Influence of selected climate parameters on tourist traffic of Kopaonik and Zlatibor mountains (Republic of Serbia)

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Abstract

Tourism on Kopaonik and Zlatibor mountains had started to develop decades ago, but at the beginning of the 21st century, mountain tourism started to develop rapidly and the number of tourists in the mountain regions of Serbia has significantly increased. Constant improvements of tourism offer and numerous tourist activities on the Kopaonik and Zlatibor mountains influenced an upward trend of a number of tourists. The principal aim of this paper is to investigate whether the particular relevant climate parameters, such as mean monthly temperature and a number of snowy days, can affect the increase or decrease of the number of tourists and overnight stays in the analyzed two mountains. For this purpose, the regression analysis was used. The results indicate that there is a significant impact of selected climate parameters on tourist traffic in the Kopaonik and Zlatibor mountains.

Keywords: Kopaonik, Zlatibor, climate, tourism, regression analysis

Introduction

Climate itself can be a factor in attracting tourists, with favorable climate conditions being an important prerequisite for investments in tourism (Šabić, et al., 2012). Also, the length and quality of tourist season are often affected by local climatic factors (Scott, et al., 2004; Belen Gomez, 2005). This is why studying the relationship between climate parameters and tourist traffic is of paramount importance for the travel industry. Understanding local climate conditions is also important in various phases of tourism development: planning the hotel location, an organization of events, development of infrastructure, but also for maintaining the sustainable number of tourist in various part of the year. Many papers indicate that climatic characteristics of destinations, but also climate change can have a major influence on tourist flows (Gössling, et al., 2006; Hein, et al., 2009; Giannakopoulos, et al., 2011; Dinca, et al., 2014; León, Araña, 2016). Accord-

ing to IPCC (Intergovernmental Panel on Climate Change, 2013) and its AR5 (Fifth Assessment Report), global surface temperature change for the end of the 21st century is likely to exceed 1.5°C for all scenarios. Also, it is likely to exceed 2°C for two scenarios. All of this indicates that tourism is largely dependent on climate and its effect can't be ignored.

Generally, it is agreed that "climate is a natural tourism resource and it is an element that, thanks to human intervention, facilitates tourism and the satisfaction of demand" (Gómez Martín, 2005). In addition, the coherence of climate and tourism activities has led to a development of a new branch of climatology, tourism climatology (Basarin, et al., 2014). This discipline is based on applied climatology and human biometeorology (Freitas, 2003; Matzarakis, 2006).

Climate factors in mountain tourism influence the tourist flows both in summer and winter months through specific parameters and elements. As moun-

tain tourism is strongly dependent on natural and cultural resources, it is also especially dependent on climate conditions, which significantly affect tourism development in mountain areas. These areas are also considered amongst the most threatened ecosystems by climate changes (Elsasser, Messerli, 2001).

When it comes to Serbia, and its most visited mountain centers Kopaonik and Zlatibor, majority of scientific papers are dealing with tourist traffic with an emphasize on comparing tourist arrivals and overnight stays with other mountain centers, both domestic and foreign. If we analyze scientific papers in climatology filed, it is important to mention that Vujević (1961) was one of the first researchers who investigating bioclimatology of Kopaonik region. Bursać (1991) induced natural conditions for agricultural and forestry development in the wider area of Kopaonik mountain. Stanković and Ćirković (2002) showed certain characteristics of tourist traffic on Zlatibor, while Marković (2008) was investigating some aspects of hunting tourism on Zlatibor mountain. Ducić and Radovanović (2005) investigated climate characteristics of these two mountains in the book "Climate of Serbia". In terms of physical-geographical research Đurović and Menković (2008) studied the piracy of the Duboka River on the eastern slopes of Kopaonik. Kadović et al. (2009) explored types of soils in Kopaonik, while Pavlović and Jovanović (2009) studied some aspects of eco- and ethno-tourism on Zlatibor. Tourism of Zlatibor was also a topic of research by Plavša et al. (2009), and Ivanović (2007), while evaluation of tourist events was made by Romelić et al. (2009). Some aspects of tourism on Kopaonik were analyzed by Bojović and Plavša (2010; 2011) and Jovičić (1992), while Bučić et al., (2015) explored the possibilities for congress tourism development on Zlatibor mountain. Moreover, Živanović (2015) studied climate influences on forest fires on examples of Kopaonik and Zlatibor mountains. Based on the overview of previous research, it is evident that there were no studies exploring the relationship between climate factors and tourism traffic at the analyzed territory (Kopaonik and Zlatibor mountains).

However, there are some similar studies in the region, which are related to this research. For instance, Joksimović et al. (2013) used Tourism climatic index (TCI) as a bioclimatic indicator, developed by Mieczkowski (1985) to determine the impact of climate on the physical comfort of tourists. However, the value of TCI, as also stated by Joksimović et al. (2013), does not include the qualitative characteristics of rainfall for the needs of winter recreation tourism. In their paper, the climate conditions during winter months in Žabljak and Kolašin were ranked as undesirable. However, the fact that winter months are suitable for winter tourism, were neglected. As the study areas of the current re-

search are mountain centers known especially for winter tourism, the use of TCI was considered inadequate. Instead, the regression analysis was used to examine the effects of climate on tourism flows.

