Meteorological measurements
DATA
ACCOMPANYING REPORT

The realization of the intensive forest monitoring programme in Bulgaria was organized in 3 stationary areas. The stations are equipped with automatic devices collecting air quality and meteo parameters data. In 2016, the Rojen Complex Background Monitoring Station was also included in the survey.

Automatic station – Vitinia 0001

Automatic station – Yundola 0003

In order to have differences in the meteorological conditions, these tree stationary areas were selected so as to belong to different climatic regions and sub regions and are situated on terrains, differing in altitude and relief.

CBMS Rojen 0005

The territories where the monitoring stations were located are attributed to two different climatic regions: Black sea climatic region – Eastern

Balkan mountain sub region (site Staro Oriahovo) and Mountainous climatic region –Middle mountain sub region (sites Yundola, Vitinia and CBMS Rojen).

Automatic station – Staro Oriahovo 0004

All monitoring stations are equipped with automatic devices collecting and transmitting meteo data in real time to the national data base.

Automatic stations equipment for a measuring and transmitting of meteo data

Sensor/ System	Manufacturer	Type	Specifications
Remote transmission	Siemens	Siemens GSM Dualband Modem TC 35T, antenna,	GSM Dualband Modem Terminal
Data logger	Infologica	Super Micro SBC-19	Data logger
Soft ware	Project Automation	Eco Remote	Data management, Import, Export; Meteorological and Air Quality data interpretation, remote transmission

Air temperature	Rotronic	HYGROMER MP 100A	Combined thermo/ hygrosensor
Air humidity	see above		
Wind speed	Young	Y-05103 V	Combined wind speed +direction
Wind direction	see above		
Solar radiation	LI-COR	LI-200 SZ	Pyranometer

The sensor heights for each of monitored meteo parameters are as follows:

1. sensors for air temperature, wind speed and direction and solar radiation – 9 m sampling height;
2. sensor for relative humidity – 3 m sampling height;
3. sensor for precipitation – 3 m sampling height.

The monitoring activities in 2017 were prepared in compliance with the ICP Forests Manual and comprise the following activities:

- **Measuring of meteo parameters** - The meteo parameter values are measured in every 3 sec. Data storing interval is 30 minutes. The data from the automatic stations are received in real time in ExEA National data base;
- **Validation of the data;**
- **Evaluation of the data** for air temperature, relative humidity, wind speed and direction, solar radiation and precipitation.

The present submission report for 2017 meteorological data is based on the following % of validated data:

- ***Vitinia*** (SP0001) – 96.8% for wind speed (WS), 96.8% for wind direction (WD), 96.8% for air temperature (AT), 96.4% for humidity (RH), 96.3% for solar radiation (SR) and 96.8% for precipitations (Pr);
- ***Staro Oriahovo*** (SP0004) – 99.8% for wind speed (WS), 99.8% for wind direction (WD), 99.4% for air temperature (AT), 86.6% for humidity (RH), 99.6% for solar radiation (SR) and 99.8% for precipitations (Pr);.

- ***Yundola*** (SP0003) – 97.3% for wind speed (WS), 96.8% for wind direction (WD), 97.3% for air temperature (AT), 51.8% for humidity (RH), 97.3% for solar radiation (SR) and 00.0% for precipitations (Pr);
- ***CBMS Rojen*** (SP0005) - 52.5% for wind speed (WS), 52.5% for wind direction (WD), 41.6% for air temperature (AT), 40.5% for humidity (RH), 49.9% for solar radiation (SR) and 36.1% for precipitations (Pr).

After verification of the received data from all level 2 monitoring stations, the templates (forms: PLM, MEM and MEH) are completed and uploaded to the online database of the ICP Forests.