The International Congress of Educational Sciences and Linguists (ICEL 2022)
29-30 November 2022, The Netherlands

Using low-orbit satellites as the main resource for creating a recreational industry on a regional and global scale (on example of Azerbaijan)

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Abstract

During the industrialization period of Azerbaijan, the fundamental factor of development is not the oil-gas sector. The manifestation of the main pace of their increase is use of the modern methods and technologies as well as means of doing business on the example of the recreational industry. The climate-forming factors of Azerbaijan and its geographical location is an important stage for building favorable recreation and tourism areas. For this purpose, the use of the modern technologies is relevant; as an example, it is advisable to use low-orbit satellites and different content transfer via them.

Keywords: Climate, Climate-Forming Factors, Recreation, Tourism, Low-Orbit Satellites, Wireless Power.

Introduction

Tourism in Azerbaijan is a significant component of the country's economy. According to 2017 data, the tourism sector provides about 4% of Azerbaijan's GDP, with some fall in 2020-2021 due to the pandemic, but promising to grow from 2022 and further while being a relatively fast-growing industry (https://en.wikipedia.org/wiki/Turism_in_Azerbaijan).

The country's territory is relatively small, but its location at the crossroads of Europe and Asia makes it attractive for the development of the tourism business. According to the Köppen climate classification, nine types from eleven accepted of climate ones are observed in Azerbaijan. The types of climate in Azerbaijan vary from the mountainous climate of the tundra to the subtropical climate, which is represented in a significant part of the country. At the same time, Azerbaijan has a significant territorial space and is the owner of a huge tourist therapeutic and health-improving

ISBN: 978-625-8284-26-3

resource potential and prospective for its development as an important type of recreational activity in the country (http://www.economy.in.ua/pdf/1_2019/11.pdf).

Since sanatoriums, resort areas, tourist routes in Azerbaijan are organized and functioning in areas with the most favorable climate, and the effect of treatment and rest largely depends on the weather, weather and climate factors can be considered as a recreational resource that contributes to the preservation of health, mental and physiological comfort of a person (Hasanov & Zeynalov, 2019).

Recreational resources are objects and phenomena of nature, as well as human activities that can be used for recreation, tourism and treatment. It is discriminated several types of recreation and tourism:

- Cognitive - visits to cultural and historical places, cruises;
- Wellness - treatment and prevention of diseases;
- Sports - hunting, fishing, active tourism, mountaineering, etc.;
- Adventure (extreme) - diving, rafting and other types of recreation associated with increased physical and emotional stress;
- Ecological - the desire to be closer to nature, to know the traditional culture of peoples, traditional places of recreation and tourism (https://nsportal.ru/ap/library/drugoe/2016/12/28/prezentatsiya-na-temurazvitie-rekreatsii-na-severnom-kavkaze).

The development of tourism in Azerbaijan overcomes such a serious problem as unemployment, which affects all sectors of the economy and is a catalyst for their development (Echanly & Gadzhiev, 2003). The organization of the tourism business in modern conditions can be carried out in the presence of a number of components: capital, technology, personnel, recreational resources (https://cyberleninka.ru/article/n/mehanizm-funktsionirovaniya-rynka-rekreatsionnyh-resursov/viewer) and energy supplement to areas involved into recreation business.

The current situation around tourist recreational areas requires new approaches to regional management, technologies and development. These approaches should take into account possible risks and contain measures for their minimization for making the areas ready to sustainable development (https://cyberleninka.ru/article/n/analiz-riskov-v-strategii-ustoychivogo-razvitiya-turistskih-rekreatsionnyh-territoriy).

ISBN: 978-625-8284-26-3

The matter of tourism risks covers all kinds of threats against the subjects and objects of the tourism market. These threats extend to infrastructure facilities, enterprises of the tourism industry and the tourists themselves and can very significantly in dependence on a tourist activity (https://revolution.allbest.ru/economy/00895561_0.html). Of course, at any milestone of the tourism industry one has to supply electric power to cover all the requirements (Hasanov, (no date) Taking into consideration that the facilities and tourists are usually placed on big distances, the problem of power maintance becomes critical for sustainable recreation.

The recreational system is a complex managed and partially self-governing system consisting of interconnected subsystems: vacationers, natural and cultural territorial complexes, technical systems and service personnel (https://otherreferats.allbest.ru/sport/00096275_0.html). In terms of our concept it is proposed two purposes for satellite use for recreration industry, 1) monitoring recreational resources, and 2) supply wireless electric power for sustainable recreation.

To provide technical systems for monitoring recreational resources, it is advisable to use an aerospace monitoring of systematic observation of the state of the environment. The monitoring system of any level includes three components grouped into two segments: the ground and the orbital (and/or air). In the first segment, onboard motion systems of the spacecraft operate and is managed. The second one covers the observation system as a set of remote sensing equipment. The third component includes special instruments and devices that provide the necessary parameters of the orbit and orientation of the spacecraft, as well as equipment for transmitting remote sensing data to the Earth and their treatment.

All these components are included in the orbital segment of the space remote sensing system. The ground segment of the space environmental monitoring system includes two components: a) a ground receiving and command station with a control complex and b) an operation center for the entire system as a whole. The last component includes departmental and regional networks (as well as autonomous stations) for the reception, primary processing and distribution of monitoring data (Malinnikov, Stetsenko, Altynov, Popov, 2008).

The second use of low-orbit space systems is scheduled to supply wirelessly electric power for purposes stated above, namely to provide sustainable recreation under various and changing conditions. The technology of wireless electric power transfer through satellites can eliminate the use of the wires and batteries, thus increasing a) the mobility, b) convenience, c) independence, and 4) reliability in communication for all the components of recreation industry. This technology allows tourists

ISBN: 978-625-8284-26-3

- be far from the electric grid as long as they want;
- to use their devices as much as they need do not thinking of recharging the devices;
- to use their mobile devices under different meteorological conditions without referring on temperature, moisture, sunlight etc.;
- be safe in any rescue operations.

The concept for using space systems for electric power transfer has been firstly described in report of the first author (Hasanov, 2009); in this paper, we suggest just one application of these systems. In more detail, the second use of satellites is described in (Hasanov, no date).

Under desire, the local network can be physically and logically extended up to the regional and/or the global level. From technical stand point this is not problem, since low-orbit space systems cover all the Earth's surface and can, at least, physically serve for all the costumers.

Conclusion

The paper considers the main climatic and geographical patterns of the development of the recreational industry in the territory of Azerbaijan with its discovery of favorable recreation and tourism areas. Taking into account that the climate and the geographical location are the main resources for the development, it is advisable to identify the main factors for minimizing risks in the creation of campsites and holiday homes as well as for making the recreation sustainable. For this purpose, it is advisable to use modern methods and means of research using low-orbit radar satellites as a) a part of remote monitoring system, and b) a measure to supply wirelessly electric power to tourists (any consumers) to extent the scale of recreation business.

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