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## Horizon-T Extensive Air Showers detector system operations and performance

Saturday 6 August 2016 18:00 (2 hours)

"Horizon-T" is an innovative detector system located at Tien Shan high-altitude Science Station at approximately 3340 meters above the sea level. It consists of seven detection points separated by the distance up to one kilometer that can measure time characteristics of the Extensive Air Showers (EAS) and record signal shapes with time resolution of ~10 ns. It was constructed to register EAS in the energy range above 1016 eV coming from a wide range of zenith angles (0 - 85 deg.). The system includes both the plastic scintillator particle detectors as well as the Vavilov-Cerenkov radiation detectors subsystem to view the Cerenkov light from the EAS in the atmosphere directly. The time resolution and signal shape analysis capabilities of the detection points are used to study EAS development in the atmosphere as well as to study the space-time distribution of charged particles.

The development of the EAS is a process that can be studied both spatially and temporarily. For the spatial part, a distributed network of detection points is required. For the time part, a signal shape must be recorded and analyzed at each point with time resolution on the order of ~10 ns. The talk would present the current system setup and performance level, and the progress of the system upgrade and its improvement on performance based on latest simulation activities. The latest data examples will be presented as well.

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