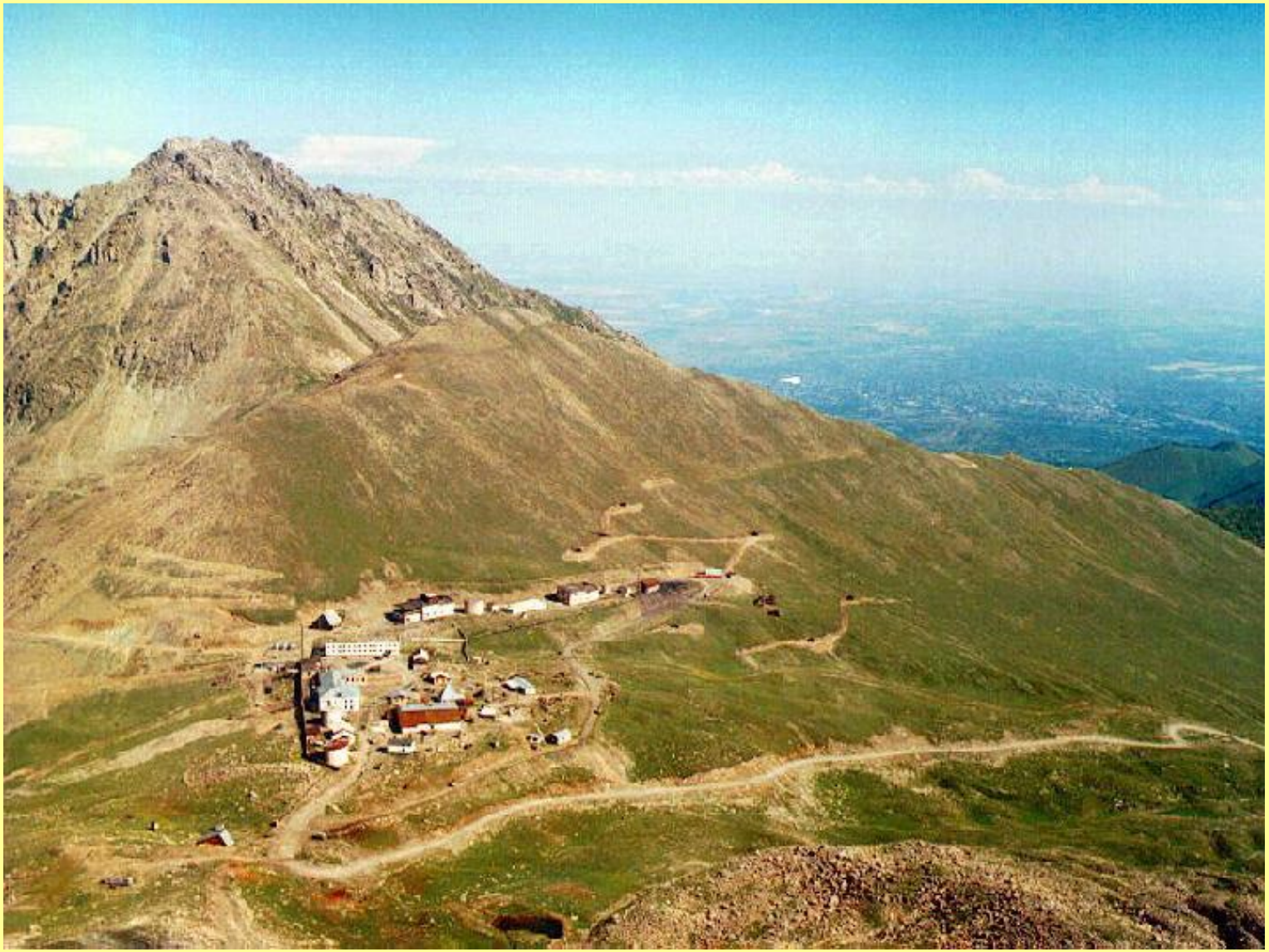
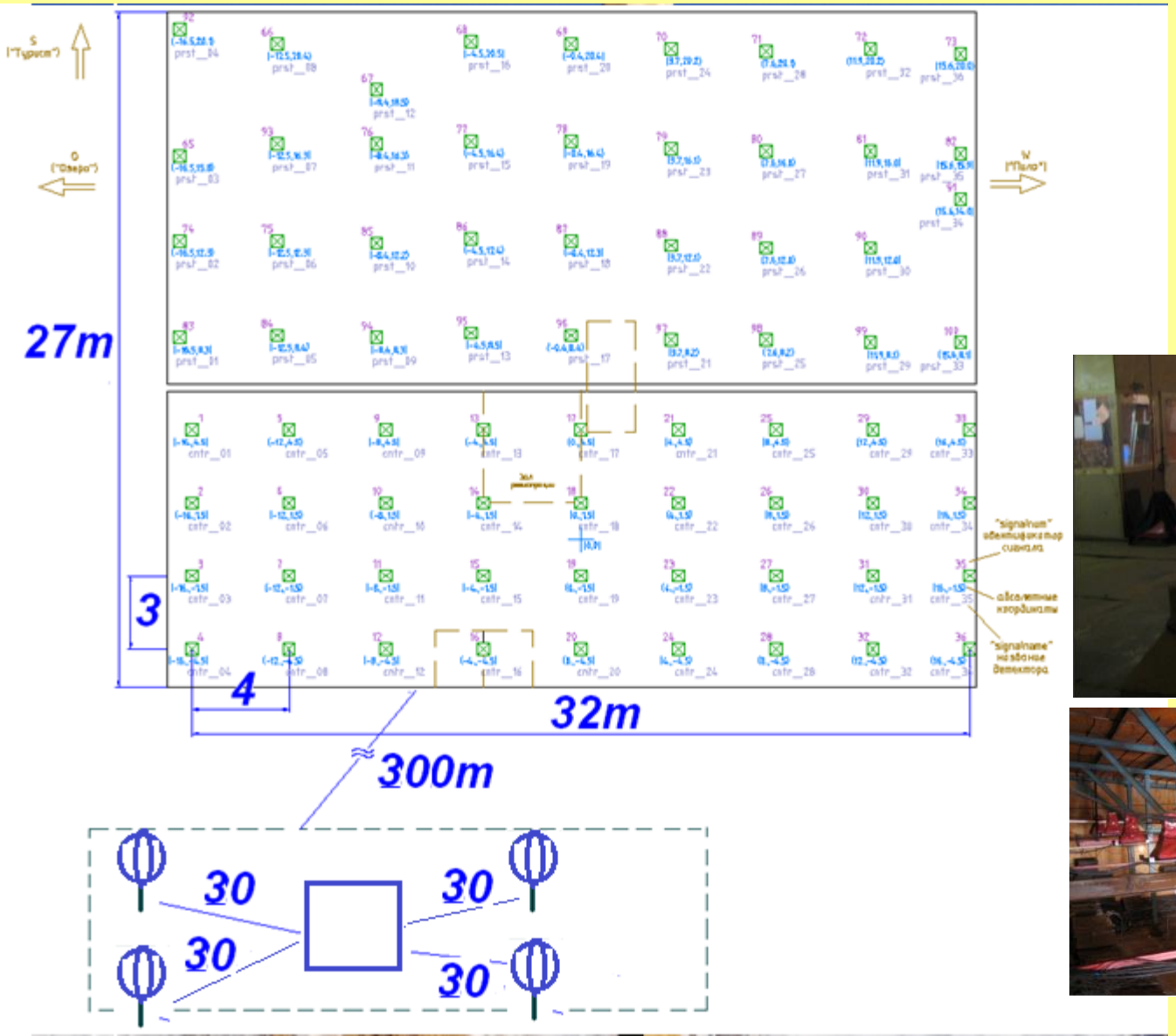
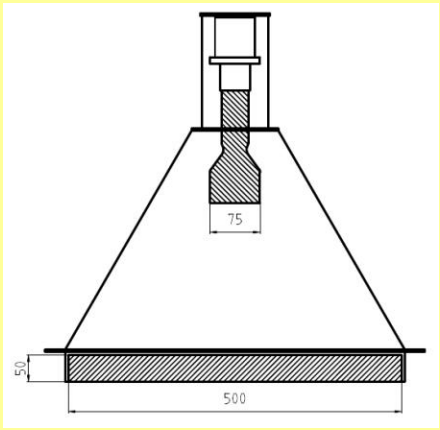
A general view of the Tien-Shan High Mountain Research Station