On contrary, the use of this index has shown satisfactory results when applied to different type of tourist sites, such in the study of Basarin et al. (2014). In their paper, the data covering the period from 1949 to 2012 for two meteorological stations, Sombor and Zrenjanin was used to compute the Tourism Climate Index (TCI) for two special nature reserves in Vojvodina, North Serbia, "Gornje Podunavlje" near Sombor and "Carska bara" near Zrenjanin.

Furthermore, Surugiu et al. (2010, 2011) analyzed the relation between climate variability and tourism activity in Predeal resort, one of the most representative ski destination in Romania, showing that tourism activity is largely dependent on meteorological parameters (temperature and snow -cover depth). Their study shows the existence of a negative relationship between temperatures and tourism, which means that an increase in air temperature will generate a decrease in tourism parameters.

Also, Dinca et al. (2014) studied the stakeholder perspective on the effects of climate change for tourism activities in Vatra Dornei complex (spa and mountain resort in the northern part of Romanian Carpathians). In this paper, the authors also emphasize that this destination depends on to a great extent on climate resources which show a clear variability of main parameters on which its outdoor activities are based.

Due to the lack of similar research in mountain regions of Serbia, the main goal of this study is to investigate how chosen climate parameters (monthly mean temperatures and number of snowy days) affect tourist traffic in the most attractive mountains in Serbia – Kopaonik and Zlatibor. It is important to note that tourist traffic in this paper is expressed by a number of tourist and their overnight stays (both domestic and foreign).

Geographic position of the study area

Kopaonik is the largest mountain range of Serbia that extends from the northwest to the southeast with the length of about 75 km, while the maximum width reaches 40 km in its central part. Kopaonik Mountain is located between Ibar and Sitnica rivers in the west and southwest, Lab and Toplica in the south and east and Jošanica and medium flow of Rasina at the north. At the northwest, Kopaonik continues in Željin, Goč and Stolovi. The total area of this region is about 2.750 km² (Bursać, 1991). Kopaonik has a good geographical position. The Ibar magisterial road passes through Kopaonik, and this mountain is also connected with the roads to the valley of the South Morava. Distance

Map 1. Geographic position of Kopaonik and Zlatibor

from Kopaonik to Belgrade is about 280 km and about 190 km from Zlatibor. National Park Kopaonik covers an area in the northern part of the mountain that represents a spacious Ravni Kopaonik plateau.

Mountain Zlatibor is located in southwestern Serbia. It has Dinara's direction of spreading, i.e. northwest to southeast, with the length of 55 km, the width of 22 km, and a surface of 1.015 km² (Jovanović, et al., 2015). It covers large parts of the widespread plateau of Starovlaška. It is spatial bordered on the northwest Kremna valley, in the north of the valley of the river Sušica and Mačkatska surface, in the southeast of the mountain Murtenica and south river Uvac. A foothill that represents the transition to Tara also belongs to Zlatibor. It is distanced 230 km from the capital of Serbia and passes through Zlatibor magisterial road that leads from Belgrade to the coast of Adriatic Sea. In the aspect of tourism, term Zlatibor implies to his central part, spacious rolling plateau, about 30 km long and 12 km wide, bordered by peaks and tops: Tornik, Čigota, Gradina, Čavlovac, Viogor, Crni vrh and the upper stream of the river Sušica (Đurić, Pavlović, 2005).

The database and methodology
The data used to create a database of temperature and precipitation values, for the purpose of this paper, were

