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Feasibility study of an onshore detector system for joint registration of EAS with Baikal-GVD.

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We present a study of the possibility of registering EAS simultaneously by the onshore detector facility and the Baikal Neutrino Telescope. Such a setup would allow obtaining experimental information on the number of muons in EAS with ultra-high energy. This, subsequently, would make it possible to examine EAS modeling programs and additionally to verify the atmospheric neutrino flux calculations.
For an installation of this type on Baikal, the angle of incidence of the EAS is approximately 76 degrees. This causes a high energy threshold for the registration of primary cosmic rays. An additional factor determining the possible number of registered events is the limited solid angle of the installation.
The CORSIKA program was used to simulate the registration of EAS close to the Baikal-GVD. The energy threshold of registered inclined EAS was determined, and estimates of the required total area of detectors were obtained. The propagation of ultra-high energy muons produced by EAS through 3.5 km of water and their registration by Baikal-GVD was simulated using the PROPOSAL package.
The report presents the estimates of the number of events jointly registered by the onshore installation and the Baikal-GVD for various total areas of EAS registration detector systems.

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