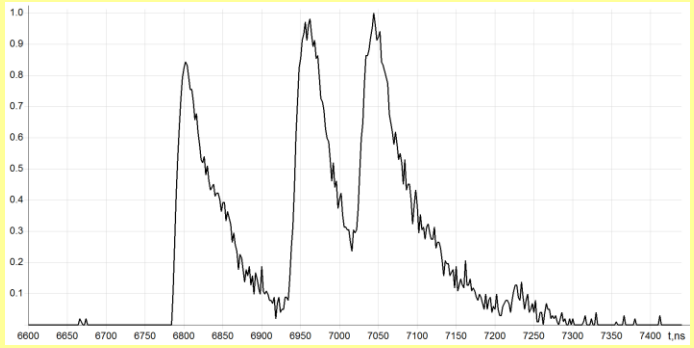
SHOWER INSTALLATION OF THE TIEN SHAN MOUNTAIN COSMIC RAY STATION





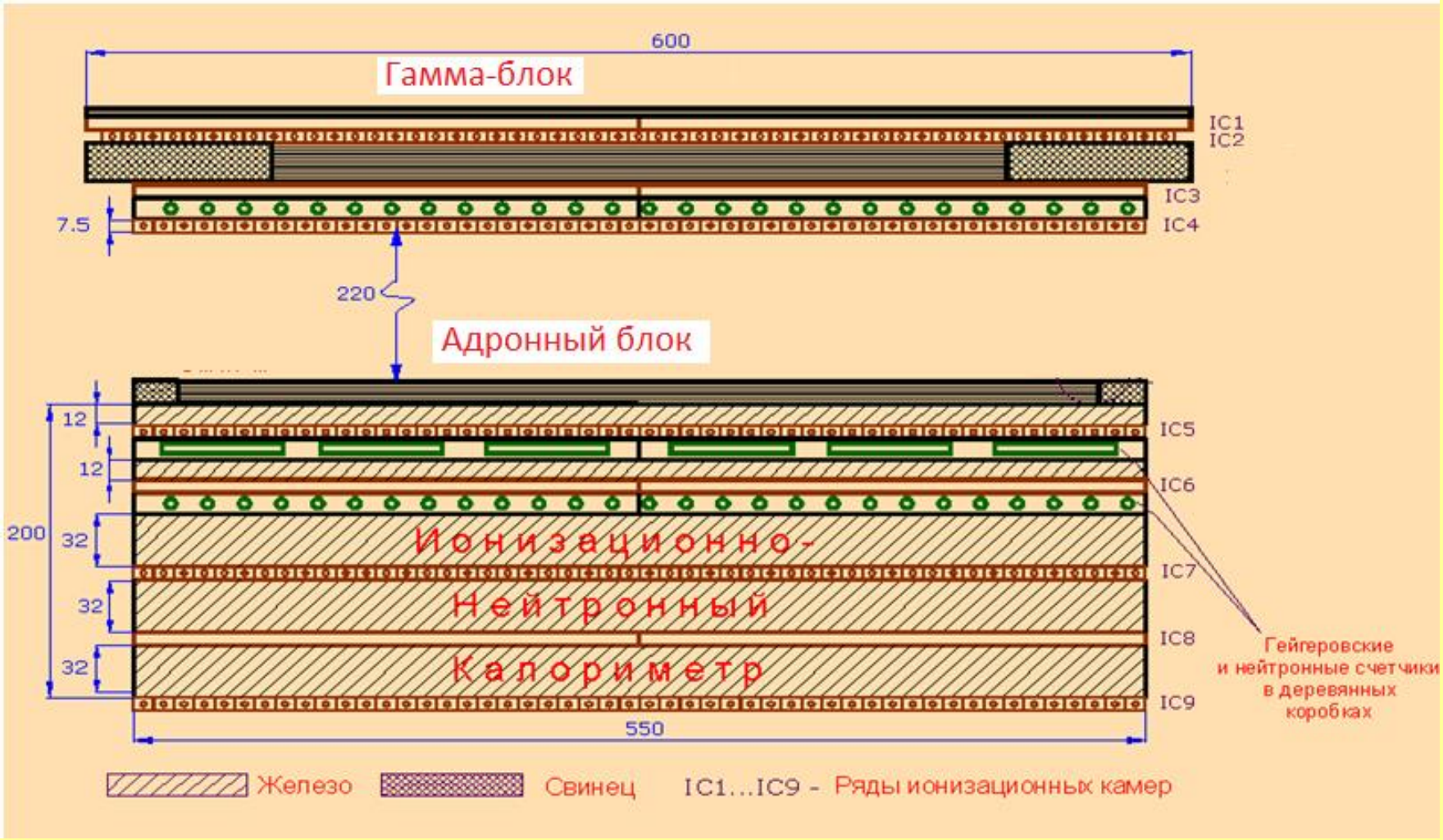
Horizont-T setup studying events with delayed particles, it is necessary to detect pulses with several modes