taken from meteorological statistical yearbooks of Republican Hydrometeorological Service of the Zlatibor and Kopaonik weather stations for the climatological period 2001 - 2014. The climate parameters that were used in this study are the mean monthly temperature and number of snowy days. The data about tourist traffic during the same period were obtained from the statistical yearbooks of Statistical Office of the Republic of Serbia (arrivals and overnight stays - total, domestic and foreign). The main statistical method used is regression analysis. In statistical modeling, regression analysis is a statistical process for assessing the relationships between variables. The main objective is to assess the relationship between a dependent and one or more independent variables. Regression analysis shows how much the dependent variable can be changed if changing one of the independent variables in order that remains unchanged (Wilks, 2006; Armstrong, 2012). This is just one of the methods which is used to obtain a formula that determines the difference between climate and statistical series (Stojsavljević, et al., 2013).
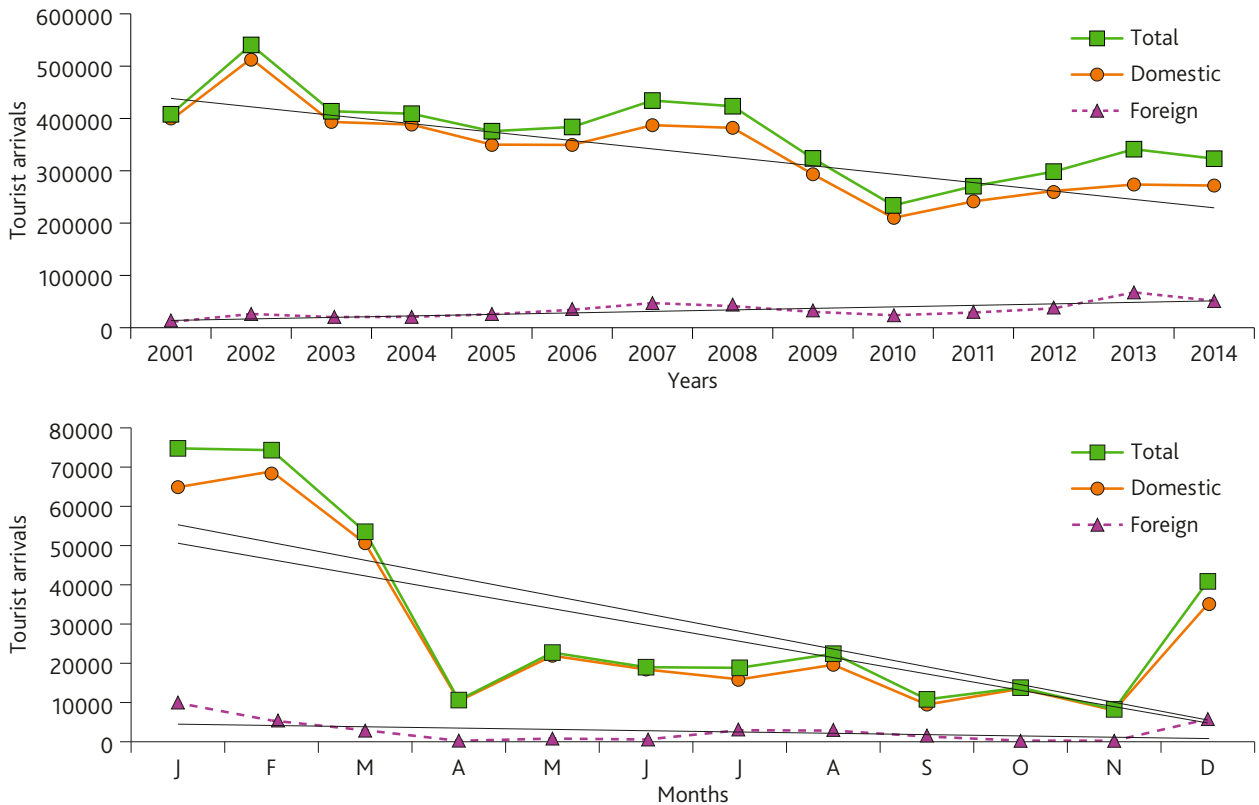
Results and discussion
The following chapter describes the impact of a number of snowy days and the mean monthly temperature on the tourist traffic in Kopaonik and Zlatibor mountains, as well as the comparative analysis of these two mountains.

Tourist traffic of Kopaonik
Tourist traffic of Kopaonik has significantly changed in the last 15 years. Figure 1 shows a declining trend in a number of overnight stays of both domestic and foreign tourists. That number has declined from 510.562 in 2002 to 233.912 overnight stays in 2010. After that, there has been an increase of numbers of overnight stays, although from 2013 there is again an evident decrease. The trend of overnight stays of domestic tourists is similar as previously explained. It can be seen that the trend line of foreign tourists shows a gradual increase with minor fluctuations in observed period. The largest number of foreign tourists stays overnights in Kopaonik in 2013 – 67.553.

Figure 2 shows a drastic decrease in a number of total overnight stays in winter months compared to the rest of the year. That number has decreased from 75.000 in January to 9.000 overnight stays in November. The almost identical trend can be seen in the case of domestic tourists, with a slightly lower number of overnight stays in winter and summer months. In the observed period, the number of foreign tourists at Kopaonik is negligible. In April, October and November less than 300 foreign tourist overnight stays (on average) are recorded.

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Figures 1 and 2. Overnight stays of tourist at Kopaonik by years and months for 2001-2014 period
Source: Republican Statistical Bureau

In the period from 2001 to 2014, there is a decreasing trend of a number of tourists (Figure 3). The largest number of tourist visited Kopaonik in 2002 – 123.514, while the lowest number was in 2010 – 57.900. The number of domestic tourists shows a similar trend. Although a number of foreign tourists gradually increases, their share in total number is still rather low.

Figure 4 shows evidently that the largest number of tourist visit in Kopaonik during winter months. At multi-year bases, the largest number of domestic visits is recorded during February – 12.262 and the smallest during November – 2.033. Foreign tourists mostly visit this mountain during winter. Trend lines of both foreign and domestic tourists show a decrease, but especially when it comes to domestic tourists. A number of average overnight stays per tourist largely decreased at Zlatibor (Figure 5), from maximum 5.8 in 2001 to minimum 3.8 in 2014. On the other hand, at Kopaonik is recorded maximum 5.9 in 2005 and minimum 4 in 2001. Unlike Zlatibor, trend line on Kopaonik is in a slight decrease.

Tourist traffic of Zlatibor

If we look at the trend line on Figure 5, an increase in the number of tourists can be observed in period 2001 – 2014. The lowest number of tourists visited Zlatibor in 2003 – 70.877, while the largest number of tourists was in 2011 – 116.302. While the number of domestic

