



SEVAN detector installed on Zugspitze in Bavarian Alps on 18 April 2023



Armenian and German SEVAN groups established the SEVAN module at the Environmental research station Scheefernhaus (Zugspitze, 2650 m). A historical site where Johim Kuettner performed seminal experiments on the charge structure of the thundercloud in 1945-1949. The near-surface electric field (NSEF) measurements will support particle flux measurements with the EFM-100 sensor installed nearby. The NSEF measurements will highly improve the research of particle-atmosphere relations, which is on top of atmospheric physics research. The highest mountains in Armenia, Bulgaria, Germany, Slovakia, and Czechia monitor enhanced particle fluxes and atmospheric charging to understand electron acceleration and lightning origination. This information is inevitable for solar physics, space weather, solar-terrestrial connections, and Earth numerical models.

Updated map of SEVAN network.

April 19, 2023

Updated map of SEVAN network. April 19, 2023



Bavarian Alps



Cable line to UFS



UFS on 18 April 2023



Enviromental Research station Schneefernnerhaus
(Umwelt Forschungsstation Schneefernnerhaus (/ufS)
Zugspitze, 2650 m.

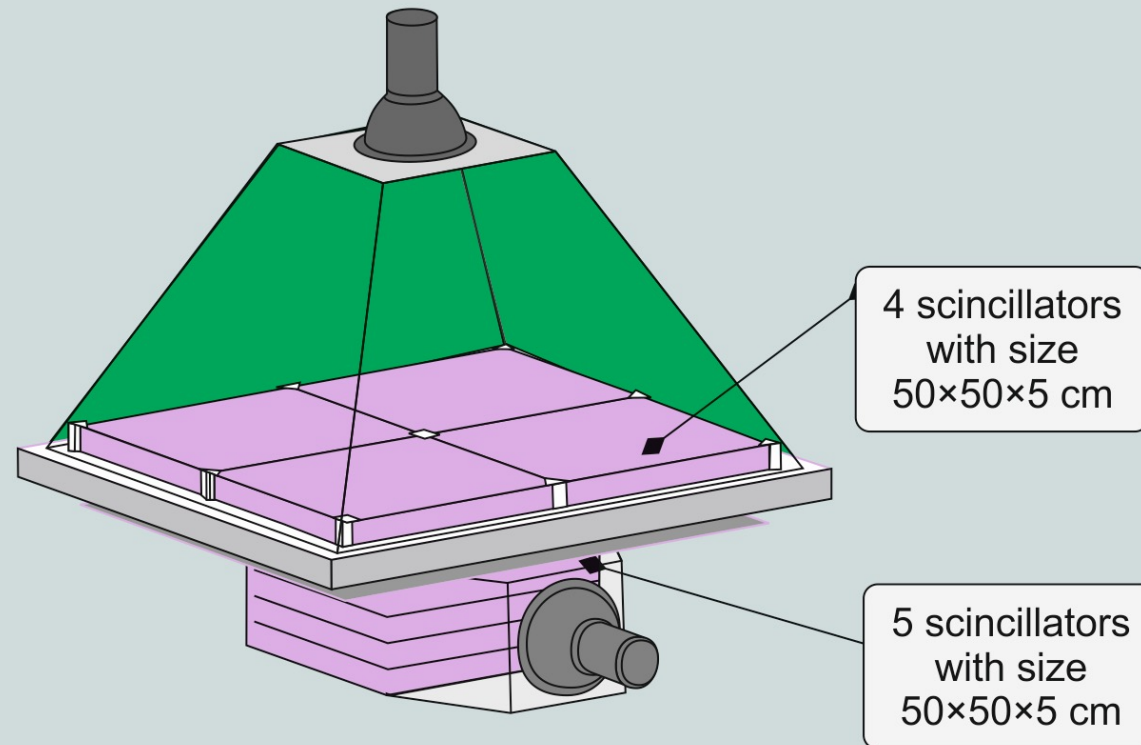


Michael Walter opening the hut (Kugelalm)
Where numerous neutron detectors are located

