Vojtech

Culture pure and nature impure?: Construction of symbolic boundaries among Gypsies in Slovakia

There has been an ongoing debate in contemporary anthropology is whether and to what extent it is meaningful to separate categories such as nature and culture. An insight into Romany/Gypsy settlements in the region of Spiš in central Slovakia reveals interesting empirical data – not only because of that till now the question of the relationship between Gypsies and nature has not been virtually discussed. This study draws on the field research that took place between 2007 and 2011. It was conducted over approximately four weeks in six settlements where Gypsies traditionally live. The outcomes of the field research compared to scholarly literature indicate that the concept of defining boundaries with majority and ritual impurity may be relevant for the relationship of local gypsies to their natural environment. Moreover, it implies that there are numerous similarities in the relationship between Gypsies and the majority and between Gypsies and nature. Text considers the traditional nature–culture dichotomy and concludes that other dichotomies such as wild/domesticated or the chaos/cosmos and physis/nomos divisions of ancient Greece thinking might be more relevant. Text also makes clear connection between the system of ritual impurity and defining boundaries against the wild/unknown. Study finds culturally specific features in relation to nature in two areas: in markedly non-agricultural nature of Gypsy way of life and in defining boundaries between the pure and the impure (considering nature as an abstract principle). Study identifies key areas where this delimitation takes place, to describe the nature of construction of symbolic boundaries and to find out which aspects are specific for Gypsies in Spiš. Finally, the research concludes that at least seven dimensions are relevant for considering: spatial distribution, relationship to the woods, night, animals, women, corporeality and flowers.

Frantisek

ABSTRACT

Classic Title: **Complex Geophysical Survey of the locality Ledové sluje (Ice Caves) in Podyjí National Park**

Alternative Title: **Subsurface Mystery of Ice Caves in Podyjí National Park**

Ledové sluje (Ice Caves) are counted among unique landforms in Podyjí National Park in the Czech Republic. There is an extensive system of pseudokarst caves and block fields developed from rock slides on the North Western slope of the locality. This area has been known since the middle of the 19th century, but the mechanism of the genesis is still not fully known. The theories have involved complex processes such as the Dyje River lateral erosion, tectonic effects or faults, and trigger events such as earthquakes. The theories were based on geological, geomorphological spelaeologistical researches and on geophysical test surveys (Pospíšil, 1996).

The new complex geophysical survey will be described in this assignment/report/essay. The measurements have been made by employing the following methods: Georadar (GPR pulseEKKO PRO) and 2D Multi-Electrode Resistivity and IP Tomography. The GPR data postprocessing contain advanced corrections, including time-depth conversion with 2D velocity model. The subsurface images have been integrated in a detailed terrain model derived from a laser scanner station and also matched with cave maps.

The results indicate new fault with high significance to relief development. Second, the new possible place of pseudokarst caves is determinated. Third, alluvial deposits of the Dyje River are found under the rockslide (could change a question of age of the Dyje valley). The clarification of the entire spatial situation is done by using a 3D model with terrain and subsurface layers.

Jitka

CONCEPTUAL/THEORETICAL PAPER

Service Lifecycle according SSME

Abstract

Service Lifecycle belongs to several unexplored and undescribed terms in the SSME field. In contrast of the definition of the service system, the service characteristic and service system lifecycle, an indepth study of the service lifecycle is regarded as incomplete/lacking. This theoretical paper aims to make an attempt to fill the gap.

First, background of SSME is briefly presented. The transition from Goods-dominant Logic to Service-dominant logic and SSME changed not only the economical view but lay emphasis on the service lifecycle instead of product lifecycle. Subsequently, early service lifecycle diagrams has appeared, each being distinctive and from different areas. The following questions concerning lifecycles are addressed in this paper: Does the ITIL service lifecycle cover every service area? Is it possibile to describe every service lifecycle according to the Deming cycle? Is the service lifecycle the same as product lifecycle?

Second, answers to these questions are presented by making a comparison and analysis of the known lifecycles. The analysis has referred to as a common characteristic of the service lifecycle and has revealed the cyclic paradigm as a suitable pattern.

Finally, the general diagram of service lifecycle is described and is used for further discussion.

