

## THE STATISTICAL ANALYSIS OF TOTAL NUMBER OF FIRE ALERT IN GEORGIA IN 2012-2020

**Bliadze T.**

*Mikheil Nodia Institute of Geophysics of Ivane Javakishvili Tbilisi State University, Tbilisi, Georgia  
teimuraz.bliadze@gmail.com*

**Summary:** The results of a statistical analysis of the daily and monthly values of total number of fire alert in Georgia in 2012-2020 are presented. In the study period number of days with fire alert was 2525, and total number of fire alert – 27631. The monthly number of fire alerts changes from 2 (January) to 1164 (November). The mean monthly number of fire alerts changes from 89 (May) to 493 (March).

**Key Words:** Fire, fire alert.

### Introduction

The problem of fires is actual for many countries of world, including Georgia [1, <https://firms.modaps.eosdis.nasa.gov/download/create.php>]. In Georgia the works regarding the forests fire index hazard were continued for Tbilisi and Telavi cities [2,3]. In this work results of a statistical analysis of the daily and monthly values of total number of fire alert in Georgia in 2012-2020 are presented.

### Study area, material and methods

Study area is Georgia. Data of the about the daily values of number of fire alert (NFA) in period 2012-2020 are used [<https://firms.modaps.eosdis.nasa.gov/download/create.php>].

The standard statistical methods are used. The following designations will be used below: Min – minimal values; Max - maximal values; St Dev - standard deviation;  $C_v$  - coefficient of variation (%); year – period from January to December; cold – period from October to March; warm - period from April to September.

### Results and discussion

Results in table 1-2 and fig. 1-4 are presented.

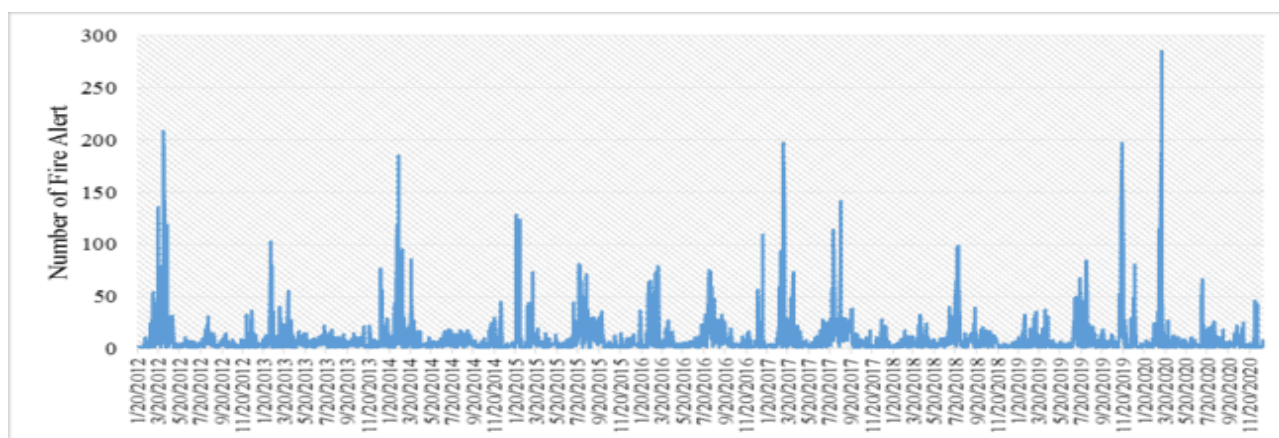


Fig. 1. Daily number of fire alerts in Georgia in 2012-2020.

Table 1. Statistical characteristics of daily number of fire alerts in Georgia in 2012-2020.

Min	Max	Mean	St Dev	Cv, %	Number of days with fire alert	Total number of fire alert	Number of days without fire alert
1	285	11	19.5	177.8	2525	27631	763

In fig. 1 data about daily number of fire alerts in Georgia in 2012-2020 is presented and in table 1 - the statistical characteristics of these data. As follows from fig. 1 and table 1 in the study period number of days with fire alert was 2525 and total number of fire alert – 27631. The max daily number of fire alerts = 285 and on March 10, 2020 was observed. Mean value of NFI = 11. Number of days without fire alert comprise 763.

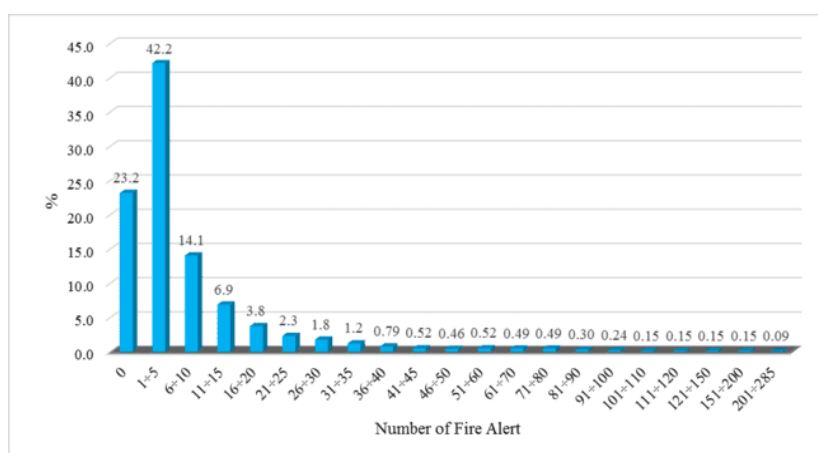


Fig. 2. Repetition of daily number of fire alert in Georgia in 2012-2020.