tourists in that period was alternately increasing and decreasing, a number of foreign tourists was in continuing growth. Decreasing numbers of domestic and foreign tourists were recorded in 2009.
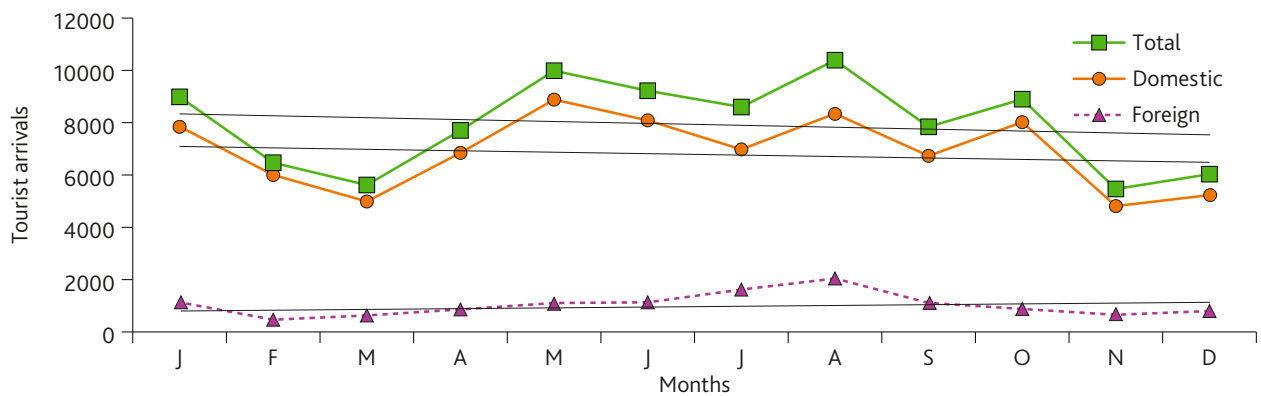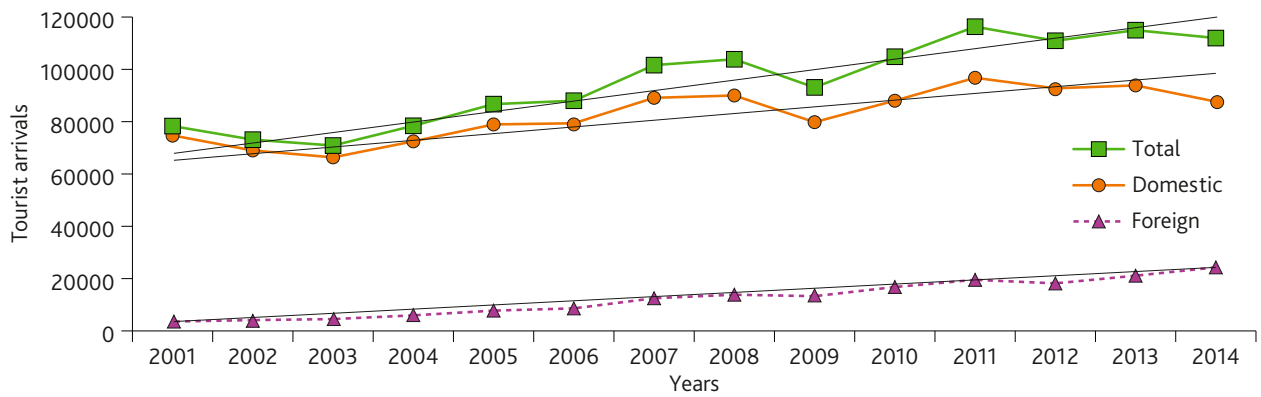
The number of tourist arrivals in Zlatibor has gradually decreased from January to December (Figure 6). If we look perennial average for the 2011-2014 period, the lowest number of tourist was recorded in November – 4.811, although a low number of tourist was also recorded in March and December. The largest number of tourists on this mountain arrives in May – average is 8.882. The lowest number of foreign tourist are in February – only 468. The largest number of tourist from abroad is during summer months, especially during August – average is 2.044. This can be explained by the fact that Zlatibor is mountain popular for day trips and excursions, and that ski tourism is not the primary form of tourism.

The number of tourists who stay overnight in Zlatibor has been rising in the past 14 years. There is a stronger trend of growth of foreign compared to domestic visitors. If we look at Figure 7, it can be seen that there is a lower number of overnight stays in 2003 than in 2001. The difference between these two years is more than 120.000 overnight stays. The largest number of overnight stays was in 2011 – 475.300, while the smallest number was in mentioned 2003 – 330.687. The situation is similar when we look at do-

