

SOFTWARE OF ECOLOGICAL MONITORING: DETECTION OF STRUCTURAL SHIFTS IN METEOROLOGICAL PARAMETERS AND POLLUTION CONCENTRATIONS

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Problems of the development of the algorithmic provision are considered in report for systems of the ecological monitoring parameter air ambience. The under development systems, basically, provide only observation for parameter surrounding ambiances and their registration. For essential reduction of the risk of the chemical contamination of atmosphere necessary making the systems, including functions of the operative forecast of the possible ecological breaches. Need the algorithms, allowing find beginning contamination before that moment, when ecological situation will gain the disastrous nature i.e. algorithms, which can find change a characteristic ambiances, bring about ecological breaches, and form the statistical forecast of the condition of the ambience.

For decision of the specified problems is designed methods of the making the parametric models of the casual temporary rows of the observations, adapted on measure of the change characteristic ambiances, uniting procedures of the building of the parametric models and consequent finding the change characteristic casual processes [1].

The Algorithms of the consequent finding are founded on method of the most quick finding the change characteristic (the разладки) of the casual process, allowing execute data processing a real-time. The Algorithm presents itself consequent procedure of the checking the hypothesis, for instance, is checked hypothesis H_0 : average of the process Δ is equal to μ , against alternative hypothesis H_1 : average of the process Δ is not equal to μ (or more than μ , less than μ). The sets of the hypothesis are formulated depending on type of the supposed change. Since a part observed parameter (for instance, the temperature, moisture, direction winds and pr.) is described nonstationary time series then for finding the change are used designed algorithms of the current finding nonstationary processes [2].

References

1. *Grebenyuk E.A.* Modellings for describe of the concentration pollution time history in atmosphere //Control Science, number 6, year 2008. P 55- 64
2. *Grebenyuk E.A.* Analysis and on-line diagnostics of the systems described as nonstationary stochastic processes//Control Science, number 4, year 2003. P 23- 29