

Modern horizontal movements of tectonic blocks of the earth's crust of Azerbaijan according to the data of the global positioning system (GPS) of the RSSC network

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Abstract In order to identify the velocities of horizontal movements and directions of individual tectonic blocks of the earth's crust, the Republican Seismological Survey Center of Azerbaijan (RSSC), starting from 2012, decided to create a network of GPS stations. Taking into account geomorphology, geotectonics, topography and taking into account the influence of external factors, sites for the construction of new GPS stations were chosen in various regions of our country. This new monitoring system consists of 24 Trimble GPS stations (USA) with a processing and analysis center in Baku, where all data from all regions where the stations were installed are received online. For the first time in the world, a GPS station was installed on the Superdeep Saatly well (8324 m) in the territory of the Republic of Azerbaijan in the Saatly region. On the basis of GPS space geodesy data and seismological data, the current geodynamic conditions of the territory of Azerbaijan for 2020–2021 were analyzed. The most important feature of the velocity field of horizontal motions is the decrease in velocity values perpendicular to the direction of the Greater Caucasus strike from south to north. The velocity field clearly illustrates the movement of the earth's surface in the N-NE direction. In addition, within the Srednekura depression and in the Lesser Caucasus, there is a trend towards horizontal displacement, which is reflected in an increase in the speed of movement from west to east along the continuation of the ridge. It has been established that on the Absheron Peninsula the earth's crust is shortening at a rate of ~ 5 mm/year. It was found that in 2020 the maximum values of horizontal velocities were noted at the stations of Aghdam, Lerik, Lankaran, Jalilabad, Fizuli and Saatly, and the average value of velocities throughout the republic was 7.3 mm/year.

Keywords Azerbaijan, satellite geodesy, organization of observations, methods of data processing, modern movements of the earth's crust.

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