

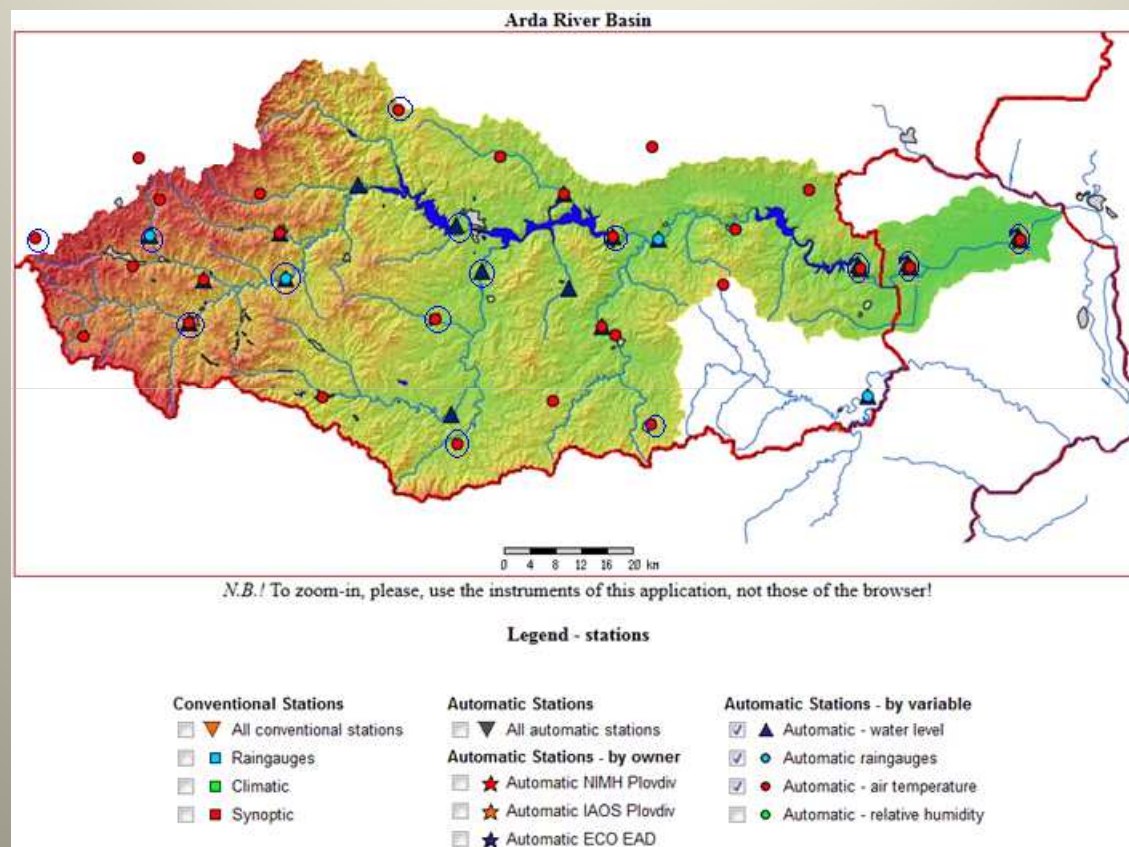


The equipment, technical parameters, installation places, data collection

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Overview of the Automatic stations' locations – project stations in circles



Bulgaria

Greece

4 meteorological stations
4 hydrological on river and 3 on reservoirs
1 snow measurement station

1 hydro-meteorological on river
1 hydro-meteorological on reservoir



I. Two hydrometric stations consisting of:



Smoljan-Bjala reka
Vehtino- Arda

1. Data Logger UnilogCom

GPRS communication: sends data to NIMH every hour.



2. Tipping bucket sensor

SEBA RG50 – for rainfall intensity

Collecting area: 200cm²

Resolution 0.1 mm.

When not heated may freeze in winter.

Easily get clogged by dust and leaves.

Needs cleaning.



3. Radar Sensor for water level

SEBA Puls 15

Measuring range: 0 – 15 m

Accuracy: 0.2 cm

Robust and cheap analog sensor – not depending on weather and water conditions.





