

# Evolution of the seismicity of Altai after the Chui earthquake of 2003

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The Chui earthquake of 2003 had a noticeable impact on the seismicity of the whole Altai. The report presents data on changes in the seismic regime of Altai from 2003 to 2021. The research is based on the materials of a dense network of stations of the Altai Seismological polygon and experiments with dozens of temporary stations. It is shown that in the first six months after a major earthquake in 2003, earthquakes occur in the epicentral zone, and other structures of Altai are aseismic. At this time, the stable structure of seismically activated faults was studied. The shear deformation formed during the Chuya earthquake is accompanied by a spatially intermittent aftershock process stretched along it. Sections of the main movement are marked, within which the surface rupture and the line of aftershock activity coincide, as well as areas of surface rupture without aftershock activity. The development of the aftershock process is only partially confined to the block-dividing faults, and more often the aftershock process is shifted relative to these faults or in the form of branches goes to the side. Horizontal seismically activated layers moving away from the main rupture were found.

After 2009, changes are formed both in the near zone, covering geological structures adjacent to the epicenter, such as the Aigulak, Kurai, South Chui, North Chui ridges, and in the far zone at distances of 250-300 km from the epicenter and in different directions from it. After the Aigulak earthquake of 2019, an aftershock process was formed, which ensured the displacement of the center of seismicity of Altai into the ridge of the same name. The explanation of the development of seismicity around the focus of the Chui earthquake in space and with time delays for years can be given on the basis of the influence of a large earthquake on the multi-layered lithosphere in accordance with models, where the occurrence of disturbances during a large earthquake is assumed not only in the fragile part of the earth's crust, but also in layers with high plasticity. Another explanation may be related to plasticity in the elastic part of the earth's crust or to the peculiarities of seismotectonic processes in the block structure.