In fig. 2 data about repetition of daily number of fire alert in Georgia in 2012-2020 is presented. As follows from this fig. the max repetition of daily number of fire alert rate falls on the NFI range from 1 to 5 (42.2%). Repetition of daily number of without fire alert comprise 23.2 %.

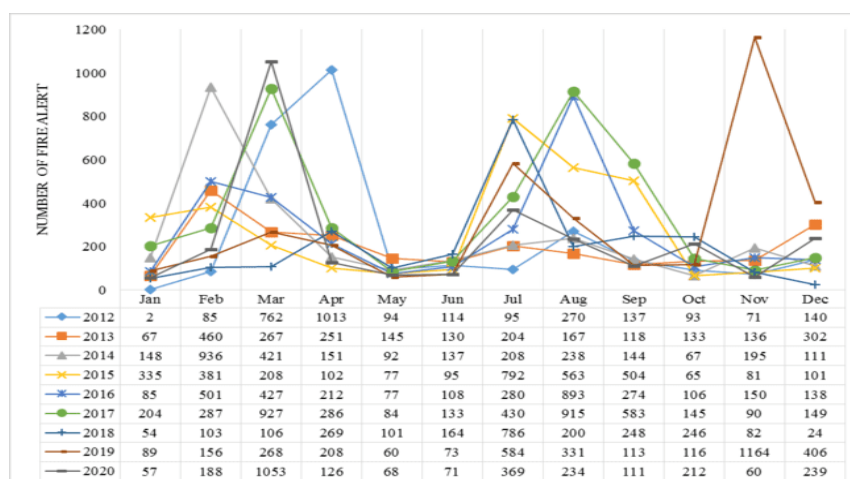


Fig. 3. Monthly number of fire alert in Georgia in 2012-2020.

In fig. 3 data about montly number of fire alerts in Georgia in 2012-2020 is presented and in table 2 and fig. 4 - the statistical characteristics of these data.

Table 2. Statistical characteristics of monthly number of fire alerts in Georgia in 2012-2020.

Parameter	Min	Max	Mean	St Dev	Cv, %
Jan	2	335	116	101	87.1
Feb	85	936	344	269	78.1
Mar	106	1053	493	338	68.6
Apr	102	1013	291	278	95.6
May	60	145	89	25	27.9
Jun	71	164	114	31	27.0
Jul	95	792	416	255	61.1
Aug	167	915	423	296	69.8
Sep	111	583	248	179	72.1
Oct	65	246	131	62	47.2
Nov	60	1164	225	355	157.3
Dec	24	406	179	117	65.3
Year	198	353	256	49	19.3
Cold	103	367	248	80	32.4
Warm	162	405	264	88	33.6

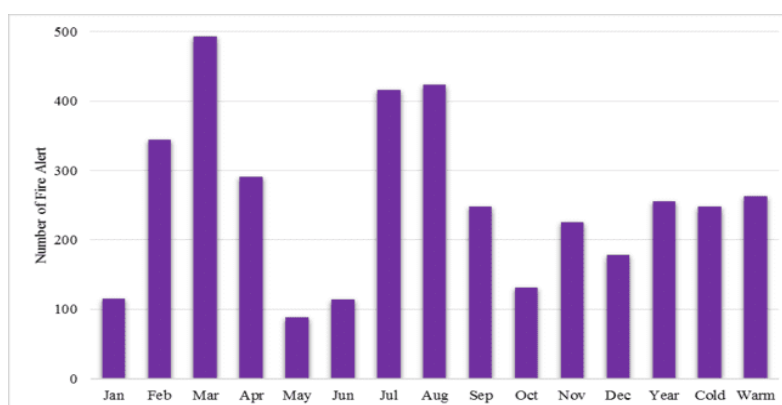


Fig. 4. Intraannual distribution of mean monthly and seasonal number of fire alert in Georgia in 2012-2020.

As follows from these table and fig. the monthly number of fire alerts changes from 2 (January) to 1164 (November). The mean monthly number of fire alerts changes from 89 (May) to 493 (March). The mean annual and seasonal number of fire alert in Georgia differ little from each other (respectively: year – 256, cold period – 248, warm period - 264).

#### References

1. Amiranashvili A.G. Increasing Public Awareness of Different Types of Geophysical Catastrophes, Possibilities of Their Initiation as a Result of Terrorist Activity, Methods of Protection and Fight with Their Negative Consequences. Engaging the Public to Fight Consequences of Terrorism and Disasters. // NATO Science for Peace and Security Series E: Human and Societal Dynamics, vol. 120. IOS Press, Amsterdam•Berlin•Tokyo•Washington, DC, ISSN 1874-6276, 2015, pp.155-164.
2. Bliadze T., Kirkitadze D., Samkharadze I., Tsiklauri Kh. Statistical Characteristics of Angstrom Fire Index for Tbilisi. // Int. Sc. Conf. “Natural Disasters in Georgia: Monitoring, Prevention, Mitigation”. Proc., ISBN 978-9941-13-899-7, Publish House of Iv. Javakhishvili Tbilisi State University, December 12-14, Tbilisi, 2019, pp.86-90.
3. Bliadze T., Kirkitadze D., Samkharadze I., Tsiklauri Kh. Statistical Characteristics of Angstrom Fire Index for Telavi (Georgia). // International Scientific Conference „Modern Problems of Ecology“, Proceedings, ISSN 1512-1976, v. 7, Tbilisi-Telavi, Georgia, 26-28 September, 2020, pp.64-67.