Keywords: service science, service lifecycle, SSME

Josef

Title and abstract of thesis:

Liposome-based vaccine delivery systems

Since the first experiments of vaccination of human beings conducted by Edward Jenner against smallpox, a huge effort to achieve an effective vaccination strategy has been developed and a considerable extent of knowledge in the fields of vaccination and immunology has been investigated. Vaccination is defined as a process by whichthe vaccine stimulates the immune system against a pathogen. A susbtantial number of vaccination strategies have been developed during past decades. The first generation of vaccines contained inactivated or attenuated whole cells of a pathogen, whereas the recent ones are based on sophisticated delivery systems that carry subunit proteins.

In contemporary practice, safety of vaccination is extensively emphasised. Thereby, any subunit protein vaccines that lack even potentially dangerous whole pathogens are preferred. Unfortunately, these types of vaccine do not sufficiently stimulate the immune system until after the addition of other components that instructing the immune system to generate a strong response against the antigen. Moreover, it has recently been shown that activation of specific type of immune response to a certain pathogen is necessary to protect against disease. It is an big challenge to develop new vaccine delivery systems covering issues of not only effectiveness and safety but also economic cost-benefit.

Recently developed antigen delivery systems are based on biodegradable polymer microspheres, such as poly(lactic-*co*-glycolic acid) or chitosan, micelles and liposomes. Liposomes are very promising for antigen delivery due to their versatility, biocompatibility and capacity to carry several active compounds together. This allows for a synergistic effect of all components to occur.

It was found, that liposomal surface-bound antigens combined with lipophilic derivatives of muramyldipeptide is suitable for the induction of a strong Th1 type immune response in mice. Importantly, no pyrogenicity in rabbits was measured. *In-vitro* tests confirmed the activation of dendritic cells that initiate immune response.

The strategy of vaccination is one of the most promising approaches preventing people from infectious and parasitic diseases, which is hoped to fight against major killer diseases of the world such as malaria, HIV and cancer.

Nicole

Macroalgal shifts on Lakshadweep atolls: herbivore size and environmental factors

Coral-macroalgal phase shifts have received considerable attention. Studies, however, often suggest that we do not yet thoroughly understand the process. We studied the herbivory and phase shift relationships on Lakshadweep islands, where fish populations are untouched by fishermen. The study explores how these relationships differ among different parts of the reef and how different sized herbivore groups may play different roles in the coral-macroalgal balance, as larger herbivore fish are thought to play major role in keeping reefs in coral-dominant stage.

We experimentally manipulated herbivore density on Agatti Atoll using exclusion cages of two mesh sizes. One excluded all fish and urchins; the other excluded only large fish. Both cages (40x40x20 cm) with controls, were installed on 24 sites. These were grouped as follows: A) closer to the reef crest, B) closer to the lagoon. The sites were situated along the reef starting from the lagoon's main channel moving further onwards along a gradient of water current.

After five months, macroalgae in small-mesh cages settled at 11.3 mm height with 100% coverage; however, the big-mesh cages underwent no significant change (height 2 mm, 52% coverage). There was also significant difference in algae growth between sites A and B, and along the gradient, suggesting that the decline of herbivores may have different impacts under different environmental conditions. Our results indicate that the importance of small herbivores may have been considerably underestimated and suggest that the mechanisms of coral-macroalgal phase shifts may be more complicated and site-specific than earlier thought.

Anna

Introduction

The atmosphere is the dominant medium for mercury transportation in the environment. When the mercury is released in atmosphere, it becomes a subject of various physical, chemical and photochemical processes and interactions. Important characterisation that distinguishes mercury from other elements in atmosphere, is its ability of re-emission into the atmosphere again after retention in the soil [1-3].

Atmospheric mercury exists primarily in three forms: The predominant form in the ambient air is a Gaseous Elemental Mercury Hg^0 (GEM). GEM comprises over 95% of total gaseous mercury [3,4]. In the atmosphere, Hg^0 may be oxidised by ozone, alkyl peroxides, radicals, peroxides and halogens to Hg^{2+} compounds, commonly including $HgCl_2$, $Hg(OH)_2$ and $HgBr_2$. Oxidised mercury compounds are called Reactive Gaseous Mercury (RGM), usually defined as the gas phase mercury compounds that can be collected with potassium chloride sorbent [3]. Mercury associated with Particulate Matter (PM) is called particulate-phase mercury Hg(p). This Hg(p) is not the major form of mercury emitted directly to the atmosphere, but it is often formed through adsorption or partition of gaseous mercury or its compounds on the particle surface [4].