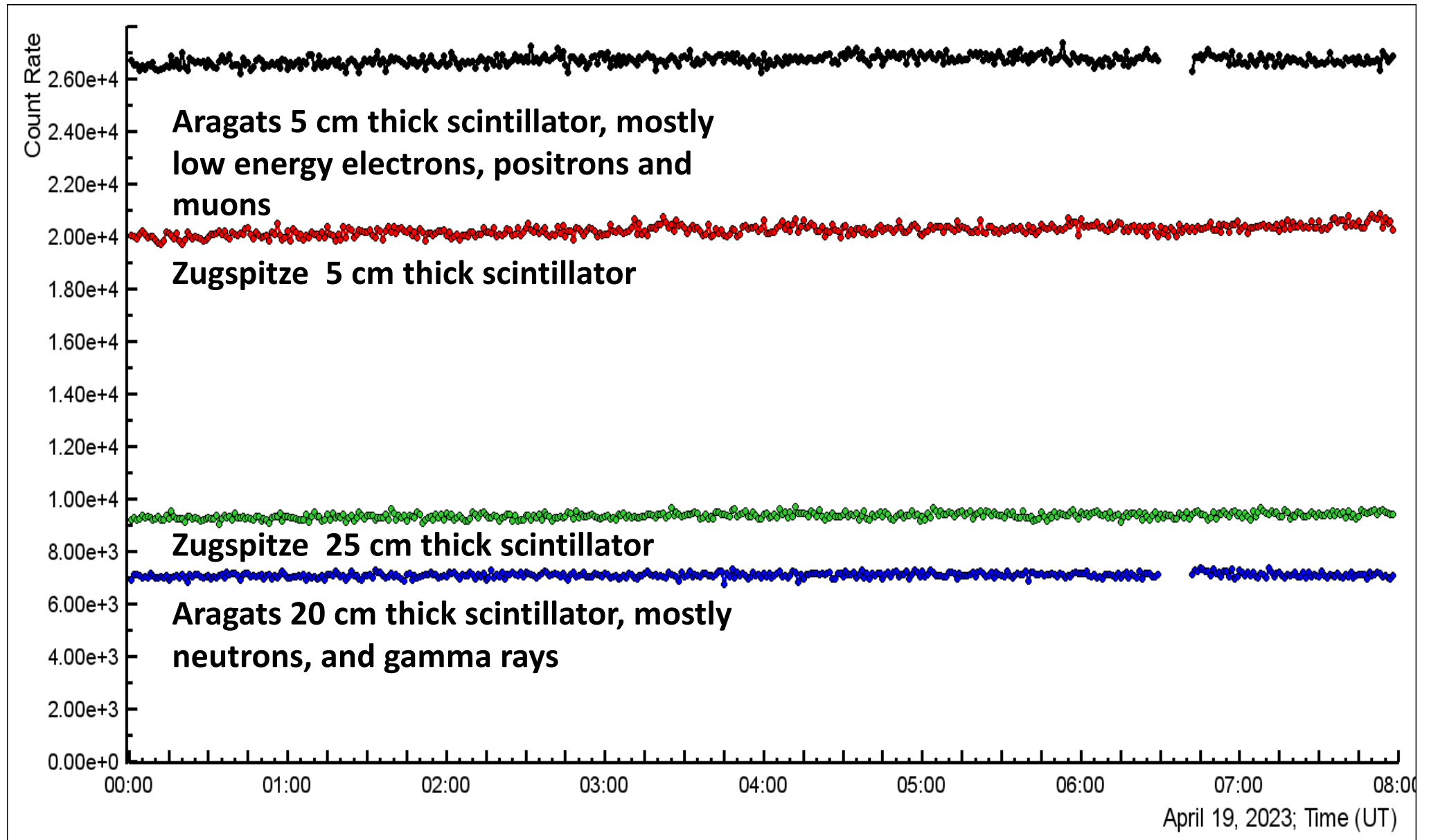


SEVAN-light detector installed on 19 April on Zugspitze

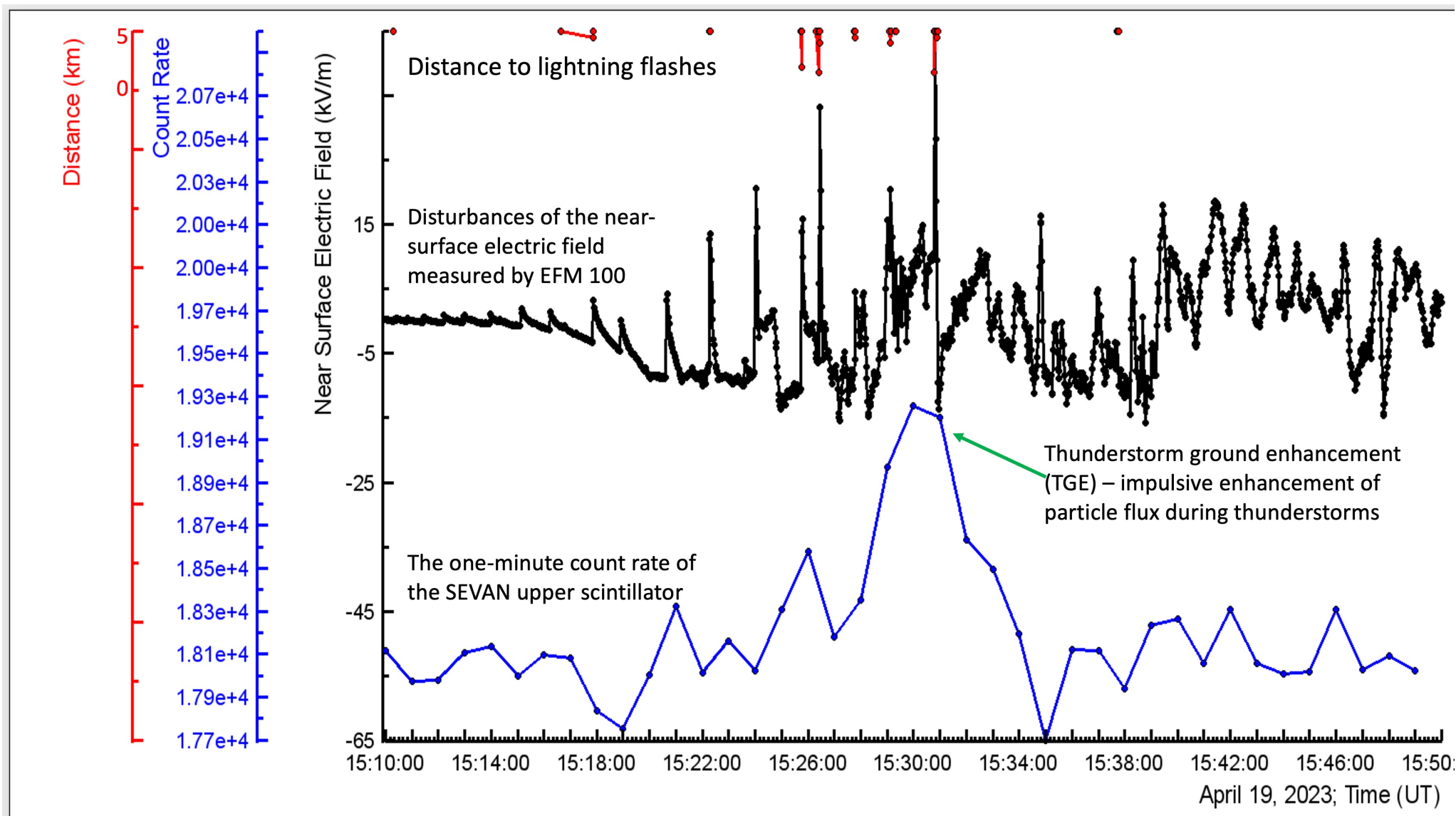
SEVAN Space Environmental Viewing and Analysis Network



Monitoring of the flux of different species of cosmic rays on Aragats and Zugspitze: High-Energy physics in Atmosphere



Greetings from Aragats: SEVAN registered a large TGE event on the 19 April; waiting for the large TGEs from Zugspitze SEVAN in May!



