



2nd International Workshop on Applications of Cosmic Ray Measurements
(WACR 2024)

Cosmic Ray Monitoring at Bulgarian National Astronomical Observatory

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11th - 14th March 2024
at Georgia State University, Atlanta, GA, USA



Where is Bulgaria?



Europe at night

Rozhen NAO



Astronomical Observatory
Belogradchik



Bulgarian Academy of Sciences
Institute of Astronomy



National Astronomical
Observatory - Rozhen



Rozhen NAO
41°41'43.4"N
24°44'22.3"E
1739 m (asl)



Rozhen NAO

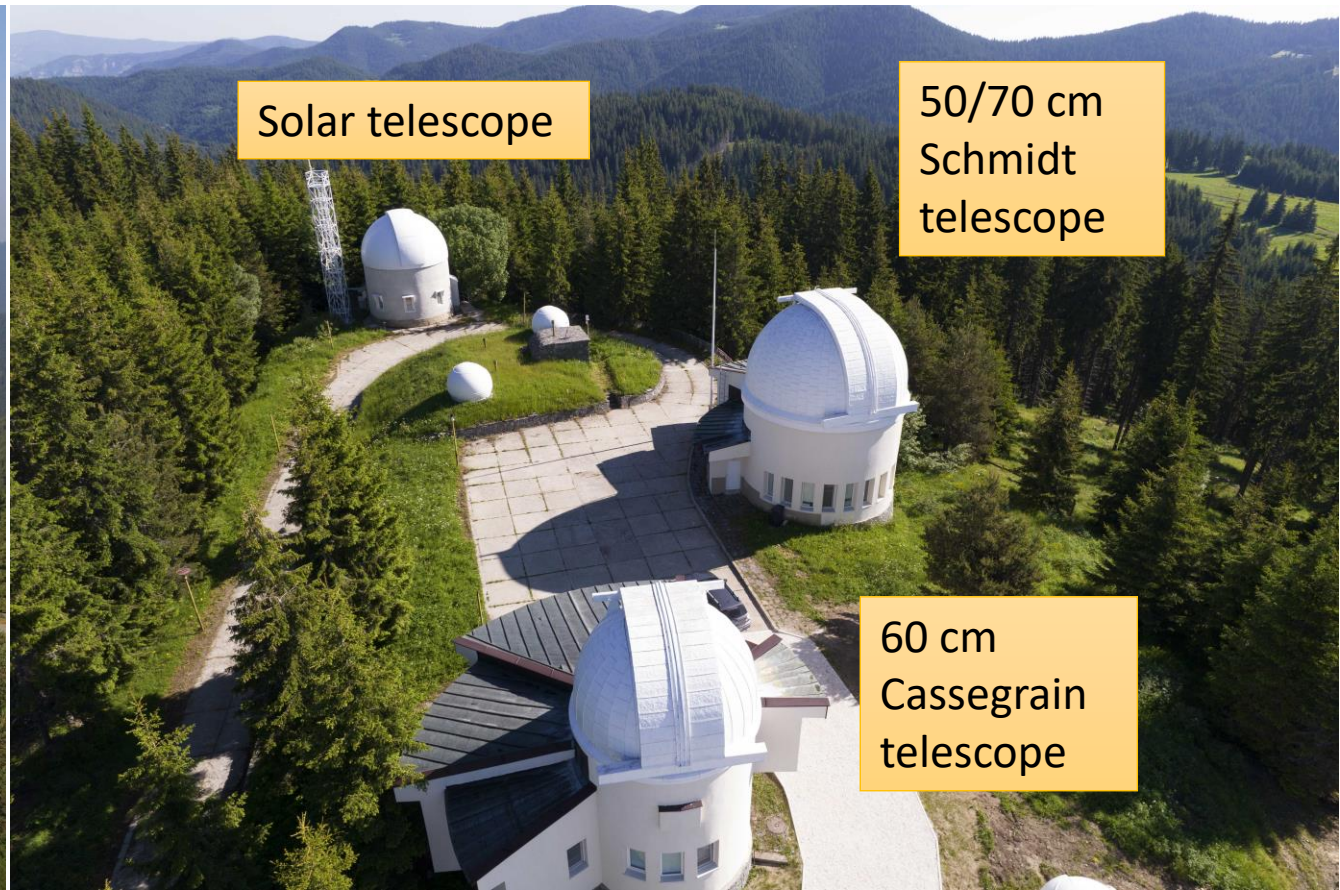


Rozhen National Astronomical...

Парақлис "Св.Хавьер М. Jubier"

Image © 2024 CNES / Airbus

Rozhen NAO: Telescopes



official opening: March 13, 1981

Rozhen NAO: Telescopes



AZ1500 Ritchey-Chrétien Alt-Az telescope f6
in working condition since 2023

Cosmic particles monitoring at NAO Rozhen – a new project proposal

The main goal of our project is to build a modern monitoring system of cosmic ray (neutron) fluxes and meteorological data.

41°41'43.4"N
24°44'22.3"E

1730 m (asl)



Meteorological equipment



Kipp & Zonen **SMP12 Class A Pyranometer**

Spectral Accuracy: 280 to 3000 nm

<https://www.otthydromet.com/en/p-kippzonen-smp12-class-a-pyranometer/426900#specifications>



MTX s.r.l. **SENSORE RAD. SOLARE UVA**

Spectral Accuracy: 315 to 400 nm

<http://www.mtx.it/it/>



OTT Parsivel² Laser Present Weather Sensor: laser disdrometer. The Parsivel² captures both the size and speed of falling particles, classifying them into one of 32 separate size.

<https://www.otthydromet.com/en/p-ott-parsivel-laser-present-weather-sensor/70.210.002.3.0>



6163-EU DAVIS Wireless Vantage Pro2™ Plus; including UV & Solar Radiation Sensors

<https://www.davis-europe.nl/product/davis-6163-wireless-vantage-pro2-plus-with-24-hour-fan-aspirated-radiation-shield/>



OTT TRH, Weather sensor for humidity and temperature

<https://www.ott.com/products/meteorological-sensors-26/ott-trh-957/>



Ground-based monitoring of cosmic particles (neutrons) and space weather

The detector is compatible with neutron monitoring equipment - based on **gas-filled proportional counters type LND2043 BF3**. The detector is compatible with the international network of neutron monitors NMDB (Neutron Monitor Database)

<https://www.Indinc.com/>



Thank you for your attention!

Meteo station

NM place