

# ANALYSIS OF MAGNITUDE OF COMPLETENESS IN ALASKA EARTHQUAKE CATALOG AND SELECTION OF HOMOGENEOUS SAMPLES OF EARTHQUAKES FOR STUDIES IN SEISMICITY DYNAMICS

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**Abstract.** A detailed analysis of the Alaska earthquake catalog aimed at selecting a set of homogenous samples of earthquakes with different magnitudes and well determined the magnitude of completeness ( $M_c$ ) is performed. The samples can be divided into three groups – representative ( $M > M_c$ ), not- representative ( $M < M_c$ ) and mixed ( $M \approx M_c$ ). Similar selection is a necessary stage of a study in the earthquake flow structure because it sharply decreases probability of man-made effects in the results obtained and allows a researcher to estimate statistical significance of the conclusion derived. We found that it is possible to select only a few samples of the volume that is sufficient to obtain statistical estimates of the results significance. These samples proposed to be used for analyses with the purpose of revealing, for example, regular variations and trigger effects in the earthquake flow.

**Keywords:** seismicity, seismicity dynamics, earthquake flow, Alaska, earthquake catalog, homogeneous samples, magnitude of completeness.