The analysis of seasonality of tourist services in the European North of Russia

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Abstract. An assessment of the tourist and recreational potential associated with the seasonality of tourism services in the European North of Russia. Our calculations show that the activity of the sale of tourism services increases in summer, sustained seasonal peaks of maximum demand are also noted in January (popularization of the project “Great Ustyug - the homeland of Father Frost” in the Vologda region). Lower sales volumes of tourist services are typical for the winter and spring months. The Murmansk region stands out, where tourist activity rises from August to November, which is associated with the development of primarily the ski (Khibiny) infrastructure. To reduce seasonality in the region, in addition to the development of tourist and recreational facilities, it is also necessary to create recreational tourist facilities of the all-season type with the inclusion of cultural, historical, ethnographic, religious and pilgrimage objects in the tourist activity. In this case, the tourist, even in the absence of favorable climatic conditions for the implementation of summer / winter types of recreation, will have sufficient opportunities to choose and exercise their preferences. This factor will reduce the seasonal fluctuations in the number of tourist visits, providing a uniform load on the existing tourist and recreational facilities. Based on a statistical analysis, an assessment was made of the tourist and recreational potential associated with the seasonality of tourism services in the European North of Russia. Our calculations show that the activity of the sale of tourism services increases in summer, sustained seasonal peaks of maximum demand are also noted in January (popularization of the project “Great Ustyug - the homeland of Father Frost” in the Vologda region). Lower sales volumes of tourist services are typical for the winter and spring months. The Murmansk region stands out, where tourist activity rises from August to November, which is associated with the development of primarily the ski (Khibiny) infrastructure.

1. Introduction
In the modern world economy, tourism is one of the most important sectors, being one of the largest, most profitable and most dynamically developing areas of economic activity. The role of tourism is very significant: it stimulates the development of related tourism and recreation sectors (transport, trade, souvenir production, services, catering, construction, etc.), favors the preservation of the cultural heritage of peoples and their traditions, crafts, restoration and preservation monuments.

The European North of Russia includes the Arkhangelsk, Murmansk, Vologda regions, the Nenets Autonomous District, the Republic of Komi and the Republic of Karelia. Quite often this territory is called the Russian North of Russia. Officially, this name is not used, most often the term “Russian North” is considered in historical and cultural aspect.
The territories of the European North have a unique tourist and recreational potential, which is understood as a combination of tourist and recreational resources, their territorial combinations, objects of tourist and recreational infrastructure and other conditions conducive to attracting tourists and meeting the needs of the population in tourist and recreational activities [1].

According to the Federal Statistics Service [2], in this regions, the number of travel companies increased significantly from 2005 to 2016. In 2017, more than 600 tourist enterprises functioned. Collective accommodation facilities (DAC) form the basis of the region’s tourism industry. The volume of tourist services for the period from 2009 to 2016 increased from 425.3 to 1190.1 million rubles. The volume of services rendered in 2012-13 rapidly growing, lately there is a reduction.

The resource base of the tourist and recreational potential of the region territory consists of natural (geological, geomorphological, climatic, hydrological, biological, soil), cultural and historical resources (museums, cultural monuments, architecture, archeology, traditions of the population, folk crafts and handicrafts, current cultural and artistic life and others), as well as their territorial combinations.

According to the rating of domestic tourism, compiled by the analytical agency TourStat in 2017 [3], the most popular among tourists from the regions of the European North of Russia are: Vologda region (more than 2900 thousand people), the Republic of Karelia takes the second place (more than 800 thousand people) then comes the Arkhangelsk region (491 thousand people). Compared with 2016 in 2017, the number of visitors to the Arkhangelsk region increased by 1%. In 2017, 420 thousand people respectively visited the Murmansk region and the Komi Republic and 230 thousand people.

The territories of the European North are distinguished by extreme climatic conditions, whose vital activity requires constant overcoming of significant difficulties and additional costs to ensure both the existence of the person himself and the economic and production activity in all spheres of the economy, including the development of tourism and recreation. In many respects, it is climate that predetermines the seasonal nature of tourist and recreational activities.

The purpose of this work was to assess the tourist and recreational potential associated with the seasonality of tourism services in the European North of Russia.

2. Materials and research methods
To assess the tourist and recreational potential of a region, it is necessary to determine the degree of dependence of various types of tourist and recreational activities on climatic factors. According to P.N. Yakunin, Romashkina G. F., Didenko N. I., Leksin V. N. and Profiryev B. N. [4,5,6,7], a small degree of dependence on climatic factors have mountaineering, commercial, business, entertainment, festival-congress, cultural, historical, ethnographic, pilgrim and exotic tourism. The development of specific types of tourism determines the rhythms of seasonality in the tourism industry in the region.

Under the seasonality is understood a steady pattern of the intra-annual dynamics of a phenomenon, which is manifested in intra-annual increases or decreases in the levels of a particular indicator over a number of years. With regard to the tourism industry seasonality - this is stable (from year to year) recurring, characteristic for this place cyclical nature of tourism activities associated with changes in recreational conditions. From an economic point of view, it represents repetitive fluctuations in demand with alternating peaks and dips [8].

