

Earthquake on January 24, 2024 in the in the region of Krasnodar city (North-West Caucasus) with $M_w=4.1$, $I_0=4-5$

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The instrumental and macroseismic data of the earthquake on 24.01.2024 at 11:19 (UTC) with $M_w=4.1$, $h=20$ km were studied. The epicenter and parameters of the earthquake were determined using instrumental data from the network of regional seismic stations in the western zone of the North Caucasus of the GS RAS. Location of the epicenter according to instrumental data near the city of Krasnodar (29 km). The processing based on the arrival times of P- and S-waves according to records from 49 seismic stations of the North Caucasus network GS RAS ($\Delta=28-699$ km) and additionally 8 seismic stations of the Crimean network. The territory of the Krasnodar region in geological and tectonic terms is located in the transition zone between the Alpine meganticlinorium of the Greater Caucasus and the Scythian plate (young platform) include Indolo-Kuban trough. This territory is characterized [1] by both moderate ($1.8 < M < 4.2$) and high, mainly historical, seismicity ($M \geq 6.8$). The epicentral zone of the earthquake 24.01.2024 is located within the high-magnitude Akhtyrka zone of potential earthquake source zones (ESZ) with $M_{max}=6.5-6.8$ and represents the boundary between the Northwestern part of the structures of the Greater Caucasus and the West Kuban trough. The zone is characterized by a low level of modern seismicity, but according to historical data, an event was registered on May 25, 1968 with $M=4.4$, which caused macroseismic with an intensity of up to IV MSK-64. The focal mechanism was calculated for the earthquake. The solution of the focal mechanism was obtained from the polarization in P-waves at 69 seismic stations [2]. The movement in the source occurred under the influence of compression forces. The type of movement is Reverse fault with Right-Lateral Strike Slip component. The authors used the social network «Vkontakte» to collect macroseismic information. According to the results of the study, 120 respondents were interviewed in 15 settlements. The maximum observed intensity was $I=IV-V$ MSK-64 in some areas of Krasnodar city. Based on the results of the macroseismic survey, a map of the distribution of intensity points were created. Spectral parameters of the earthquake, seismic moment and moment magnitude M_w were determined using SEISAN software [3].

Acknowledgments

The work was supported by Ministry of Science and Higher Education of the Russian Federation. The data used in the work were obtained with large-scale research facilities «Seismic infrasound array for monitoring Arctic cryolitozone and continuous seismic monitoring of the Russian Federation, neighbouring territories and the world»

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