Some fly ashes may capture mercury which would otherwise be emitted into the atmosphere. Immense attention has been paid to the capture of mercury from unburned fly ash carbons. Fly ashes capture different species of mercury depending on their nature and the type of anisotropic particles, or on the type of unburned carbon [5,6]. Rudimentary particles are important in the mercury transformation system and are emitted by the combustion of fossil fuels. There is a lot of Hg(p) associated with extremely fine particles of elemental carbon, mostly <2 μm, due to its adsorbing capabilities [4,7]. Amount of adsorbed elemental mercury on particles does not merit much importance, but 2 to 35% of Hg compounds (mainly $HgCl_2$, $Hg(OH)_2$, Hg_2Cl_2, $HgBr_2$, $HgSO_4$, CH_3HgCl and $(CH_3)_2Hg$) may be absorbed [8]. Another mercury compounds associated with particles are HgS and HgO. Due to their insolubility, they occur in the solid phase [4,8]. Compounds are deposited through different ways and due to their different physical and chemical properties, they play a different role in the mercury cycle and its impact on the environment [4]. Ash particles also act as catalytic sites for oxidation and reduction reactions of mercury (e.g. photolytic reduction of Hg(II) to Hg^0) [8,9].

Most of atmospheric aerosol mass is comprised of SO_4^{2-}, NO_3^-, NH_4^+ and H^+, organic matter (quarrels, pollen, viruses, bacteria), earth crust material (weathered soil, dust), water, and marine salt. Fine-particle aerosol contains significant amount of carbon (elemental and organic) and some transitional metals [5].

In this paper, the characterisation of mercury forms in urban PM samples were studied. Dust samples were collected in four localities with high traffic density in Prague, samples were homogenised and the PKC sample was sieved into three particle size samples (see 2.1.). To assess the distribution of mercury species in particles, the extraction method according to Wang [10] was applied. Wang´s method was developed for the understanding of accumulation and transformation of mercury species in soils in relation to the deposition of atmospheric mercury. To obtain the Hg portion bound to sulphides, the procedure of sequential extractions was modified according to Fernández-Martínez [11]. It consists from two stages: the first one is based on a nitric acid leaching, and in a second stage saturated solution of sodium sulphide is used for HgS extraction to form the soluble Hg polysulphides [11]. Beside sequential extractions a thermal desorption method was utilised for the thermal mercury release. An adsorption of elemental mercury on the particles surface

was also studied.

Marketa

Nationalism and political parties in Romania and Bulgaria: nationalist ideas (not only) for radical right[1]

Abstract

The paper examines the scope and role of nationalism in the current party politics in Romania and Bulgaria. Some studies have dealt with nationalism in Central and Eastern Europe (CEE) mostly only between radical or extreme right parties. Therefore, this paper focuses on all relevant political parties (PP) to receive complex information about the role of nationalism. It aims to demonstrate the importance of nationalist rhetoric for political parties in the electoral competition (party programmes) of PP and political discourse (debate) in party systems (PS). The mixed qualitative research methods are applied for these two levels. In order to ascertain the nationalist position of the party programmes the content/text analysis is used. The political debate is explored by a discursive analysis of the respective leader's proclamations and through interviews. Based on the concept of "political opportunities structure" it is assumed that this paper illustrates/confirms different levels of nationalist rhetoric employed in the current politics in the countries with the same initial condition. We verify our theoretical assumption about the presence of minorities and the legacy of communism that opened the space for nationalist topics and rhetoric to be strongly presented on the political scene. The analysis shows the high level of importance of nationalism among all political parties in party competition and party systems of Romania and Bulgaria. It may be concluded that it most likely influenced by the previous regime but it would need additional analysis of the reasons for that particular situation.

[1] The title and abstract of paper for academic journal. Paper is currently in progress, up to now with preliminary results.

Belma

Docosahexaenoic acid is a promising agent sensitizing colon cancer cells to TRAILinduced apoptosis

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Polynsaturated Fatty acids (PUFAs) have been shown to influence the development of colorectal cancer. Docosahexaenoic Acid (DHA) is a PUFA of n-3 series, with unique abilities that allow it to affect diverse physiological processes, including cell membrane function and different cell signalling pathways, thus providing protection against various human diseases. It is also documented that DHA can modulate events that are associated with induction of apoptosis in cancer cells. We hypothesized that DHA exerts beneficial effects in sensitizing colon cancer cells to apoptosis induced by TRAIL (Tumor Necrosis Factor-Related Apoptosis Inducing Ligand).