Seasonality in tourism has a significant impact on the profitability of all tourist enterprises, as well as other industries focused on serving tourists. This especially affects enterprises with high labor intensity and capital intensity, as well as the service sector. Seasonal decline causes a temporary release of labor [9]. It also affects the distribution of production costs, which is closely related to the price policy for goods and services for tourists, etc. Studying seasonality in tourism allows not only to reveal the degree of influence of natural and climatic conditions on the formation of tourist flow, to establish the duration of the tourist season also determine the economic consequences of seasonality at the level of a region or a travel company and develop a set of measures to reduce seasonal unevenness in servicing tourists.
Seasonal fluctuations are measured using seasonality indices. This is the percentage of average monthly levels for a number of years to the total average monthly volume of services sold for the entire billing period using the formula:

$$I_s = \frac{y_i}{y} \times 100$$

(1)

where $y_i$ is the average for each month, $y$ is the average monthly level for the entire series.

3. Research results and discussion

The dynamics of the average monthly volume of tourist services demonstrates the presence of pronounced seasonality (Table 1, Figures 1 - 6).

![Figure 1. Dynamics of average monthly volumes of tourist services in the Arkhangelsk region (according to [10])](image1.png)

![Figure 2. Dynamics of average monthly volumes of tourist services of the Nenets Autonomous District of the Arkhangelsk Region (according to [10])](image2.png)
Figure 3. Dynamics of average monthly volumes of tourist services in the Vologda region (according to [11])

Figure 4. Dynamics of average monthly volumes of tourist services of the Republic of Karelia (according to [12])

Figure 5. Dynamics of average monthly volumes of tourist services in the Murmansk region (according to [13])
Figure 6. Dynamics of average monthly volumes of tourist services of the Komi Republic (according to [14])

Table 1. Average Seasonal Index in%

|                | Arkhangelsk region | Nenets AD | Vologda region | Republic of Karelia | Komi Republic | Murmansk region |
|----------------|--------------------|-----------|----------------|--------------------|---------------|-----------------|
| January        | 53                 | 79        | 107            | 88                 | 89            | 64              |
| February       | 36                 | 87        | 55             | 71                 | 83            | 56              |
| March          | 38                 | 106       | 52             | 79                 | 101           | 61              |
| April          | 42                 | 104       | 51             | 76                 | 61            | 57              |
| May            | 59                 | 112       | 70             | 113                | 116           | 117             |
| June           | 192                | 115       | 136            | 126                | 196           | 112             |
| July           | 279                | 141       | 171            | 151                | 160           | 104             |
| August         | 256                | 115       | 171            | 145                | 146           | 133             |
| September      | 88                 | 103       | 106            | 110                | 102           | 135             |
| October        | 64                 | 79        | 91             | 67                 | 65            | 131             |
| November       | 50                 | 82        | 85             | 80                 | 31            | 111             |
| December       | 43                 | 77        | 104            | 93                 | 50            | 119             |

average for the period: 100 100 100 100 100 100

(Compiled by the authors after processing statistical evaluation materials)

According to the seasonality index, rice 7 and 8 “Seasonal Waves” of tourist services by month was compiled.
Figure 7. Index of seasonality in the provision of tourism services

Figure 8. "Seasonal wave" of the provision of tourism services for individual territories of the European North of Russia

As shown in figures 7 and 8 from May to September, there is an increase in the volume of tourist services provided to the population. This is primarily due to the availability of free time among the
population (mass vacations, school and student vacations, etc., as well as the seasonality of demand depends on the type of tourism.

The calculations show that in the provision of travel services in the European North of Russia there is a pronounced seasonality. The implementation of tourism services begins to increase in the summer, and steady seasonal peaks of maximum demand are observed in January (Vologda region). The seasonality index in this month exceeds 107%. Lower sales volumes of tourist services are typical for the winter and spring months. The Murmansk region stands out, where tourist activity rises from August to November, which is associated with the development of tourism infrastructure, primarily ski (Khibiny). Here, the seasonality index exceeds 130%.

The data obtained somewhat contradict the widespread ideas about the summer period as a high season in tourism. In the summer months with the most favorable conditions for recreational activities, the greatest flow of tourists has been observed, but lately due to the development of skiing and the popularization of the Great Veliky Ustyug-Father Frost project (Vologda region), the seasonality index has been observed in the winter months.

4. Conclusion
To increase the flow of tourists to the northern regions of Russia, it is necessary to reduce the dependence on seasonality. One of the main factors is the development of tourist-recreational infrastructure in the region, the creation of recreational tourist facilities of the all-season type and the inclusion in the tourist activity of available cultural, historical, ethno-graphic, religious and pilgrim objects. In this case, the tourist, even in the absence of favorable climatic conditions for the implementation of summer / winter types of recreation, will have sufficient opportunities to choose and implement their preferences. This factor will reduce seasonal fluctuations in the number of tourist visits, providing a uniform load on the existing tourist and recreational facilities. Due to the slight dependence on climatic factors, such types of tourism as entertainment, festival-event, cultural, educational, historical-educational, ethnographic, pilgrimage and even exotic, they most closely correspond to the tourist and recreational opportunities of the region’s territories. At the same time, the types of tourism listed are basically based on the use of cultural and historical resources, which clearly dominate the tourist and recreational potential of the northern territories.

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