TOURISM DEVELOPMENT STRATEGIES: NEW ASPECTS TAILORED UPON THE SCHUMANN RESONANCE

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Abstract

From its existence, man seeks to visit places where he feels calm, filled with positive energy and pleasure. Such places exist and represent a long-standing sphere of interest both to individuals who explore and travel on their own, as well as to modern tourism, which focuses on health and development of such places and offers on tourism market through development strategies. In this paper, the strategies that are elaborated are the ones that will associate availability of such locations with the electromagnetic field in their surroundings and the people's need to enjoy its influence. The main focus is put on the impact on the global magnetic field of the Earth, represented through the Schumann resonance and its potential influence on human health and the creation and application of development strategies that will promote new approaches to this tourism product in Macedonia.

Key Words: *strategy, tourism, human health*
JEL classification: *L83, I12*

Introduction

Rapid changes in the world affect the changes of tourists and tourist needs, which more and more explicitly change the character and image of tourism product. Tourism supply and tourism policy make serious efforts to satisfy tourist perceptions, trying to create new approaches and interests towards tourism service, in direction of strategic development of the tourism market, recognized through the number of tourists and overnights.

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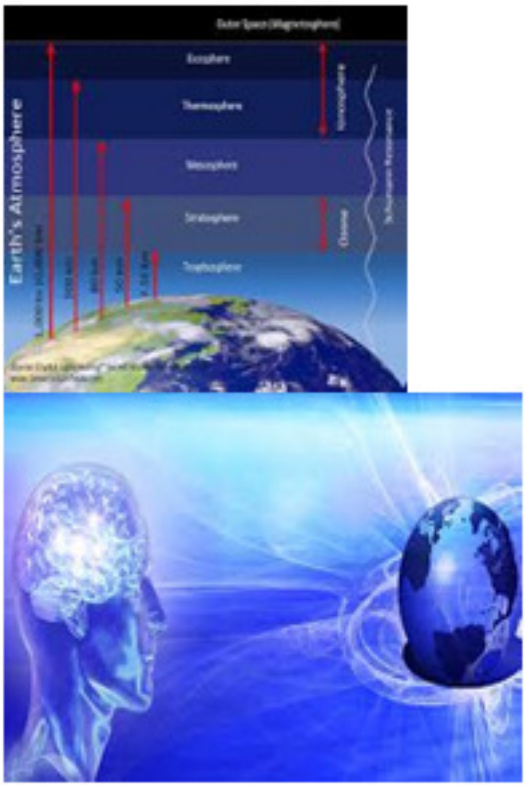
More recently, we are witnessing the importance and attention to the issue of mental and physical health that keep people's focus, as well as the more frequent reference to satisfying the need to explore aspects that will have added value recognized through a positive impact and balance of these two significant issues. Many scientific studies treat the person and his/her physical and mental health and the factors that influence on them, as they try to discover the reasons and consequences of them. There is a constant search for scientific evidence to establish a link between the activity of the sun and the human biological and health effects. They explain the existence of activity in correlation with serious human health influences in which the key element is the role of the Schumann resonance signal (Schumann, 1952) (Figure 1).

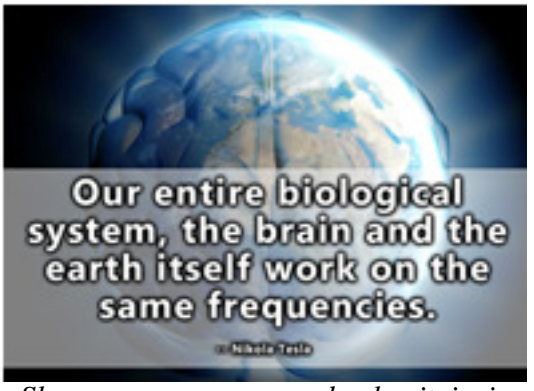
Figure 1: *The Schumann Resonance*



Source: *Matthews, S. Universal life tools, https://www.universallifetools.com, (21 November 2018).*

Today Professor Schuman is attributed for this discovery, but the genius Nikola Tesla is the man who was aware of this resonance much earlier, even in 1899 (Figure 2).

