

INTEGRAL ESTIMATION OF KARST HAZARD

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For the fullest account in purposes of the operative prognostic definition of karst hazard degree, it's expediently to consider a complex of characteristics of territory structure. All set of characteristics can be referred to 5 basic groups defining an environment of territory. It is features of geomorphological, geological, hydrogeological, structurally-tectonic, and also its engineering-geological composition. Each of the allocated groups is characterized by a certain set of characteristics such as depth of karst rocks or mineralization of ground water etc.

Joint studying of characteristics with karst forms (sinkholes, cavities) allows to discriminate the optimal intervals of their values for karst evolution. Revealing of interactions between characteristics of territory structure and its influence on karst activity is carried out by methods of cartographical modeling. Such modeling consists in making complex of maps for studied territory fully reflecting the areal variability of its structure characteristics values. Combination of such maps with karst forms allows to define intervals of the characteristics values and amount of karst forms got to these intervals.

The analysis of distributions allows to discriminate intervals of the territory structure characteristics values for which is typical the maximum development and occurrence of karst forms. For allocation of such intervals two approaches are applicable: expert and statistical. The expert approach is based on the subjective estimation, by selection of the most dangerous intervals "by sight". The statistical approach is based on the description of received distributions via theoretical, based on family of the normal distribution laws. Discrimination of dangerous intervals in this case is convenient with using rule of «three sigma's», based on intervals of values of the standard deviation.

The complex discount of all characteristics of territory structure used in karst analysis purposes is possible with application of different techniques. Most simple of them is a technique of point estimation. Its meaning consists in coding of intervals of the karst hazard with specified points: hazardous intervals were coded by a point 3, potentially hazardous – a point 2 and nonhazardous – a point 1. Summation of points on various characteristics gives the generalized picture of the territory karst hazard as a whole.