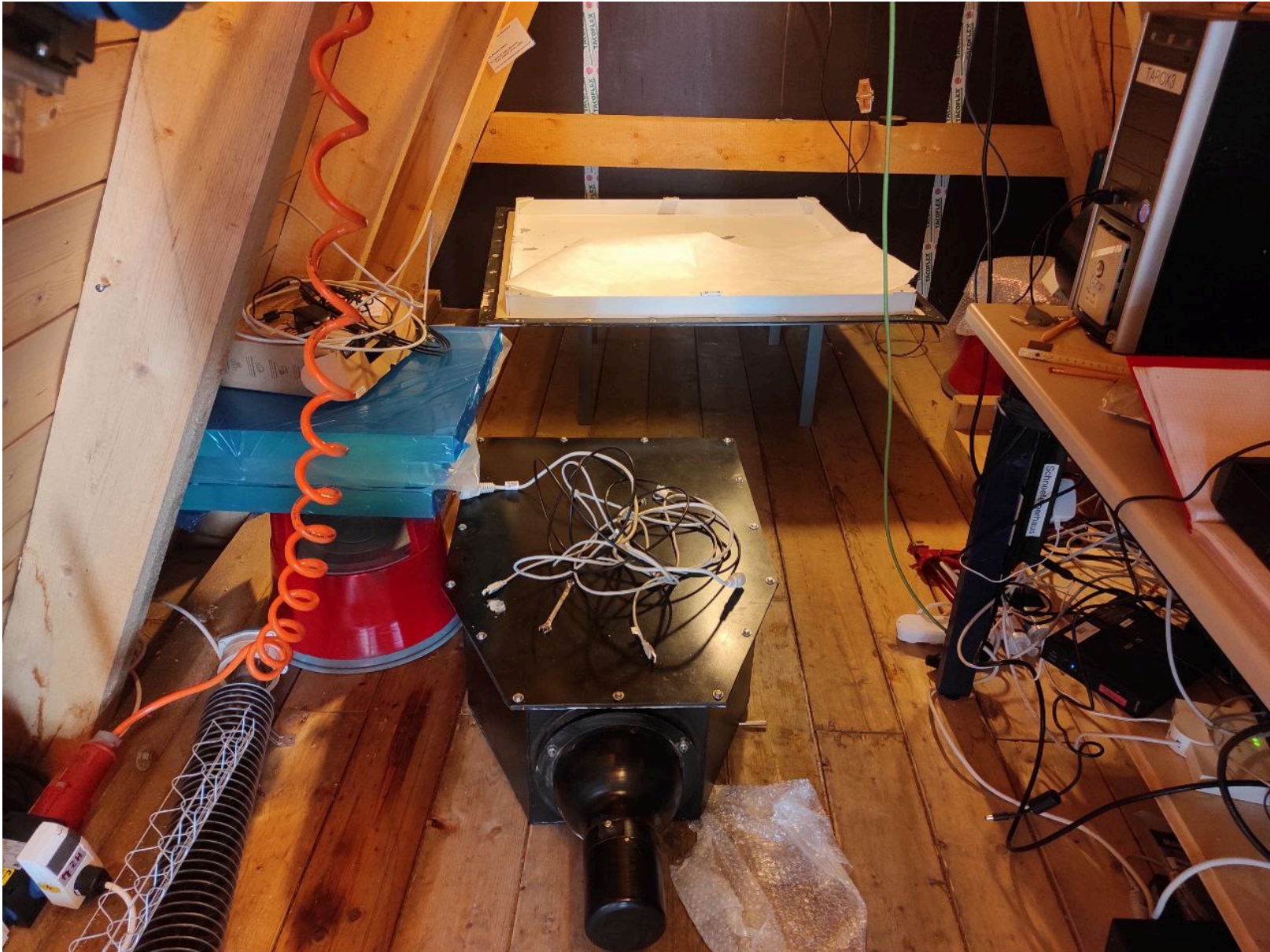
Tigran Karapetyan and Balabek Sargsyan transporting frame of the SEVAN detector



Johannes Knapp and Balabek Sargsyan moving upper
scintillator of SEVAN on balcony



Lower scintillator of SEVSN detector installed in the “hut”



Tigran Karapetyan and Michael Walter preparing cables for SEVAN detector



Electric field sensor EFM 100 of
BOLTEK firm installed at UFS



Job done: J.Knapp, T.Rehm,
T.Karapetuan, B.Sargsyan





Final location of the SEVAN module in Kugelhime, where ≈ 10 other neutron detectors are operated



A Coronal mass ejecta (CME) hit Earth on April 23rd at 17:37, causing brief depletion of particle count rate; afterward, at a severe geomagnetic storm, a Furbish Decrease (FD) occurred



SEVERE Geomagnetic Storm ALERT

G4

WHAT: Geomagnetic Storm has re-strengthened from a G3 to G4

What is a severe geomagnetic storm?

A severe disturbance in Earth's magnetic field

What you should do?

The Public should not expect adverse impacts.
No action is necessary by the Public

Infrastructure operators have been notified to
take action to mitigate possible impacts

Possible Technology Effects

Power Grid:

Possible widespread voltage control problems

Spacecraft Operations:

Increased possibility of surface charging; atmospheric drag risk on Low Earth Orbiting (LEO) satellites

Other:

More frequent and longer periods of GNSS (i.e., GPS) degradation possible



*Credit: National Weather Service
Riverton, WY Weather Forecast Office*



National Oceanic and
Atmospheric Administration
U.S. Department of Commerce

Safeguarding Society with Actionable Space Weather Information

Space Weather Prediction Center;
24 April 2023, 1:20 AM EDT

revised corr_for_efficiency values from 2023-04-23T16:00:00 to 2023-04-24T11:35:00

FD measured by Neutron monitor
network: Galgary, Irkutsk, Lomnicky
Stit, and Nor Amberd

