



ID: P1.2-649

Type: E-poster

Seismic Event Discriminations in the Kumtor Deposit Area (Kyrgyzstan)

Friday 12 September 2025 10:00 (1 hour)

The Kumtor gold mine is located on the northwestern slope of the Ak-Shyirak ridge of the Central Tien Shan, at an altitude of 5200 m. Since 1997, the Kumtor has been carrying out commercial open-pit gold mining; several hundred open-pit blasts are carried out on its territory every year. In addition to blasts, tectonic earthquakes and landslides are recorded on the territory of the deposit. Monitoring of seismic events in the Kumtor mine area is carried out by seismic stations of the regional networks of Kyrgyzstan, a local seismic network installed in the deposit area in 2022, as well as stations from other Central Asian countries, including those in the IMS network.

The seismic regime of the deposit area was studied, the possible influence of both anthropogenic factors and strong earthquakes of Central Asia on it was investigated. The features of the wave pattern of quarry explosions and earthquakes were studied. The parameters of seismic events were refined using the double difference method. Records of the strong motion accelerometer located on the territory of the deposit were analyzed.

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Session Classification: P1.2 The Solid Earth and its Structure

Track Classification: Theme 1. The Earth as a Complex System: T1.2 The Solid Earth and its Structure