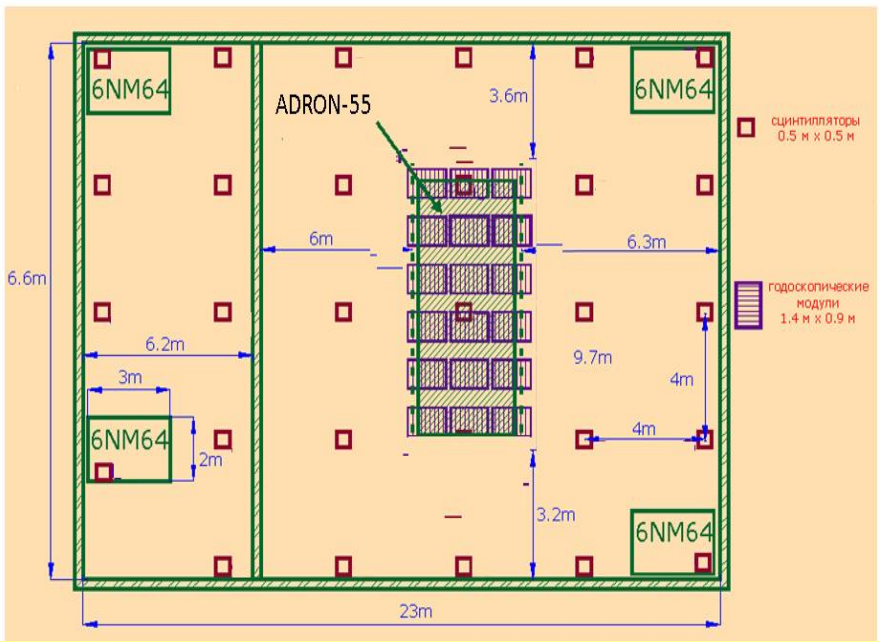
Location of SC detectors



Multimodal pulse in the Un133 event, recorded in point 10 at a distance of 819 m from the shower axis

IONIZATION-NEUTRON CALORIMETER WITH TWO-STORIED
for registration of gamma quanta
«ADRON-55»

