

# PROBLEMS OF STATISTICAL DECISIONS IN GEOINFORMATION MONITORING

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## ABSTRACT

*Application of means of geoinformation monitoring in many cases is connected to acceptance of the statistical decision on presence on a surveyed part Terrestrial surface of this or that phenomenon. One of features of a condition of gathering of the information for such decision is the impossibility of reception the big statistical samples.*

*Therefore development and research of optimum algorithms of distinction of the casual signals characterized by samples of limited volume, in conditions of parametrical aprioristic uncertainty are necessary.*

*At present time there are many methods of recognition which are caused appreciably by variety of statements of concrete tasks.*

*The feature of remote measurements is information acquisition, when the data of measurements, acquired during tracing of flying system along routes of survey, are directed to input of the processing system. As result the two dimensional image of investigated object is registered. Statistical model of spottiness for investigated space is one of models for this image*

*In real conditions, the study of spots, the acquiring of their statistical characteristics and their using in a problem of detection is enough a complex problem. It is necessary to develop the criteria allowing the distinguishing the spots from other phenomena. For example, it is necessary to determine such threshold the exceeding of which is the spot indicator. Also it is necessary to develop model presentation of processes of spots detection.*

*Statistical characteristics "spottiness" microwave temperatures can be used at recognitions and classifications of the phenomena on a surface of the ocean, distinguished by a degree of excitement.*

*The analysis of empirical histograms for "spottiness" shows, that in most cases ( $l^+$ ,  $l^-$ ) - characteristics will be coordinated with exponential distribution, and amplitude characteristics will be coordinated with normal distribution. Therefore for detection and classification of the phenomena on a surface of ocean it is necessary to apply optimal algorithms for the Computer training to taking statistical decisions for the aforesaid distributions*

*In the present work the generalized adaptive algorithm of training to acceptance of statistical decisions for exponential classes of distributions is developed at aprioristic parametrical uncertainty of conditions small samples. Numerical examples are shown. Efficiency of the developed optimum procedure for small samples is shown.*