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# FROM GLOBAL EARTH MAGNETIC FIELD TO THERAPEUTIC EXPERIENCE: TOWARDS A THEORETICAL FRAMEWORK FOR DEVELOPING TOURISM PRODUCT

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## Abstract

*Beside the gravity, the magnetism is one of the fundamental properties of the Earth and it is native and fundamental to our planet's existence. Recently, an interest is paid to the biomagnetism as a special scientific field dealing with the influence of the global Earth's magnetic field on humans. So it became a diagnostic tool and a therapeutically procedure for many diseases, like: neuronal or cardiac diseases, trauma injuries, brain and heart miss functions and problems. Hence, large number of academicians argue that this global Earth influence could and should not be neglected. Some other, more specific studies focus on the so-called Schumann resonance magnetic field frequencies that exhibit some peculiar properties not only to human's environment, but also to human's behavior and wellbeing. The objective of the paper is to introduce some new insights and raise a discussion if the existence of such magnetic fields may be a reason why people feel more relaxed and healthier when visiting some recreational locations (like: tourist resorts, wellness, spa and recreation centers) and tourist attractions (like: churches, monasteries, geo-parks, etc.). So, the paper discusses that the recreational areas that are affected by the low-frequency electromagnetic fields and stream with high positive signals on human behavior and health conditions of tourists, visitors, and excursionists, may offer ultimate satisfaction in an ambient with positive and harmonious energy vibrations. Finally, the findings may assist in identifying new strategic dimensions for promoting new aspects of tourism product. Tourism along with the wellness industry, often relies on to the health-promoting atmospheres which may be related to many other medical practices, therapy interventions, holistic approaches, leisure pursuance leading to tourism destinations development.*

## Key words:

*Low frequency; Schumann resonance; Therapeutic effect; Tourism.*

## INTRODUCTION

The Earth is a very complex and multi-structured rocky type planet. Due to a geodynamo mechanism in the outer liquid and metallic Earth's core, the main part of the Earth's



magnetic field is known as the main field, or core field. Such flow is driven by buoyancy forces and influenced by the Earth's rotation and generates large electric currents that induce a magnetic field, compensating for the natural decay of the field over the space and time. Yet, the Earth's magnetic field is certainly not static, but varies dramatically over long periods of time. While the major source for Earth's magnetic field is the electric currents deep in the molten outer core of the Earth, the source of electromagnetic fields in the human body could be traced in the rhythmic heart activities. The heart is by far the largest electric generator in the body. It continuously pumps and creates a magnetic field around itself which goes way beyond the skin. It creates various signals, like electric, sound, pressure, heat, light, magnetic and electromagnetic. So, the human body is heavily influenced not only by the external but also by the internal magnetic field generated within the body, called biofield. The frequencies of biofields, particularly the so-called extreme low frequencies (ELF) of the pulsations range from 0.3-30 [Hz] are found to have positive therapeutical effects on humans.

When addressing tourism and leisure services, the health issue seems to be of great importance to everyone, regardless of the individuality in specific needs. So, rejuvenation, relaxation, detoxification and overall therapeutic mind-set, emerged as new exploratory aspects for initiating added-value tourism products of spa and wellness tourism. Some potential is found in the possibility to create a state of synchronization between positive emotions, cardiovascular, respiratory, immune and nervous systems, which are influenced by the Schumann resonance (SR) (Schumann, 1952).

Though SR literature is continuously growing, the issue of how the global Earth magnetic field may lead to therapeutic experience for tourists that visit tourist attractions with positive vibrations, is barely discussed. This paper attempts to fill this gap by proposing to initiate an identification of new frontiers, thus demonstrating the manner in which some areas have the potential to reflect the therapeutic benefit of the Earth's magnetic field on tourists. Besides offering a theoretical framework for perceiving new approaches in developing tourism product, the study adds to the current research on electromagnetic field radiation. With just few exceptions, (Cingoski, 2019; Petrevska & Popovski, 2019), to our best knowledge, no academicians have dealt with this topic in this manner.

## LITERATURE REVIEW

The electromagnetic frequency has effects on global coherence of living things, so the literature review commences with a discussion of the concept of positive paradigm and potential dynamics over tourism and leisure activities. The SR is vastly explored and the literature is continuously growing. It was detected by Balser and Wagner (1960) as a

spectrum of resonant electromagnetic waves in the extremely low-frequency range in the Earth-ionosphere cavity. Generally, the studies were focused on evaluating the characteristics of global lightning and thunderstorm activity (Nickolaenko et al., 2003; Nickolaenko, 1997; Nickolaenko & Hayakawa, 2002), monitoring the global upper-tropospheric water vapor changes (Price, 2000), and monitoring planetary temperature (Williams, 1992). Furthermore, Nickolaenko and Rabinowicz (1982) used the SR in the exploration of the electrical activity and lower ionosphere parameters on celestial bodies.

## SR AND THERAPEUTIC BENEFITS

The literature contains a large body of work exploring the effects of the Earth magnetic field on all living beings, including humans in their natural environment. Figure 1 clearly shows the presence of the SR by forming distinct peaks starting around the fundamental frequency of 7.8[Hz] with higher harmonic components at 14, 20, 26, 33, 39 and 45[Hz].