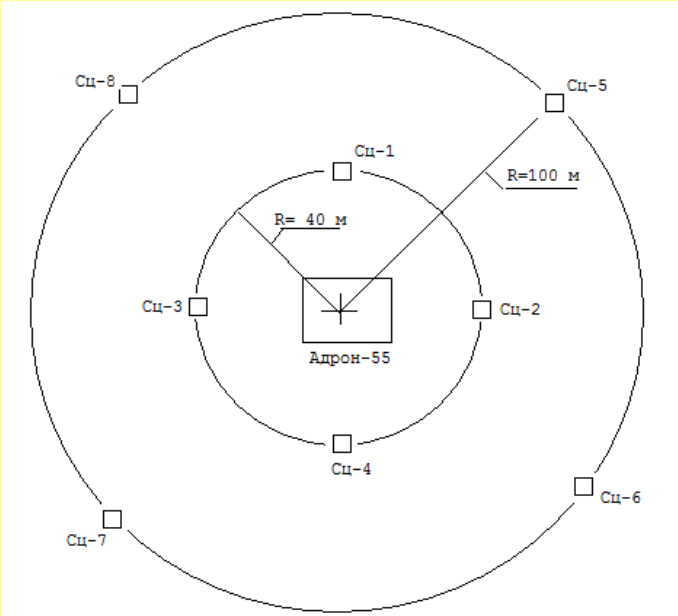




Gamma block

Hadron block

30 scintillators are placed in the building

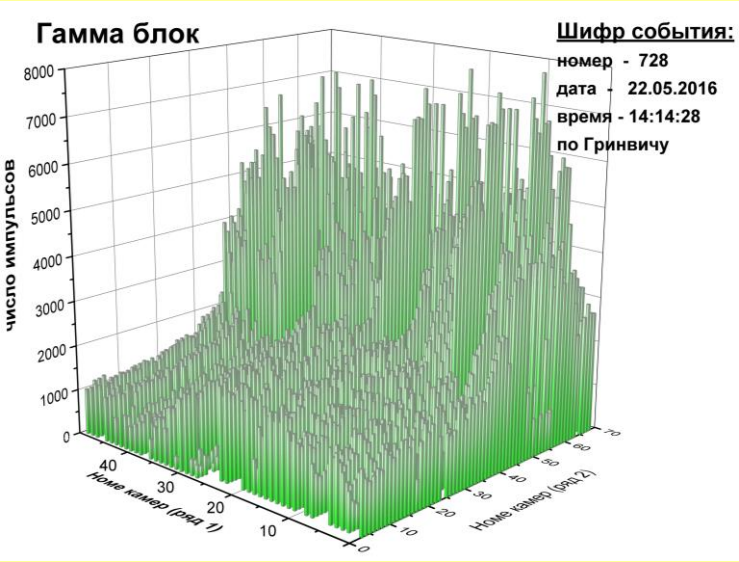


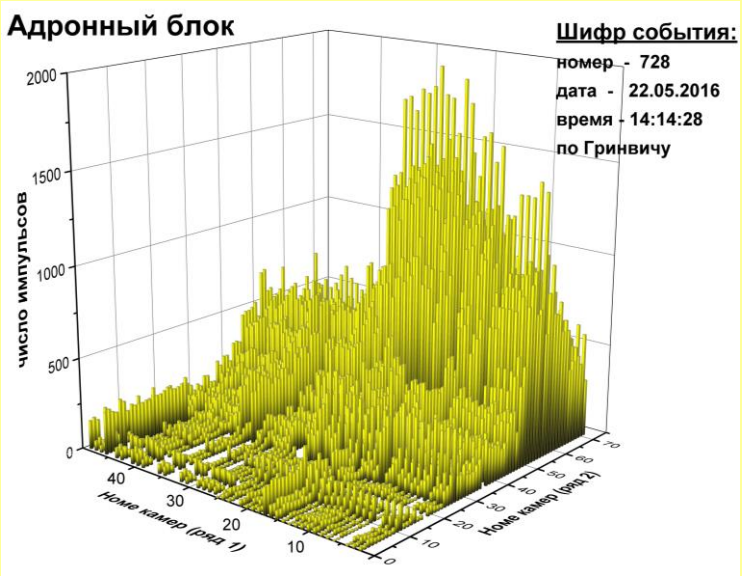
Layout of location of peripheral SC- detectors.

Сц-1 – Сц-4 - chronotron detectors within the ring of R=40 m.

Сц-5 - Сц-8 - shower detectors within the ring of R=40 m.

An example of registering an event in "ADRON-55"

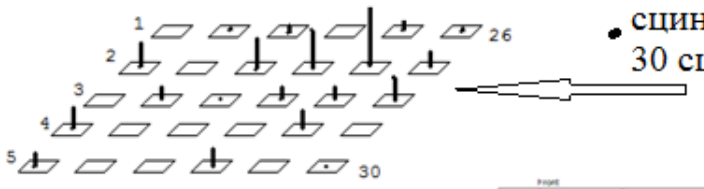




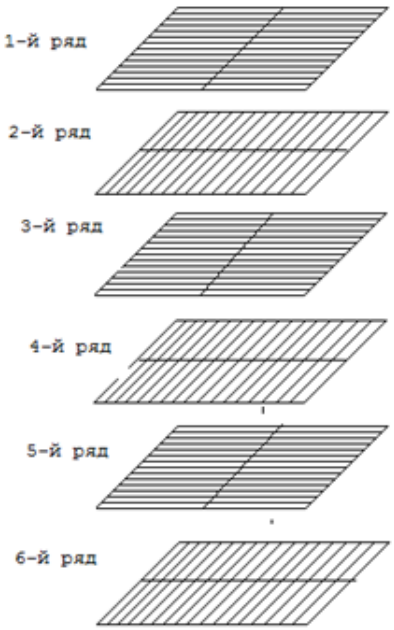
In the Ionization calorimeter, two upper rows of ionization chambers located in mutually perpendicular directions operate in working mode and, together with the gamma block, determine the trajectories of the particles. The calorimeter is designed to register the hadron component of cosmic radiation. This part of the installation works and also produces results for special programs. The rest of the installation is under construction.

