa. Now is using a hydrogen for balloons produced by electrolyze generator.

## **Site assessment and certification**

The site is not certified yet. At the beginning of 2020, the CAO again sent a letter to Roshydromet with a request to open funding for regular works. Unfortunately, in connection with the outbreak of the epidemic of COVID 19 in 2020, this task was postponed. It is planned to return to this topic in 2021.

## **GRUAN-related research**

No significant research has been done at Dolgoprudny during this period.

## **WG-GRUAN interface**

No special assistance or support by the WG is required at this time.

## **Other archiving centers**

Basic data in the BUFR code is collected in a local database in the CAO. The database management system is being developed now and will be available on a specially created site in the near future.

## **Participation in campaigns**

During the year, two comparison campaigns were carried out with prototypes of Russian radiosondes in which RS41-SGP radiosondes were involved. The data from these campaigns is processed and will be included in the database.

## **Future plans**

CAO is working on obtaining a Russian certificate for RS41 radiosondes for their official use on the national network. Work is underway to organize a center for testing and certification of radiosondes at

the Dolgoprudny station. Developing methods of comparison and data processing are being developed to detect measurement errors by various radio sounding systems. Work is underway to compare radio sounding data with data from satellites, aircraft observations and forecasts to assess the differences in the results in temperature, humidity and wind. Development is underway to improve the FLASH stratospheric hygrometer.



# GRUAN Site Report for Dolgoprudny (DLG), 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	Dolgoprudny
Unique GRUAN ID	DLG
Geographical position	55.5600 °N, 37.5200 °E, 185.0 m
Operated by	CAO   Central Aerological Observatory, part of: ROSHYDROMET   ()
Main contact	Krestyanikova, Nadezhda
WMO no./name	27612 MOSKVA
Operators	currently 1, changes +0 / -0
Sounding Site	1

### 1.1 General information about GRUAN measurement systems

System	Name	Type	Setups	Measurements
DLG-RS-01	Dolgoprudny Radiosonde Launch Site	Sounding Site	1	0

### 1.2 General comments from Lead Centre

#### 1.2.1 General

Operational dataflow to GRUAN LC was successfully configured and tested.

Currently, no data are submitted to LC.

## 2 System: Dolgoprudny Radiosonde Launch Site (DLG-RS-01)

<b>Object</b>	<b>Value</b>
System name	Dolgoprudny Radiosonde Launch Site
Unique GRUAN ID	DLG-RS-01
System type	Sounding Site (RS - Radiosonde)
Geographical position	55.9233 °N, 37.5198 °E, 185.0 m
Operated by	CAO   Central Aerological Observatory, part of: ROSHYDROMET   ()
Instrument contact	Krestyanikova, Nadezhda
Started at	-
Defined setups	1 (RESEARCH)
Possible streams	M10, M2K2, RS41

### 2.1 Lead Centre comments

#### 2.1.1 Dataflow

Dataflow of operational radiosoundings to GRUAN LC was successfully configured and tested.

Currently, no data are submitted to LC.