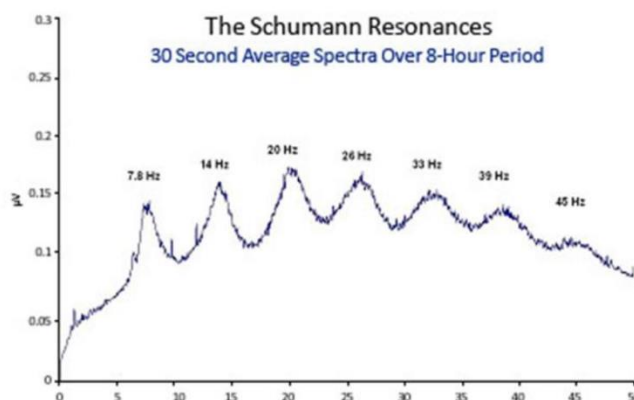


FIGURE 1. SCHUMANN RESONANCE

Source: Edwards. (2015).

As noted by McCraty et al., (2012), and McCraty and Deyhle (2015) this directly overlaps with the central nervous system alpha wave bandwidth which is associated with the psychophysiological coherence of 0.1[Hz], the approximate 10-second cycle of ocean waves and the hypothetical resonant frequency of the Earth. Furthermore, Brizhik et al., 2009 discuss the postulation of feedback loops between all living systems and the Earth's magnetic field, enabling encoded information to be communicated non-locally between people at a subconscious level. In the same line, Lynch (2014), McCraty (2003) and Rosch (2014) argue that the presence of electromagnetic interactions within and between people have vast implications for interpersonal communication, psychotherapy, healing, and future related research and praxis, which have hardly been tapped.

It was noted that during the long evolution phase, the human brain adjusted its normal activity to the most intrinsic Earth-based frequencies (the Schumann resonance and the Earth's core frequencies), and actively interacts with them. In case of their obstruction or





limitations, problems might occur with the normal human's brain activity leading to neurological disorders and decesses, such as disruption of melatonin synthesis, decrease in self-confidence and working ability, especially during the autumn and spring periods, depression and especially, manic-depressive illness, enhanced anxiety and sleep disturbances (Ward & Henshaw, 2016), Alzheimer's, Parkinson's, or Huntington's deceases (Gubbins & Herrero-Bervera, 2007), and even increased number of suicides (Ward & Henshaw, 2016; Brahic, 2008).

Petrevska and Popovski (2019) found a significant presence of the basic pulsation of the SR along with other positive harmonics when assessed a spa center. They confirm the presence of positive therapeutic effects, whereas the frequencies around 7-8[Hz] support the bone growth, frequencies around 10[Hz] support the ligament healing, while the frequencies around 15[Hz] are in favor for capillary formation, fibroblast proliferation and decrease skin necrosis (Human frequency blog b, 2019). Such variety of positive effects derived from the ELF highlights the possibility to identify and promote locations where people visit to seek leisure, wellness or health (Morita et al., 2006) and feel more relaxed, with a rejuvenated body and empowered brain and heart activity, leading to general improvement of their wellbeing.

The presence of SR at specific locations provoke positive physiological actions to the health and wellbeing through nature experiences, in the line of additional involving of the five human senses exposures (sight, smell, hearing, taste, and touch) (Lazzerini et al., 2018). Hence, as of early 1900s, many recreational environments detected their biological benefits and therapeutic potential (Kinne, 1997) and applied health resort programs and concepts (Linning, 2007; Roubal et al., 2017). So, along the 'basic tourism product', many recreational areas that stream SR signals may form an initial point for additional development of tourism attractions and destinations, based on the positive impulses of the nature. By such, a specific tourism product with zero seasonality and no negative effects to the environment may be promoted. In addition to the traditional recreational packages, the new approach may include prompt hope to the natural, historic and cultural heritage preservation, along with the health-inducing: life quality, welfare (mood, performance, relaxes, detox), medicine indications (metabolism, respiratory and circulatory systems), elderly care and chronic diseases treatments. Slowly, the awareness of the natural healing option rises, so it is a case when recreational facilities offer to sleep in magnetic beds, or the case when the souvenir shops sell small magnetic objects for energy, preventive purposes, and healing.



## **CONCLUSION**

The Schumann resonance is a global level important discovery that Earth produces natural electromagnetic waves in the extremely low frequency of 7.83[Hz]. It spreads a signal that positively or negatively affects all living beings, including humans in their natural environment. The research discussed some impacts that this resonance may have over tourists and visitors that visit or prospectively intend to visit different tourist locations. It was pointed over, the paper argues that some attractions with tourism motives (like churches, monasteries, spas, mines, geo-tourist locations, etc.) may benefit from such perception if being promoted as locations that offer therapeutic experience. From a scientific point of view, the paper offers the possibility to perceive some effects of the Schumann resonance on tourists, visitors and excursionists from different approaches (psychological, neurological, physiological, etc.), with a focus on the therapeutic benefits. From a practical point of view, the findings may assist in identifying new frontiers and strategic dimensions for promoting new aspects for developing tourism product based on positive and harmonious energy vibrations in tourism locations.

## **LIMITATION AND FUTURE WORK**

The research has many open issues that may serve as productive starting points for future work to be addressed. The most profound is the lack of substantial accurate measurements on sampled locations in order to assess signal impulses, along with numerous repetitions to purify the data from magnetic storms and sub-storms, electric discharges and thunderstorms that may occasionally appear.

The limitations, however, do not diminish the significance of the findings, but they rather suggest some broad directions for further research. Notwithstanding the difficulties, this article assists in a better understanding of the distribution of the magnetic field signals, dispersion and potential positive effects on tourists and visitors. Overall, the research generates useful findings and points to valuable directions for further work.

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