Scientific tourism – Tourism in Science or Science in Tourism?

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ABSTRACT

This article is focused on a relatively new phenomenon called Scientific Tourism. What is meant by this term? What can we expect? The answers of this question are discussed in the following article. Paper offers a variety of perspectives and definitions, as well as its possible use in practice.

Key words: Scientific tourism, CERN

INTRODUCTION

The name Scientific Tourism means something for a person who works in the area of tourism and something else for an amateur. Our research in the amateur area showed us the wide opinion field. People said scientific tourism was: a hiking group of scientists. exploring scientists, professionals working in the other subject fields and laboratories, a self – paid astronaut on the orbit of the Earth, tourists in general. Even if some of the answers were meant ironically, it can't be said we disagree with some of them.

ANALYSIS OF THE PROBLEMS

There are a lot of different opinions about the definition of "scientific tourism" in the professional sphere. The name Scientific Tourism was seen in literature for the first time in 1980. It was in the work Tropical Science and Tourism. Scientific tourism was described here as a work of the explorers in the country without proper technical equipment [1].

West says Scientific Tourism is a specific form of tourism related to scientific practice. The results of that are the benefits also for tourism. These benefits are the articles in various popular scientific magazines. A lot of definitions of the scientific tourism can be found in J. H. Laing's work "Science tourism: exploring the potencial for astrobiology funding and outreach." Her opinion is that successful scientific tourism contains all of the attributes of the tourism and moreover it requires a human factor and technical equipment of the high level [2].

In the article Developing scientific tourism in Russia [3] this name is related to the knowledge tourism of young people mostly who get knowledge and skills without any big financial expenses. The similar opinion is publicized by the work Vedecký turizmus ako jedna s foriem cestovného ruchu v krajine Slovenska (Scientific tourism as a form of tourist traffic in Slovakia) written by M. Pichlerová [4]. She is a representative of The centre of the Scientific Tourism, ÚEL SAV Zvolen. She thinks the basis of scientific tourism is satisfying educational, cultural and relaxing needs of the group of people who are interested in the same thing. The main parts of scientific tourism are excursions led by the expert in the specific field. Some seminars together with various audio - visual media can be included as well. It is seen that a lot of professional scientists who are well-known all over the world are interested in scientific tourism. Their targets are modern scientific centres but not in the professional fields where they work. They want to know the methods and technical equipment to enrich their educational potention in case to use it for their primary scientific discipline. So sometimes physicists become biologists for a short time, doctors become astrologists or paleontologists and technicians change to physicists. It is obvious that in this group of people we can meet some students and laics who come because they are curious and they leave with a lot of obtained information that is used later in their practice.

Scientific tourists use common tourist infrastructure (hotels, catering establishment, transport, cultural performances, relaxation centres) plus they use the most modern audio-visual technique for seminars and experiment as much as they can.

RESULTS

Scientific tourism is very attractive part of tourism and it is considered to be the most developing area together with dark tourism.

To be successful in this business it is important to choose and to offer attractive destinations. It is generally true that the most attractive are "superlatives": the lowest temperature, the highest energy, the oldest tree... The following destinations were chosen:

First example

• The highest energy in the world (7 GeV) is in the largest laboratory worldwide CERN in Geneva - European Organization for Nuclear Research

The European Organization for Nuclear Research known as CERN, is the world's largest particle physics laboratory, situated in the northwest suburbs of Geneva on the Franco–Swiss borde. The organization has twenty European member states, and is currently the workplace of approximately 2,600 full-time employees, as well as some 7,931 scientists and engineers.

The convention establishing CERN was ratified on 29 September 1954 by 11 countries in Western Europe. There are currently twenty member countries, 18 of which are also EU.

CERN operates a network of six accelerators and a decelerator. Each machine in the chain increases the energy of particle beams before delivering them to experiments or to the next more powerful accelerator. Most of the activities at CERN are currently directed towards building a new collider, the Large Hadron Collider (LHC) and the experiments for it. The LHC represents large-scale, worldwide a scientific cooperation project.

The LHC tunnel is located 100 metres underground, in the region between the Geneva airport and the nearby Jura mountains. It uses the 27 km circumference circular tunnel previously occupied by LEP which was closed down in November 2000. CERN's existing PS/SPS accelerator complexes will be used to pre-accelerate protons which will then be injected into the LHC.

This accelerator will generate vast quantities of computer data, which CERN will stream to laboratories around the world for distributed processing (making use of a specialised grid infrastructure, the LHC Computing Grid)

CERN's main function is to provide the particle accelerators and other infrastructure needed for high-energy physics research. experiments have Numerous been constructed at CERN by international collaborations to make use of them. It is also noted for being the birthplace of the World Wide Web. The main site at Meyrin also has a large computer centre containing very powerful data processing facilities primarily for experimental data analysis, and because of the need to make them available to researchers elsewhere, has historically been (and continues to be) a major wide area networking hub.

Facilities at CERN open to the public and



Fig. 1. Map of the Large Hadron Collider together with the Super Proton Synchrotron at CERN, Source: [5].



Fig. 2 CERN - LHC tunnel, Source: [5]

scientists. History, present and future shows Microcosm - museum of particle physics, located at CERN.

Second example

• One of the lowest temperature was measured in The Centre of Excellence in Kosice that The Institute of Experimental Physics SAS and Faculty of Science UPJŠ established. The Institute of Experimental Physics SAS in Košice was established on January 1, 1969. Its research activities are devoted to condensed-matter physics, nuclear and subnuclear physics, space physics and biophysics. Department of Low Temperature Physics is in P. J. Šafárik University area with component part The Centre of Excellence

The characteristics of space may also be



Fig. 3 Interactive exhibit in Microcosm CERN, Photo by: Molokáč [6]



Fig. 4 Scientific tourists in CERN, Photo by: Molokáč [6]

explored indirectly in the laboratory at ultra-low temperatures (below 1 mK), for example when the rare isotope ³He turns superliquid. In such a macroscopic quantum system, we can realistically simulate and

observe for instance turbulences and fluctuations of the physical vacuum, phenomena associated with the black-hole event horizon, symmetry breaking after the Big Bang, or the phenomena inside neutron



Fig. 5 The Coldest place in Central Europe, Source: [7].

stars. Ultra-low temperatures also provide suitable conditions for the experimental study of quantum bits – qubits produced either directly in superliquid ³He or based on nano-SQUIDs. Besides extremely low temperatures and high magnetic fields the Department concentrates on research into strongly correlated systems at extremely high pressures (up to about 10 GPa) when unexpected properties are observed. Most recently the Department has concentrated its research on the study of reduceddimension materials.

Third example

• Mr. Daubner introduces some examples in the area of nature – "Svetove zemepisne rekordy" (The Geographical records in the world) [8].

CONCLUSION

It is just a beginning of exploring the area of nature. The question "Scientific tourism – Tourism in Science or Science in Tourism?" doesn't have the clear answer but the authors incline to the statement "Tourism in Science".

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