Condition and prospects of detailed processing of earthquakes of the Baikal region and Transbaikalia

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Abstract Throughout the history of the Baikal seismic network (since 1901), great efforts have been made to preserve the most detailed information about recorded seismic events. The article considers a method for detailed summary processing of earthquakes in the Baikal and Transbaikalia regions used in the BB GS RAS. The level and quality of regional processing are shown on the example of 2019. 7273 earthquakes were registered during the year, most of them are (62%) weak earthquakes (K_P=6), for which the error of determining the coordinates of the epicenters was on average less than 5 km. Localization accuracy of epicenters for earthquakes with a $K_P{\geq}9$ is less than 2 km. The results of some studies using data from the Kultuk and Muyakan local temporary networks are presented. A comparison of the results and volumes of earthquake processing with other branches of the GS RAS is shown. Thus, the number of earthquakes in the region of the Baikal and Transbaikalia (N=63081) exceeds any of the other seismically active regions of Russia by at least 2.4 times for the period 2014−2017 (Altai and Sayan − N=26458; Kamchatka and Commander Islands − N=26301). According to the number of seismic stations which are used in the processing of one earthquake ($K{\geq}9$) and the number of phases of seismic waves, regions of the Baikal, Transbaikalia and of the North Caucasus are leading and close to each other. There are 29 and 33 stations respectively, 87 and 68 phases. In other words, the volume of earthquake processing in the Baikal branch is much larger than in any of the branches of the GS RAS. It was concluded that currently the processing of earthquakes in the BB GS RAS is carried out in an optimal way in view to the size of the region, the number of seismic stations, the quality of communication and the number of recorded earthquakes. Reforming the system of processing seismic events in the BB GS RAS is expedient after a significant increase in the observation points in the region.

Keywords Earthquake, catalog, bulletin, detailed processing, Baikal region, Transbaikalia, Baikal rift zone.

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