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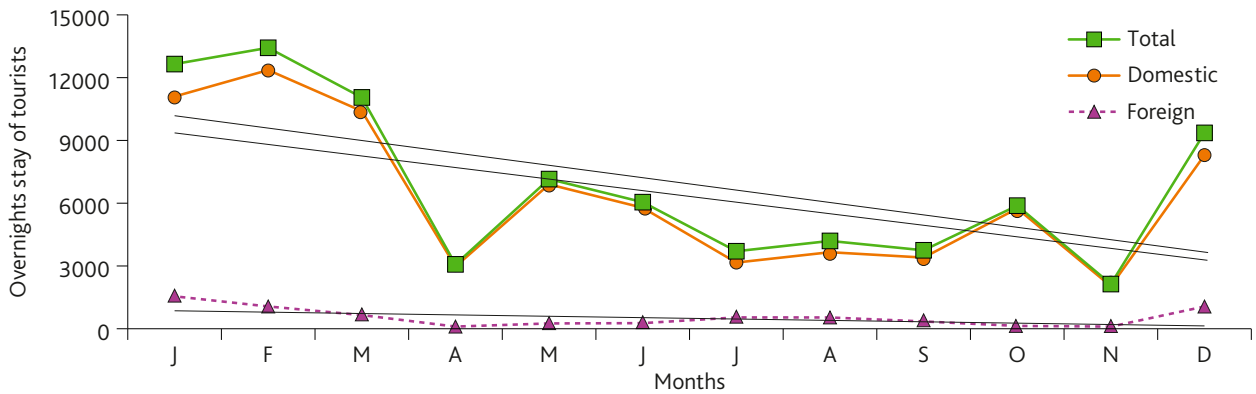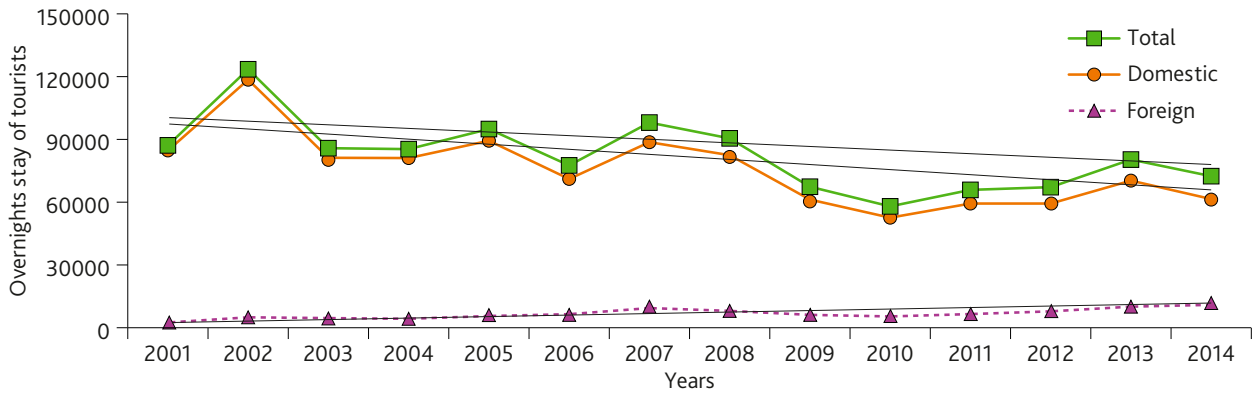
Figures 3 and 4. Tourist arrivals at Kopaonik by years and months for 2001-2014 period
Source: Republican Statistical Bureau

Figures 5 and 6. Tourist arrivals in Zlatibor by years and months for 2001-2014 period
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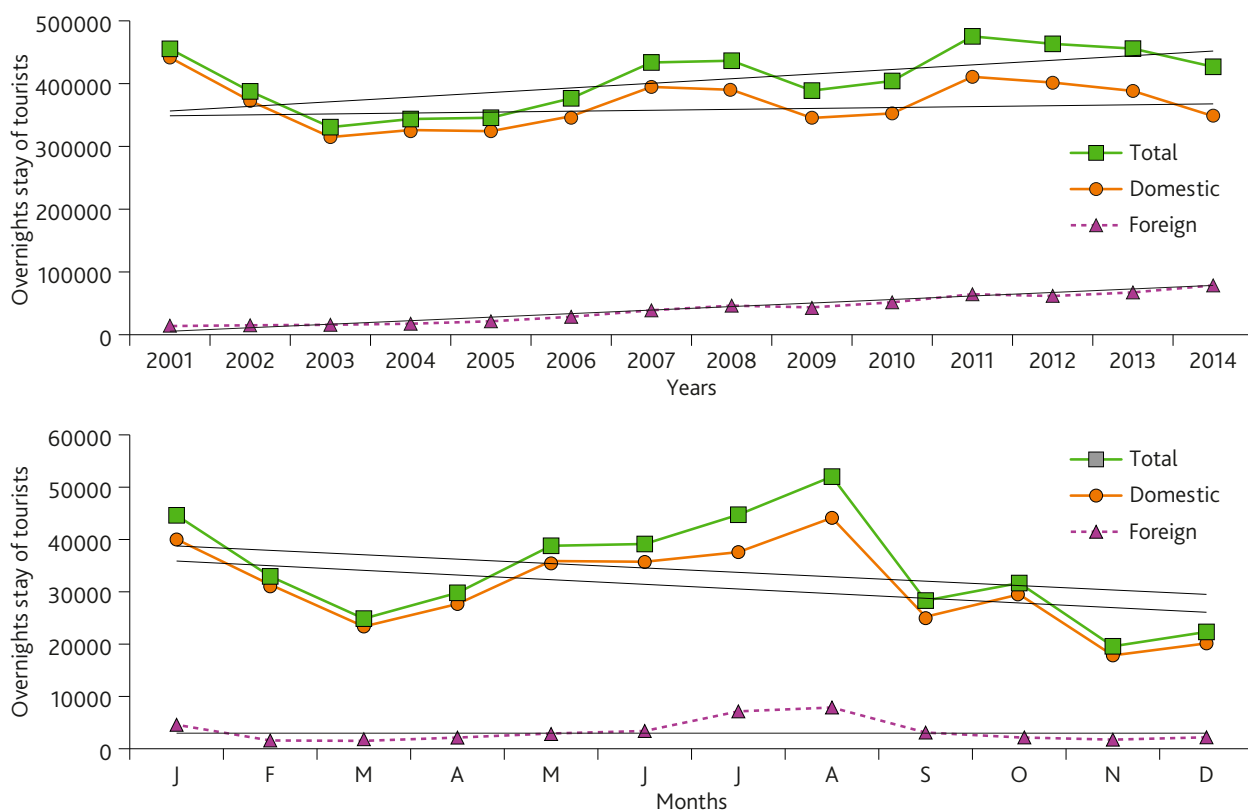
Figures 7 and 8. Overnight stays of tourist at Zlatibor by years and months for 2001-2014 period
Source: Republican Statistical Bureau

mestic tourist overnight stays, as the largest number was in 2001 – 441.597. The number of foreign tourists who stay overnight at Zlatibor has been increasing and the trend line is in constant rising from the beginning of the observed period. The largest number of foreign tourists' overnight stays was recorded in 2014 – 78.578.