I. Two hydrometric stations consisting of:



1. Data Logger
UnilogCom



2. Tipping bucket sensor
SEBA RG50 – for rainfall
intensity



3. Bubbling sensor for water
Level PS – Light II

Measuring range: 0 – 10 m
Robust measurement principle.
Sensor tube should be mounted
underwater. When needed the
tube may be mounted in shaft to
measure underground water
level – linked to the river level



Solar Panel – 50W



Rudozem- Elhovska river & Gruevo - Vurbitsa



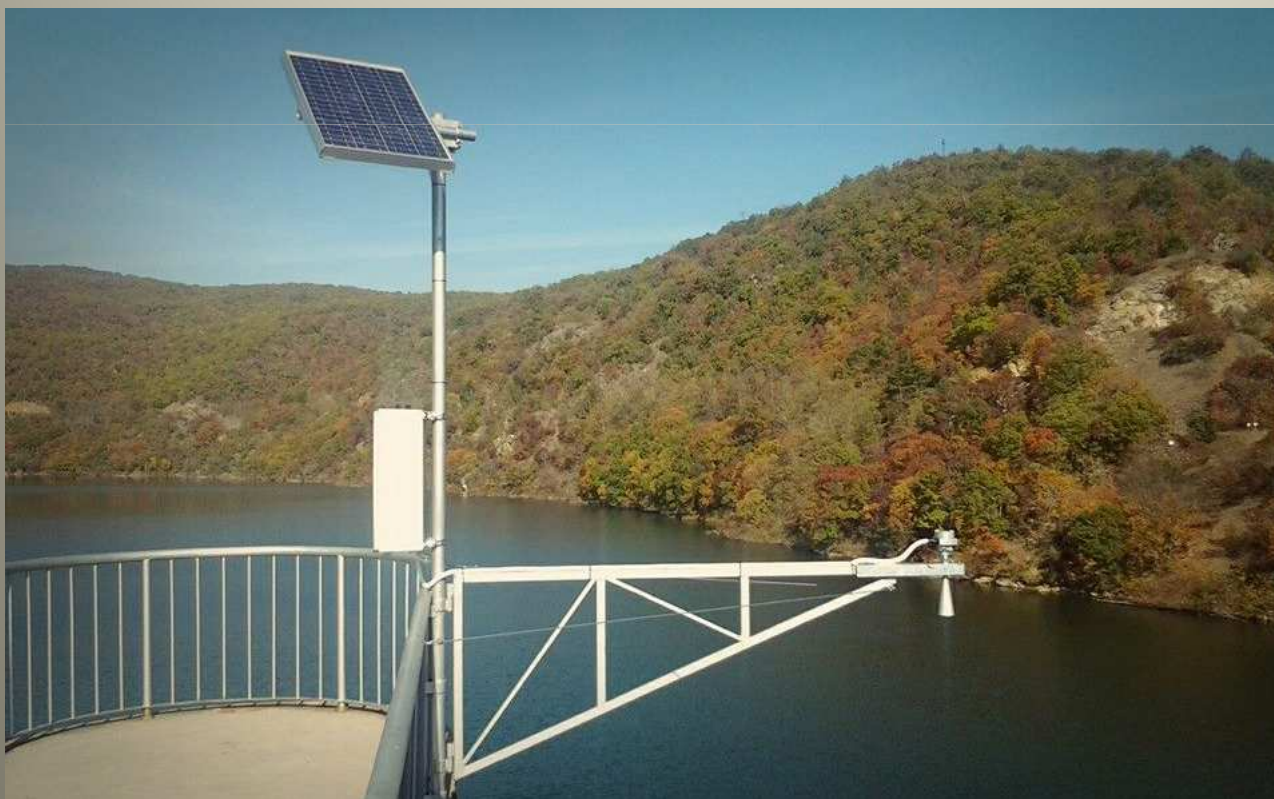
III. Three water level stations consisting of:

1. Data Logger UnilogCom



2. Radar Sensor for water level SEBA Puls 30 – for dams

Range: 0 – 35 m
Precision 0.3 cm
Robust analog measurement not
depending on water conditions but
precision is affected by waves



