Synergy: Cross-Disciplinary Journal of Digital Investigation
(ISSN 2995-4827) VOLUME 02 ISSUE 9, 2024

EVENTOLOGICAL ASSESSMENT OF THE LEVEL OF LAW VIOLATION LEADING TO EMERGENCY SITUATIONS IN THE AREAS

Akhmedov Allayar Bakhtiyarovich
Doctor of philosophy (PhD) in technical sciences, associate professor, Academy of the Ministry of Emergency Situations of the Republic of Uzbekistan

Vassiev Elyor Narbayevich
Academy of the Ministry of Emergency Situations of the Republic of Uzbekistan

Abstract:

The article shows the importance of eventology and the use of special simple cases in emergency risk assessment. It is based on the analysis as a result of eventological observation. Methods of processing statistical data on emergency situations are explained. Formulas for determining variance, mean square deviation and probability are presented in the study of emergency risks. Eventology is taken into account in the application of classical results of the theory of probability, in the development of parameters of an emergency situation.

Keywords: eventology, probability, risk, random variable, variation series, variance, mean square deviation, mathematical expectation.

An "expert-statistical model" is used to assess the risk of an emergency situation, which explains the mathematical expectation of the loss and damage calculation function in an emergency under the influence of factors that determine the state of the object in providing the required security. Expert information is included in the model at the stage of occurrence of the specified factors and when the values of the variable model are determined. After the model is created, the main direction of its practical use can be seen in the following: when specific values are entered into the model that determine the safety factors of the protected object in emergency situations, the system automatically calculates its emergency risk level [2].

The most important thing to pay attention to in risk assessment is data - the ability to study objects, specially prepared, and the necessary knowledge. At the same time, using this knowledge, a high-quality result can be achieved by competent, qualified and sufficiently skilled specialists.

At the moment, the assessment of the state of emergency is carried out by inspection of facilities by inspectors for compliance with established requirements in the field of security. Also, the appropriateness of any contingency assessment remains a matter of subjective judgment.

It is to teach how to use statistical methods and evaluate the available opportunities with the help of statistical analysis, quickly identify them and put them into practice. The main task of this article is to provide practical support for evaluation in making these calculations and drawing conclusions based on statistical analysis. Methodological guidelines for statistical theory and eventology are provided and illustrated for each analysis. Solutions are given in the form of examples.

Studying the indicators that represent the size of variation into absolute and relative types, as well as studying the difference caused by various factors by determining intergroup and intragroup dispersion, alternative sign dispersion, and using the important mathematical properties of dispersion, dispersion through simplified methods learning to count is desirable [1].

The method of calculating the above-mentioned variation indicators and sample examples are considered. Variation width represents the difference between the largest and smallest levels of a character in a set.

When the security conditions of 200 objects were checked by the employees of the Ministry of Emergency Situations in the region, it was found that 50 of them violated the law. We define the variance of the alternative sign. According to the condition n = 200 total number of characters, m = 50 number of special characters.

The weight of the special character

$$P = \frac{50}{200} = 0{,}25\,.$$

is the weight of a character that does not have this property

$q = 1 - p = 1 - 0{,}25 = 0{,}75$ is equal to.

Alternative character variance

$$\sigma^2{}_{p_i} = p \cdot q = 0{,}25\ 0{,}75 = 0{,}1875 \text{ or } 18{,}75\% \text{ is equal to.}$$

Dispersion is divided into general, intra-group and inter-group types.

The variance caused by all factors in the units of the observed collection is studied by the common variance and is calculated by the following formula:

$$\sigma^2 = \frac{\sum (x_i^{'} - \bar{x})^2 f_i}{\sum f_i} = \frac{13788{,}5}{75} = 183{,}7$$

Inter-group variance is used to measure the difference between the values of a variable characteristic under the influence of a factor (basis for grouping) characteristic, and it is determined by the following formula:

$$\delta^2 = \frac{\sum_{i=1}^{m} (x_i - \bar{x})}{\sum_{i=1}^{m} n_i},$$

in this x_i and $\bar{x}$ in line i — group average and general average of variable sign

$«n_i»$ i — number of characters in the group. The variance caused by the remaining factors is called the residual variance, and it is equal to the average of the variance within the groups:

$$\bar{\sigma}^2 = \frac{\sum \sigma_i^2 n_i}{\sum n_i}$$

in this: σ_i^2 - i — group trait variance; «n_i» i — number of group units.

In conclusion, at the initial stage of any statistical research, information is collected about the studied statistical collection (public events and processes). However, the collection of comprehensive and detailed information about each unit of the statistical collection is usually not for the study of each unit of the collection, but for the study of the statistical collection as a whole. it is carried out in order to reveal the statistical trends and laws that apply in it.

Literature

1. Гумбель. Статистика экстремальных значений. М.: Мир, 1965.
2. Лидбеттер М., Линдгрен Г., Ротсен Х. Эктремумы случайный последовательностей и процессов. М.: Мир, 1989. 392б.