The trend of overnight stays decreases from January to December (Figure 8). According to Figure 8, the largest number is in August – 42.021, while the smallest number is in March – 19.586. The number of overnight stays of domestic tourists is the largest in January and the smallest in November. The trend of foreign tourists 'overnight stays is stagnant and this number is still relatively low. The largest number of overnight stays of foreign tourists is in July and August, and it is over 7.000. This can be explained that Zlatibor is a mountain popular for recreation for those who want to spend their summer vacations on the mountain.

A comparison between the number of overnight stays by tourist at Kopaonik and Zlatibor
Figures 9 and 10, show that the most overnight stays per tourist in Zlatibor are recorded in July – 5.2. The lowest numbers, however, are recorded during autumn. On contrary, the situation is different at Kopaonik. Average overnight stays per tourist were almost six in January, while the lowest number was in October – 2.3.
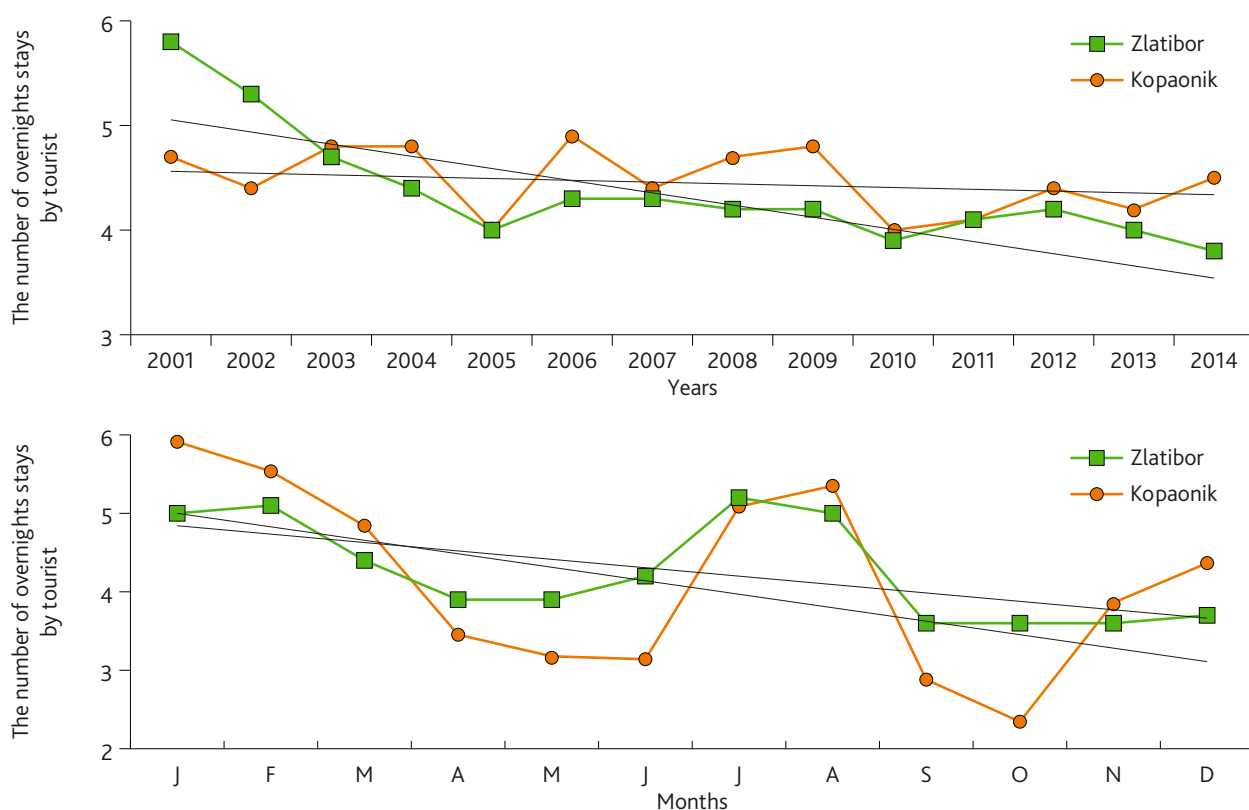
Figures 9 and 10. A comparison of the number of overnight stays by tourist by years and months at Kopaonik and Zlatibor for 2001-2014 period
Source: Republican Statistical Bureau

Analysis of the impact of the number of snowy days on the tourist traffic at Kopaonik

The regression analysis has been conducted, with an aim to determine if there is an influence of a number of snowy days on the tourist traffic on Kopaonik. Results indicate that the number of snowy days has a statistically significant impact of on the tourist traffic on Kopaonik. However, this can be applied only on specific months of the years (Table 1): in January, the number of snowy days has a negative influence on the total and the number of domestic tourists. This is also the case with the total and the number of domestic overnight stays. On the first glance, it seems like illogical finding. However, if we consider that Kopaonik Mountain is already acknowledged mountain in ski tourism, with January being the pick of the tourist season, it is reasonable that the number of snowy days does not influence tourist traffic. The fact that the most of the travel arrangements for this mountain are sold long before the winter season, can also support this finding. On contrary, there is no the significant influence of the number of snowy days on the number of foreign tourists and their overnight stays.