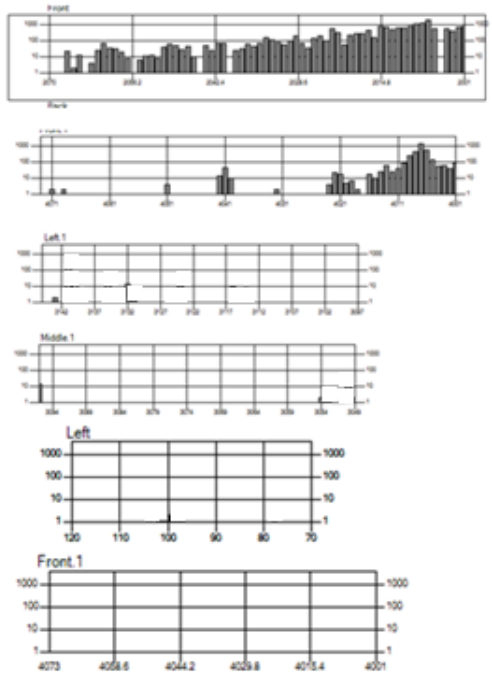
The actual part of the installation recorded more than 40,000 events. The figure for the example shows the event registered in the gamma and hadron blocks of the installation.

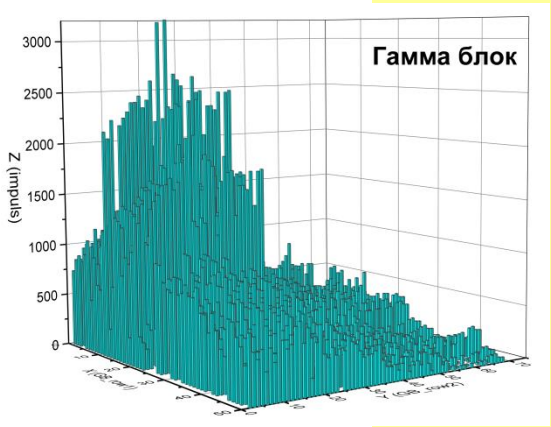
Session #160202, shot #6. Gamma-ray air shower.



• сцинтилляционное поле в зале калориметра.
30 сцинтилляторов







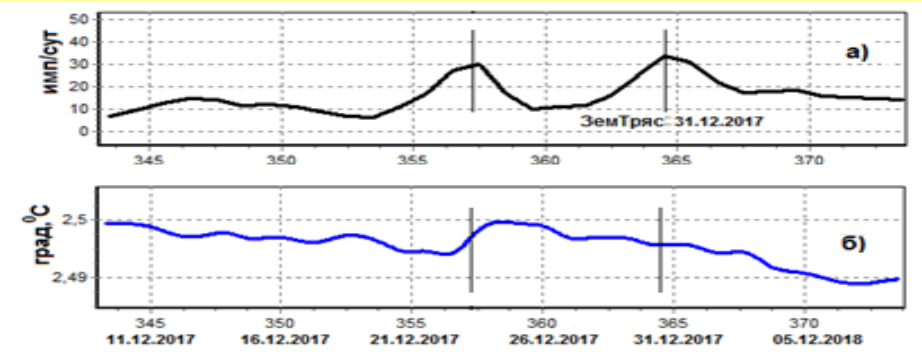
3D – гамма блока кадр 6

1 и 2 ряды ионизационных камер - гамма-блок.
3, 4, 5. и 6 ряды ионизационных камер - адронный блок