Figure 2: Tesla's note



Source: *What is Shuman resonance and why it is important for your health?, https://www.drskinhealth.com/blog/schumann-resonance, (21 November 2018)*

The data presented and the ongoing researches on this issue underline the importance of considering these positive impacts as an opportunity for new approaches to develop tourism product through a comprehensive analysis of development strategies for supporting and evaluating the existing opportunities for positive effects on visitors.

Hence, the paper proposes identification of new boundaries and strategic dimensions for developing a promotional model for a new tourism product based on positive and harmonic vibrations of the energy of the existing, but also recognizing similar new tourist locations in Macedonia. The paper emphasizes the possibilities of using thermal water baths, spa centers, churches and monasteries as a relaxing environment, filled with positive and harmonic energy vibrations. The main goal of this paper is to identify strategies for distributing information to travel agencies and users about the impact of the Earth's intensity and possible affection. Thus, the emphasis is put on the following aspects:

- Analyzing the effects on tourists and visitors from different approaches (psychological, physiological, neurological);
- Reorder the existing destinations for medical treatment in spa destinations and destinations for active vacations; and

- Preparing a national strategy for these geographical destinations by regions and on the territory of the whole country.

Methodologically, the paper is divided into several parts. First it represents the literature review on integral positions about the Schumann resonance, along with a brief overview of the produced signal effects on the environment and the human health. The next section offers draft strategic approaches as a support to tourism development, followed by the main conclusions and recommendations. The last section presents the limitations and possible future directions for researches of the investigated subject.

The Schumann resonance and its impacts

The intensity of the Schumann resonance signal is modular and corresponds with the solar activity and the concentrations of electrons in the lowest layers of the ionosphere. Improved or weakened solar activity implicates health problems and increased mortality among humans. The body has highly regulated and powerful integral system which provokes and stimulates healthy living in daily and seasonal climate variations.

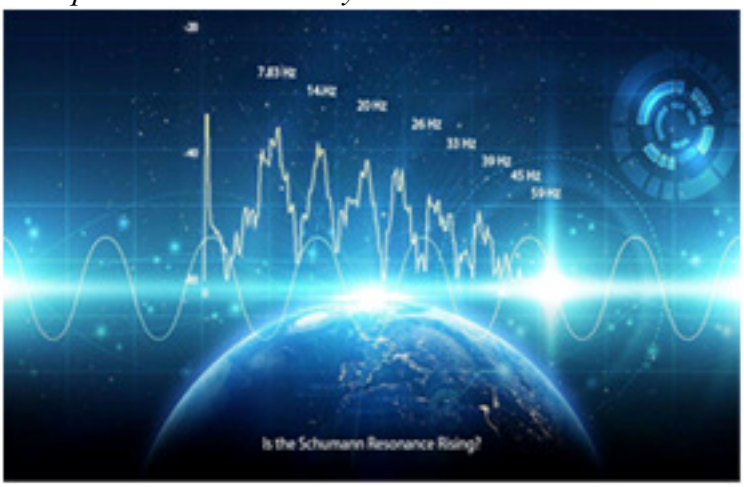
The man is a biological human being with relatively stable and coherent well-developed intelligence. The Schumann resonance of 7.83 HZ supplies a frequency interval that supports the electromagnetic signal, providing synchronization necessary for an intelligence (Cherry, 2002). In order to sustain the intelligent thinking, there is a need for constant, globally present synchronizing system that continuously stabilizes human body. The rapid intelligent reactions also demand electromagnetic signalization supported by biochemical system (Cherry, 2003).

On the other side, surrounded by the atmosphere, the Earth may be treated as a medium that generates electromagnetic waves with different frequencies (NASA/GSFC, 2012).

There are numerous waves coming from various artificial appliances, as well as from natural resources as thunder, storms, etc. All these waves expand in different directions. Geometrical and chemical differentiated Earth surface may be treated as a layer with different electric characteristics that show seasonal, daily even hourly variations (Lewicki et al., 1987).