In March, there is a positive influence of the number of snowy days in case of the number of domestic tourists. This can be beneficial for domestic tourism, due to a positive impact on the extension of the tourist season. The foreign tourists, however, visit this mountain during the winter tourist season (from November to March). Furthermore, in April, there is a similar situation as in March, as there is a positive influence of snowy days on the total overnight stays and domestic overnight stays. From this, it can be concluded that the higher number of snowy days influences the extension of tourist season, especially in April and March, as it influences the higher number of domestic tourists and their overnight stays.

Analysis of the influence of the mean monthly temperature on the tourist traffic on Kopaonik

The results of the regression analysis indicate the significant negative impact of temperature on the total number of tourists in August, but also on the number of domestic tourists and their overnight stays in March. This result implies that lower temperatures in August on the mountain than on lower hills have a positive impact on the increase in tourist arrivals during the summer. Therefore, tourists seek escape from the summer heat on the mountain. The climatic factor (the mean monthly temperature) proved to influence the extension of the tourism season. In March, it is observed that there are negative regression coefficients: the lower temperatures affect the higher number of domestic tourists, which extends the tourist

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Table 1. Results of regression analysis – influence of the number of snowy days on the tourist traffic on Kopaonik

Month	Model		Depeent Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
				B	Std. Error	Beta			Lower Bound	Upper Bound
January	1	(Constant)	The total overnight stays	110152.374	12541.947		8.783	.000	82825.820	137478.9
		The number of snowy days		-2072.419	704.029	-.648	-2.944	.012	-3606.368	-538.471
April	1	(Constant)	The total overnight stays	1936.901	3086.203		.628	.542	-4787.356	8661.159
		The number of snowy days		894.113	298.354	.654	2.997	.011	244.055	1544.172
January	1	(Constant)	The number of domestic tourists	102074.098	11026.939		9.257	.000	78048.462	126099.7
		The number of snowy days		-2178.374	618.986	-.713	-3.519	.004	-3527.029	-829.719
April	1	(Constant)	The number of domestic tourists	1628.136	3066.757		.531	.605	-5053.754	8310.025
		The number of snowy days		901.221	296.475	.660	3.040	.010	255.259	1547.184
January	1	(Constant)	The total number of tourists	17983.242	2585.511		6.955	.000	12349.898	23616.586
		The number of snowy days		-312.495	145.135	-.528	-2.153	.052	-628.717	3.727
June	1	(Constant)	The total number of tourists	5060.057	668.622		7.568	.000	3603.254	6516.860
		The number of snowy days		1980.171	545.928	.723	3.627	.003	790.697	3169.646
January	1	(Constant)	The number of domestic tourists	16786.273	2557.422		6.564	.000	11214.131	22358.416
		The number of snowy days		-333.188	143.558	-.557	-2.321	.039	-645.974	-20.401
March	1	(Constant)	The number of domestic tourists	8141.594	1038.221		7.842	.000	5879.505	10403.683
		The number of snowy days		160.552	69.940	.552	2.296	.041	8.165	312.938
June	1	(Constant)	The number of domestic tourists	4815.857	671.132		7.176	.000	3353.587	6278.128
		The number of snowy days		1932.429	547.977	.713	3.526	.004	738.490	3126.368
June	1	(Constant)	The number of foreign tourists	244.200	22.955		10.638	.000	194.185	294.215
		The number of snowy days		47.743	18.743	.592	2.547	.026	6.906	88.580

season. This does not refer to foreign tourists' arrivals to Kopaonik, as they mainly come at the height of tourist season: November to February (Table 2).

Analysis of the impact of the number of snowy days on the tourist traffic at Zlatibor

The results show that the number of snowy days in March on Zlatibor mountain negatively influences the total number of tourists and their overnight stays, as well as the number of domestic tourists. The number of snowy days in December, however, has a positive effect on the total number of overnight stays of domestic tourists. This analysis shows the results which are totally opposite of those obtained for Kopaonik

mountain. This can be explained by the fact that Zlatibor is the mountain which offer is more directed to excursions and recreation in the spring. This is why it is visited by a higher number of tourists when the mean monthly temperatures are higher. In comparison to Kopaonik mountain, it attracts different segments of tourists – school excursions and recreational visitors more than typical ski tourists (Table 3).

Analysis of the influence of the mean monthly temperature on the tourist traffic on Zlatibor

From Table 4, it is evident that the mean monthly temperature during the year affects the tourist traffic on Zlatibor. In March, it positively affects the total num-

Table 2. Results of regression analysis – influence of the mean monthly temperature on the tourist traffic at Kopaonik

Month		Dependent Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
August	(Constant)	The total number of tourists	9460.869	2535.968		3.731	.003
	The Mean monthly temperature in Kopaonik		-372.218	176.926	-.519	-2.104	.057
March	(Constant)	The number of domestic tourists	10098.458	367.708		27.463	.000
	The Mean monthly temperature in Kopaonik		-308.948	146.291	-.521	-2.112	.046
March	(Constant)	The number of domestic overnight stays	48395.431	2090.301		23.152	.000
	The Mean monthly temperature in Kopaonik		-2247.588	831.618	-.615	-2.703	.019

