

Seismicity prediction basing on previous earthquakes in discrete zones

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The model for earthquake (EQ) prediction in time t and one-dimensional space x by cyclicity of previous EQs was proposed in Math. Geology, v.25, No.7, 1993, p.759-772. It is based on a special statistical model of the related point field. The model depends on a parametric function, which reflects inner cyclicity in point locations. Main cyclicity corresponds to the solar cycle and its parts. Extrapolation of the field in time gives the probability density of location of a new point in future, that is the prediction function. Maxima of the function are considered as signs of danger. Precision of the method in temporal aspect is a month.

In Kamchatka, EQs locate on transform lineaments. So the region is divided into six latitude zones, and the discrete problem of EQ prediction is solved. Instead of the prediction function of two variables (x, t) , we have six functions of one variable t , which can be visually analyzed more accurately. At retrospective prediction, strong EQs locate at broad maxima of the prediction function of t , corresponding to small peaks on the maxima (but there are false maxima too). These peaks can not be noticed at the general plane (x, t) . They coincide with strong EQs within few days and give possibility to increase precision of prediction. Being a month in two-dimensional prediction, it is some days in discrete case. The record is prediction of two EQs in Petropavlovsk on 8.03.99 ($M=6.0, 5.7$) which were predicted on 10.12.98 and the date of the event was pointed.