The atmosphere, particularly the ionosphere, may be treated as a plasma-filled non-homogeny medium. Lead by these presumptions, the German physicist Winfried Otto Schumann mathematically proved that the Earth surface and the lower layers of the ionosphere create a chamber that resonates with extremely low frequencies (ELF). His research was based on the presumption that the Earth surface and the inner surface of the ionosphere are ideal concentric spheres with infinite conductive walls. The resonant frequencies were calculated whereas the lowest harmonic was equal to around 10 Hz. (Schumann, 1952) (Figure 3).

Figure 3: *Frequencies calculated by Schumann*



Source: *www.heartmath.org/gci-commentaries/meet-annette-deyhle-gci-research-team/*

The Schumann resonances represent the pulse of the Earth's heart. They are electromagnetic waves generated from the core of the planet spreading towards its surface and further on towards the ionosphere. The presence of signals was confirmed by measurements in the middle of the 1950s by Schumann and König (1954). So, the primary specter of the frequencies is: Delta 0.5-4 Hz, Teta 4-8 Hz, Alpha 8-13 Hz and 13-30 Hz (Malmivuo & Plonsey, 1995). Hence, the resonance is biophysical relevant (Neil, 2001).

The biophysical mechanism of these effects is detected when investigating why the ELF signals affect the human reactions and the brain signals (Bawin et al., 1973; Bawin & Adey, 1976; Adey, 1980). The effect is a function of the modular frequency more than the signal's

intensity, since it is a resonant phenomenon that includes nonlinear reactions (Adey, 1993).

Until the beginning of the 1980s, this frequency does not exceed 7.83 Hz. This value is in line with the frequencies of human body, particularly the brain and heart (Figure 4). The electromagnetic field generated from human's heart is along with the frequency of 7.83 Hz. However, the Schumann resonances are constantly increasing as of 1980.

Figure 4: *Impact of the Schumann resonance on human health*

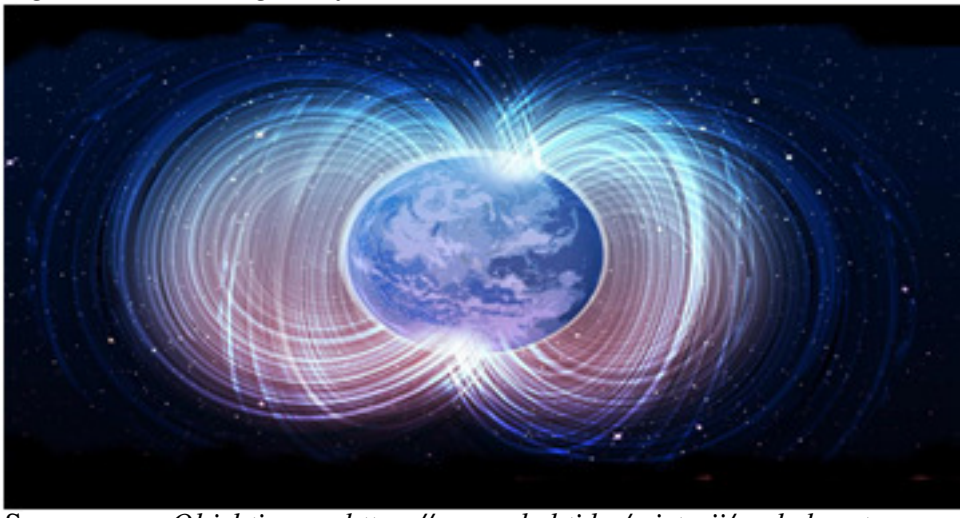
Source: *Space Lovers Club, https://subscribe.ru/group/klub-lyubitelej-kosmosa/12569993/ (12 November 2018).*

Literature review

The literature contains research on the effects of Earth's magnetic field on all living beings, including humans in their natural environment. This section presents a brief overview on various studies on the Schumann resonance. Since the electromagnetic frequency has an impact on the global coherency of life, the literature review starts with a discussion on the concept of positive paradigm and potential dynamics of tourism and leisure activities.