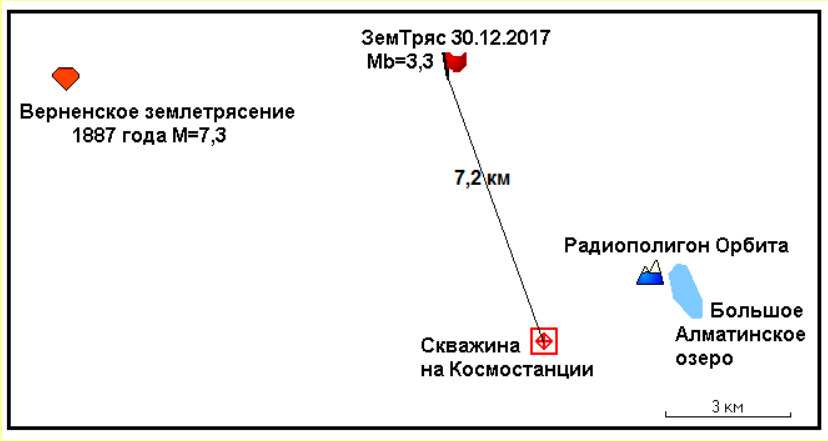
In the 3rd,4th, 5th и 6th rows
signals are absent

Study of the degree of tension in the Earth's crust of the Almaty seismically active region caused by high-energy cosmic rays

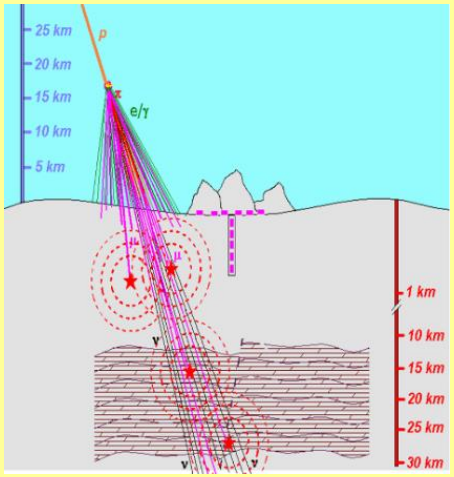
The MAS1 system was monitored. Varieties of acoustic effects were obtained that are presumably associated with the development and decay of microcracks in a tense seismically active medium when exposed to high-energy cosmic ray muons born in EAS.

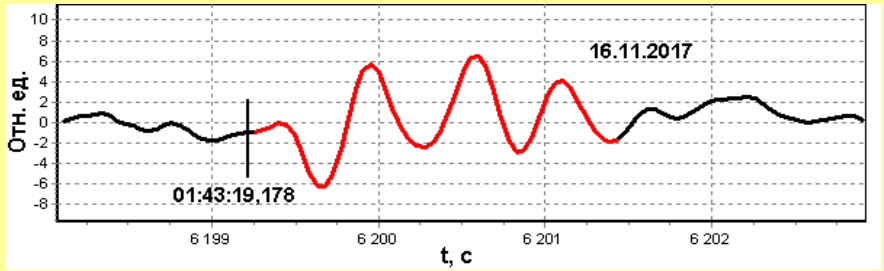


Comparison of the recordings of variations of acoustic bursts (a) and temperature (b) recorded in the well before, during and after the earthquake of 30.12.2017

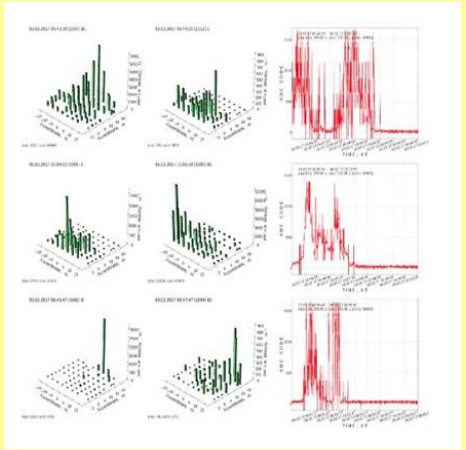


Location of the epicenter of the earthquake (December 30, 2017),





Variations of the acoustic signal in the well during the passage of a seismic wave from an earthquake that occurred on November 16, 2017, with a magnitude of M = 4.9. The vertical line on the graph indicates the time of arrival of the seismic wave to the place of registration. X axis - time in seconds from the beginning



Almaty Radio Cluster