Table 3. Results of regression analysis – influence of the number of snowy days on the tourist traffic on Zlatibor

Month	Model		Dependent variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
				B	Std. Error	Beta			Lower Bound	Upper Bound
March	1	(Constant)	The total number of overnight stays	31802.214	3070.304		10.358	.000	31802.214	3070.304
		The number of snowy days		-400.661	160.770	-.584	-2.492	.028	-400.661	160.770
December	1	(Constant)	The total number of overnight stays	7407.417	5296.790		1.398	.187	7407.417	5296.790
		The number of snowy days		665.405	228.970	.643	2.906	.013	665.405	228.970
December	1	(Constant)	The number of domestic tourists	6001.156	5321.191		1.128	.281	6001.156	5321.191
		The number of snowy days		630.649	230.024	.621	2.742	.018	630.649	230.024
March	1	(Constant)	The total number of tourists	6927.765	628.837		11.017	.000	6927.765	628.837
		The number of snowy days		-75.800	32.928	-.553	-2.302	.040	-75.800	32.928
March	1	(Constant)	The number of domestic tourists	6153.743	509.987		12.066	.000	6153.743	509.987
		The number of snowy days		-67.473	26.704	-.589	-2.527	.027	-67.473	26.704

ber of overnight stays and domestic overnight stays, which coincides with the results of the analysis between the number of snowy days and tourist traffic. The analysis showed different results in comparison to Kopaonik, where lower temperatures extend the tourist season. In December, the mean monthly temperatures negatively affect the total but also the number of domestic tourists, because it is the pick of tourist season, and tourists seek places with lower temperatures. In August, however, there is a positive impact on the number of domestic tourists. These results are also different in comparison to Kopaonik where higher temperatures in August negatively affect the number of tourist arrivals. The higher number of tourists on Zlatibor in August can be explained by the fact tourists in city centers seek salvation from the summer heat at the mountains. The results of regression analysis are logically connected with the results of regression with the number of snowy days as an independent variable (Table 4).

Table 4. Results of regression analysis – influence of the mean monthly temperature on the tourist traffic at Zlatibor

Month	Model		Dependent variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
				B	Std. Error	Beta		
March	1	(Constant)	The total number of overnight stays	18611.027	2905.630		6.405	.000
		The mean monthly temperature on Zlatibor		1923.610	794.988	.573	2.420	.032
December	1	(Constant)	The total number of overnight stays	19830.507	1437.117		13.799	.000
		The mean monthly temperature on Zlatibor		-2349.926	708.693	-.691	-3.316	.006
March	1	(Constant)	The number of domestic overnight stays	17129.675	2929.405		5.847	.000
		The mean monthly temperature on Zlatibor		1916.109	801.492	.568	2.391	.034
December	1	(Constant)	The number of domestic overnight stays	17434.690	1260.658		13.830	.000
		The mean monthly temperature in Zlatibor		-2547.272	621.675	-.764	-4.097	.001
August	1	(Constant)	The number of domestic tourists	1067.172	2271.323		.470	.647
		The mean monthly temperature in Zlatibor		396.708	123.421	.680	3.214	.007

Conclusion

Kopaonik and Zlatibor are distinguished by their positions, as well as with attractive and rich tourist offer. Basic tourist attributes are natural values such as relief, climate, hydrological values, flora and fauna, as well as numerous anthropogenic values. Tourism has a long tradition in these mountains, and also, they are the most visited mountains in Serbia. The increase or decrease in the number of tourists during the evaluating period is inevitable influence by the relevant climatic parameters, such as average monthly air temperature and number of snowy days. Having in mind that Zlatibor is a mountain attractive for short visits and excursions as well as the center of health tourism, tourist traffic is reasonably the highest during the summer and spring months. This trend corresponds to the minimum number of snow days and higher air temperatures. This explains the finding that the smaller number of snow days and higher air temperature affect the increase of the number of tourists in March. On the other hand, Kopaonik is the ski resort, popular not only in Serbia but also in this part of Europe. The increase in temperature and decrease in snowfall in March resulted in a decrease in the number of tourists coming to Kopaonik. The longer retention of snow

cover is the major reason for the extension of the tourist season. Recently, an increasing number of tourists was recorded during the summer months, which is caused by a lower air temperature. In the analyzed period, there was an increase in the number of tourists on Zlatibor, while on Kopaonik recorded a significant decline. Results indicate that Zlatibor and Kopaonik, as very different types of mountains, attract different segments of tourists. The results obtained, especially on seasonality of visit, can be used for design and improvement of tourist offer in order to extend the tourist season in both analyzed mountains (Kopaonik - for the extension of the winter season in the case of reducing the number of days with snow, and Zlatibor - to attract tourists during the winter months). How climate change and the selected parameters in the future will affect the tourist visits in these mountains, may be the subject of the future research. Also, by monitoring the detailed parameters of contemporary climate variability and predictions on the regional level, the strategic approach for planning and adaptation of tourist destinations in the Republic of Serbia would certainly improve. Utilization of Tourism Climatic Index (TCI) in future studies (as part of the general methods used for the quantification of climate conditions for tour-

ism industry), could be used for planning of tourist activities in both, developed and undeveloped tourist centers of Serbia, with exception of those highly dependent on winter tourism. In this way direct information can be sent to tourists and stakeholders in decision-making activities throughout the year.

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