The Earth behaves as a monumental electric circle. More precisely, the atmosphere is a weak conductor and with no charging source, it will be sprayed out for nearly 10 minutes. There is a gap of 55 km between the Earth's surface and the inner edge of the ionosphere (Schumann & König, 1954) (Figure 4).

Figure 4: Earth magnetic field



Source: *Objekti, https://www.obekti.bg/misterii/neshcho-stranno-sesluchvasmagnitnoto-pole-na-zemyata-i-nikoy-ne-znae-zashcho, (1 November 2018)*

The global electromagnetic resonance was predicted by Schumann (1952) and experimentally measured by Balser and Wagner (1962a, 1962b) in the specter of natural electromagnetic radio signals of around 8, 14, 20 Hz, etc. The resonances' vibrations are initiated by electromagnetic charges of global thunderstorms, so they are dependent on spatial distribution of global thunder activity (Holzer, 1958; Rycroft, 1965; Ogawa et al., 1966; Polk, 1969).

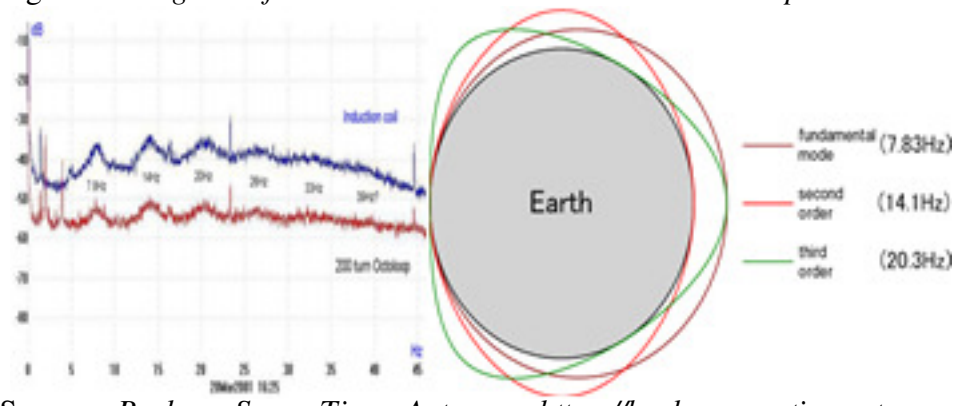
The Schumann signals are being monitored in special observatories aiming to identify efficient parameters of global thunder activity (Fraser-Smith et al., 1991; Williams, 1992; Sentman & Fraser, 1991; Chrissan & Fraser-Smith, 1996; Füllekrug & Fraser-Smith, 1997; Belyaev et al., 1999; Jones, 1999; Sátori & Zieger, 1999; Price & Melnikov, 2004; Nickolaenko & Hayakawa, 2002). Generally, the Schumann observatories measure three fields, i.e. components: one vertical, and two normal horizontal magnetic fields. The parameters of the individual Schumann resonant modes derive from the signal power specter. The variations of these parameters were further on continuously researched (Balser & Wagner, 1962a, 1962b; Gendrin & Stefant, 1962; Sao et al., 1971, 1973; Ogawa et al., 1967, 1968; Lazebny et al., 1987; Adey, 1990; Nickolaenko & Rabinowicz, 1995; Nickolaenko et al., 1996, 1998, 1999; Sátori, 1996;

Sátori & Zieger, 1996; Sátori et al., 1999; Heckman et al., 1998; Price & Melnikov, 2004; Melnikov et al., 2004).

As waives resulted from the source, they are not present all the time, but must be rather initiated in order to be followed. They are not implicated neither from the inner segments of the Earth, nor from the surface. They are related to the electric activity of the atmosphere, particularly during the intensive thunderstorms. They appeal on several frequencies between 6-50 cycles in a second, particularly 7, 8, 14, 20, 26, 33, 39 and 45 Hz, with daily variations of around +/- 0.5 Hz. While the characteristics of the Earth's electromagnetic hole are the same, these frequencies remain the same (Hans Volland, 1995).

