

## Kimberlite pipe prediction basing on surrounding pipes

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The model of the related point field with stationary differences, that retained properties with translation, was proposed in Math. Geology, v.25, No.7, 1993, p.759-772. The distribution of inter-point differences depends on a parametric function, which reflects inner cyclicity in point locations. The model is used for earthquake prediction that is extrapolation of the field of earthquakes in space and time in future.

When a field is isotropic, the model can be used by the same manner. So the model suits for interpolation and extrapolation of a point field on a map. Pipes in a kimberlite field are just such points. The method reveals latent regularities in point locations and uses them for construction of the prediction function that is the probability density of location of a new point  $x_{n+1}$  when locations of points  $x_1, \dots, x_n$  are known.

Applied to Siberian kimberlite fields, the method shows that local properties of the prediction function rather than its general tendency are important: pipes have the tendency to be located at local maxima of the function. To be sure in the fact, the sliding examination is made. One pipe is excluded, the prediction function is calculated by the rest  $n-1$  pipes, and then you can see the excluded pipe location at the prediction function. After every point being excluded, it turns out that a half of them are located at local maxima of the prediction function and no one does in a local minimum. Thus, maxima of the prediction function are additional (to traditional geological and geophysical) search signs. And they do not repeat traditional signs: many local maxima remained unsearched.