

Model of focus zone and depth of crust seismic events

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Abstract On the basis of analysis of station residuals and dependence of square mean residuals from depth impossible the presence of a focus model of crust tectonic events constructed from rupture discontinuity developing from single point is shown. Collection of arrivals of each seismic event raised from different depths is shown. Point emission of seismic waves forming arrivals are lying along line structures in time-space. All arrivals of a given seismic event situated along its own line structures. These line structures are called rupture lines. Rupture velocity is higher than P-wave velocity along the rupture line. This means that causal linkages are not present between sequences of rupturing movements. Rupture lines starting from the surface, cross-crust and continue into the upper mantle. A new model of focus zone that consists of several small focuses is proposed. The last are flat traditional focuses developed from a single point. Rupture line is an enveloping of the focuses in time-space. This article is a first of the collection of four parts that describe algorithm and software realization to determine depth of crustal events automatically.

Keywords Seismic event, the ripping line, focal zone, depth detection.

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