The limited dimension of the Earth provoke this effect to act as resonant hole for the electromagnetic waves in the diapason of ELF (Figure 5). The Schumann resonances are the main background in the electromagnetic specter (MacGorman & Rust, 1998). Furthermore, it is noted that they occur as particular picks as ELF around 7.83 Hz (fundamental) (Rusov, 2012), and 14.3, 20.8, 27.3 and 33.8 Hz (Montiel, et al., 2005).

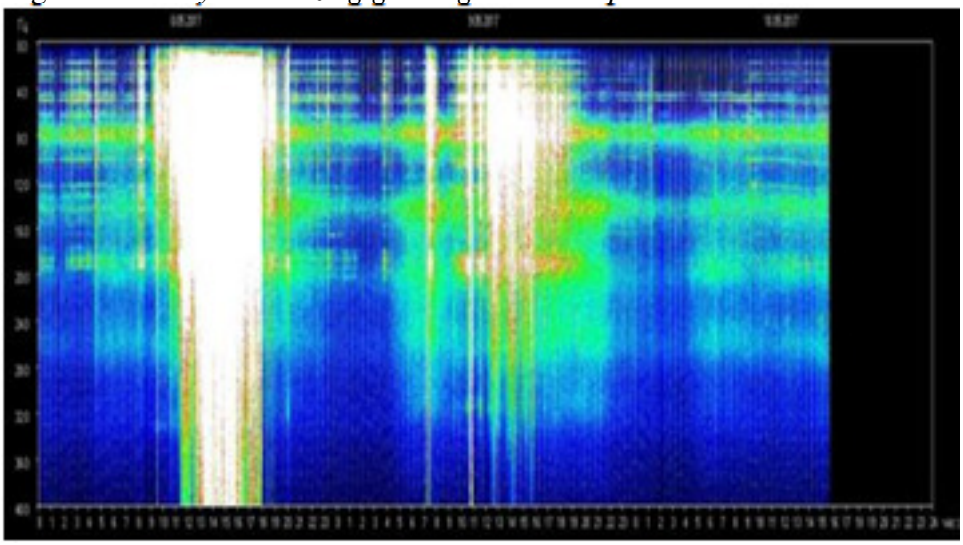
Figure 5: *Diagram of Schumann resonances in Earth's atmosphere*



Source: *Bashar Space-Time Antenna, https://basharspacetimeantenna.wordpress.com (11 January 2018)*

If people generally are in line with the natural Earth magnetic frequencies, means that any disturbance may reflect on their health. Some studies suggest that any de-synchronizing geomagnetic disruptions can interfere not only with sleep, mental equilibrium and energy levels, but also with brain, cardiovascular and autonomic nervous system function, circadian rhythm, hormonal secretions and reproduction (Figure 6).

Figure 6 : *De-synchronizing geomagnetic disruptions*



Source: *Eluxe Magazine, https://eluxemagazine.com, (4 February 2019).*

National strategies for tourism product growth

The National Tourism Strategy of Macedonia (Kohl & Partner, 2016), which contains an action plan 2016-2020, emphasizes that at the moment, the spa destinations around the mineral water springs are generally consisted of accommodation facilities of the hospital type, with places for conducting the medical treatments. Visitors of these centers are mostly Macedonian citizens, or Macedonian citizens who live abroad currently, with a certain illness, who want to improve their health condition.

The majority of the spa destinations are with limited attraction for those tourists that want to visit them for pleasure. Although the spa market and active vacations are growing in many European countries, due to the mega "health" trend, there are hardly any of such satisfactory tourism products currently available in Macedonia (National Strategy for Tourism - Republic of Macedonia, 2016: 45).

The development results are achieved through using opportunities, not by solving problems (Peter Drucker). The goal of tourist organizations is growth - in terms of product and tourist services sales, added value, profit, increased staffing and resources. One of the challenges that Macedonia is

facing with currently, is how to reduce the unemployment rate and boost employment. Some of the recommendations of the strategy for tourism development can facilitate this process (Serafimova, 2017), which further expends possibilities for economic development (Dambov et al., 2011 and 2017).