Kardzhaly reservoir
Studen Kladenets res.
Ivaylovgrad reservoir





IV. Four meteorological stations consisting of:



Komuniga, Dzhebel, Kirkovo, Avren

1. Data Logger
UnilogCom



2. Combined air humidity
and temperature sensor
with radiation shield

Analog precision: 0.3 °C



3. Global solar radiation
sensor

Analog output: W



4. Weighing rain gauge
system

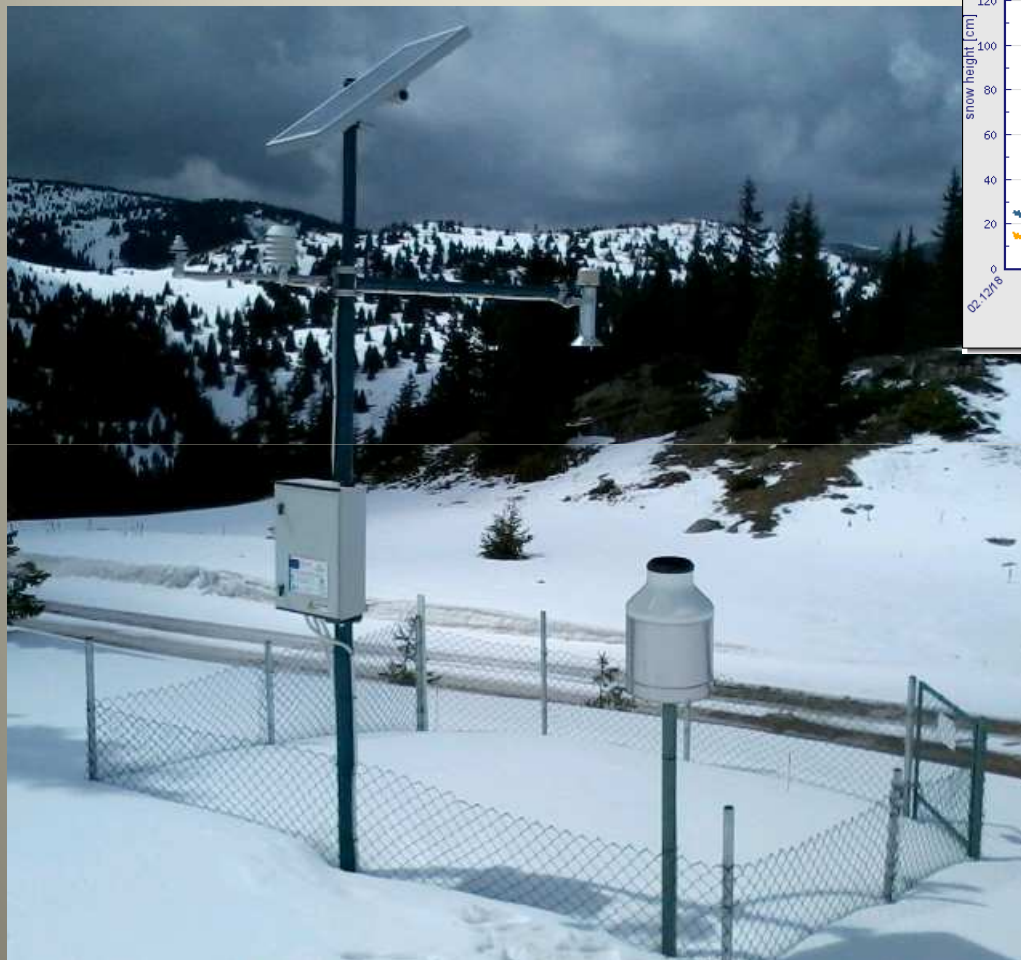
TRW200 – for rainfall
intensity

Capacity – 750 mm

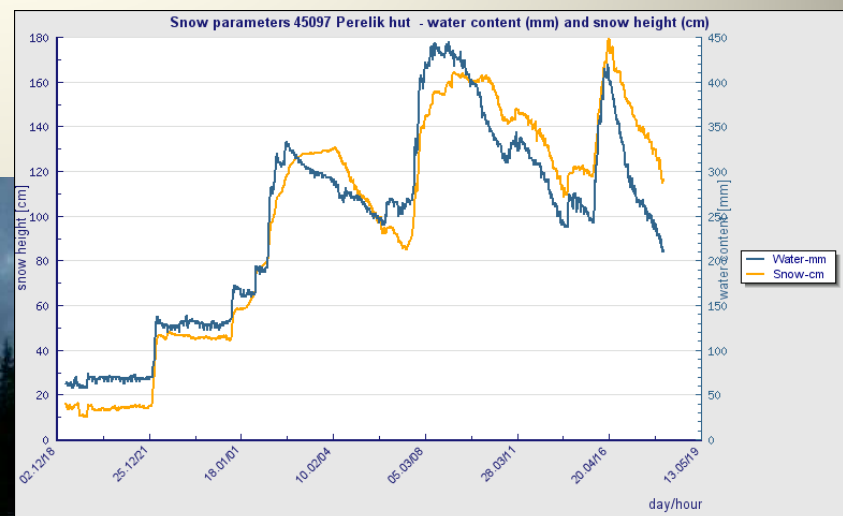
Analog output: 0.1 mm

Max Intensity: 120 mm/min





V. Snow measurement station consisting of:



5. Ultrasonic snow depth sensor

Measuring range: 0 – 8 m
Digital output
Accuracy: 0.1 cm



6. Snow scale – for measuring the snow water equivalent

Analog output: up-to 1000 mm SWE
Accuracy: 0.3%





VI. Four sets for instruments for measuring water speed consisting of:

1. Universal current meter – SEBA F1 with small and big metal propellers

Measuring range: 0.03 – 10 m/s (big)
0.03 – 5 m/s (small)

2. 6m rod – on 6 sections, each 1m long

3. SEBA Signal counter – Z6 – for visualizing the revolutions and speed

Accuracy (time): 0.01 s
Max impulse frequency: 40 imp/s

Kardzhaly district observatory
technicians group
Momchilovtsi technicians group