The growth of tourist organizations gives them vitality by providing challenges and rewards. In the following section, we present several alternative growth strategies that we believe may contribute to promoting this type of tourism product: growth of the permanent market (permanent product on a permanent market), product development (new product on a permanent market) and market development (permanent product on new markets).

a. Growth of the permanent market - Increasing the number of guests on the existing tourism market - enabling visits, stay and overnights of the existing thermal waters baths, spa centers, churches and monasteries, which are an ongoing product on the existing tourism market on the territory of Macedonia, through (Serafimova & Petrevska, 2015):

- Increasing their share of the existing market through advertising, reducing prices;
- Increasing the frequency of use, starting from the fact that permanent and frequent users are a "worthwhile target" that can effect marketing one-on-one;
- Increasing the frequency of use through insurance incentives, reducing the unwanted consequences of frequent use (if any);
- Finding new applications for existing users informing about the positive effect of the product with data on its impact among visitors who have already had experience with it; and
- Running planed informational campaign through communication for "reminding" and expert opinions of the medical staff, through awareness raising campaigns for tourism that will help to increase tourism profile and hospitality as a challenge as well as prosperous working environment.

b. Product development (new product on a permanent market) - Analysis of the measurements and their parameters and affirmation of those places, recognized as new products on the existing tourist market in Macedonia (Serafimova, 2017):

- Adding features to the listed tourism sites to expand the product line; and
- Developing a new generation of products, recognized through alternative medical approaches to certain existing health problems among visitors and providing exposure to influences due to a positive mental and physical feeling.

c. Development of new markets (a constant product on new markets) - The development of such tourism product on new markets outside Macedonia could be implemented through the following strategic approaches:

- Geographical spreading - "directing" of the new segments supported by arguments, would appear as information;
- Taking part of the market - an aggressive campaign with media presence, offering packages with promotional price;
- Increase of existing and used quantities of information, with the "recall/remind" approach (when and how the impact of this radiation was recognized, how people experienced it...);
- Establishing effective channels of distribution, linking geographical location with certain age or visitors issue;
- Preparing projects tailored to raising standardized parameters for use; and
- Removing unwanted consequences from using large amounts of incorrect information.

Conclusion

Having in mind that the therapeutic benefit of the electromagnetic field to the people's health, from the medical point of view is scientifically proven, the stated facts which are noticed by tourists and visitors very long time ago cause psychological, physiological, neurological, etc. influences, resulting in a sense of relaxation, positive energy, and revitalization. This means that these places can attract more visitors compared to the current number, if they are promoted as a recreational area that offers more than ordinary spa or wellness treatments, to which new dimension are added by the proposed strategic approaches. Thus, they are focused on a new a product that can result in overall satisfaction in an ambience full of harmonious energy vibrations.

This can be a good opportunity for further development of tourism in Macedonia, based on positive impulses from the nature and creation of certain negative impacts on the environment caused by tourism. Beside this, the innovative approach can lead to sustainable development, which will promote and offer a specific tourism product, accelerating development and innovation, which is more than necessary for future national development strategy.

Furthermore, tourism in Macedonia should be observed in broad, macroeconomic frames as specific market segment which dimensions and economic content comprehensively may be interpreted within the quantity and structure of tourism expenditure. That is the only way for creating analytical frame for identifying all tourism impacts, and thus, to define objectively its position within the global development strategy in Macedonia (Petrevska, 2011). Namely, part of the main reasons for insufficient development of tourism sector can be allocated in "unclear definition of development goals and adjusted development strategies" (Edgell, 2008). There is a lack of defining the development priorities, which is a basic element of development strategy of a country (Gunn, 1993; Hall, 2005). It is necessary to create an analytical frame for identifying tourism possibilities, and thus, to define objectively its position within the global development strategy in Macedonia. This will assist local, regional and national authorities in implementing appropriate medium- to long-term tourism development strategies.

Additionally, the paper highlights that tourism in Macedonia must have significant position in the overall development strategy being defined as a key opportunity for development. It underscores the need for continuous search for new aspects of tourism product as an important consideration to all tourism key-actors responsible for creating development strategies in Macedonia.

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