TRAIL is a tumor necrosis factor family cytokine which selectively induces apoptosis in cancer cells while sparing normal cells. Because of these unique selective effects, it is considered as a promising anticancer agent. However, some cancer cells, including colon cells, are resistant to TRAIL-induced apoptosis. Here we showed that DHA can stimulate TRAIL-induced apoptosis in colon cancer cells, which was accompanied by the enhanced activation of caspases-8 and -3, and the cleavage of caspase substrates. At the same time, caspase-2 and -10 remained unaffected. We also demonstrated an important role of mitochondrial apoptotic pathway in the effects observed, and bring evidence of potent stimulation of proapoptotic Bcl- 2 family proteins, such as Bax and Bak, following combined treatments. A significant down-regulation of selected inhibitor of apoptosis proteins (IAPs) was also observed in the cells treated with DHA and TRAIL. While pre-treatment with physiologically relevant concentrations of DHA followed by subsequent treatment with TRAIL induced apoptosis in several different colon cancer cell lines, it was not harmful to normal colon epithelial cells.

This supports the selective cytotoxic effects of the interesting drug combination on colon cancer cells. Our research highlights an important role of DHA in the modulation of colon cancer sensitivity to TRAIL-induced apoptosis.

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Jan

In the authorship identification problem, there are given examples of short writings of N authors and an anonymous document written by one of these N authors. The task is to determine the authorship of the anonymous text. This problem is predominantly solved with machine learning methods. The properties of individual documents, such as words or n-grams, or a similarity between document and author, are mainly used as attributes for the machine learning.

An experiment was conducted to extend attributes by the ranking of similarity between a document and an author: transform the similarity between the unknown document and one of the N authors to the order in which the author is the most similar to the document in the set of the N authors. The comparison of the similarity probability and the similarity ranking was made using Support Vector Machines algorithm. Results showed that machine learning methods perform slightly better with attributes based on the ranking of similarity than with previously used similarity of an author and a document.

Petra

Abstract of poster presentation

Title: Polycyclic aromatic hydrocarbons and endocrine disruption: the role of junctional intercellular communication

Petra Kubincova[1], Jiri Novak[1], Aneta Dydowiczova[1], and Iva Sovadinova[1]

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The male reproductive function in animals and humans is considered to be system highly sensitive to many chemicals and physical agents. They are especially generated by industrial or agricultural activities. Recently, many worrying trends have been observed in male fertility, such as decreasing sperm counts, deteriorating semen quality or increasing frequencies of malformations of the testis and incidence of testicular cancer. Endocrine-disrupting Chemicals (EDCs) are discussed as a possible cause of these adverse trends in the male reproductive health.

There is a strong evidence, in estrogen- and androgen-mediated processes, that testicular cell-to-cell communication mediated by gap junctions, termed Gap Junctional Intracellular Communication (GJIC), is involved in important testicular pathways. Thus, untimely inhibition of GJIC during critical stages may result in male reproductive dysfunction leading to infertility. Many chemicals known to be EDCs modulate GJIC in gonadal or non-gonadal cells. However, there is limited information on the detailed role of GJIC in adverse reproductive effects caused by specific EDCs.

Recent studies indicate that anthropogenic air pollutants can possibly impair reproduction of human and wildlife. This study addresses an endocrine-disrupting potential of air pollution as a source of compounds altering male fertility. The inhibition of GJIC by PAHs and air samples was measured in testicular cells in this experiment, in order to determine whether PAHs may cause endocrine disruptive effects through the closure of gap junction channels.

The research was supported by the SoMoPro project number 2SGA2764 (funded from the European Community within the Seventh Framework Programme (FP/2007-2013) under Grant Agreement No. 229603 and co-financed by the South Moravian Region) and by the Brno PhD Talent Financial Aid from Statutory city of Brno to Petra Kubincova.

Helena

3D Models and their use for Urban Climate Modelling - Annotation

The thesis gives general overview of methods of creation and use of 3D urban models including urban climate applications. Practical analysis of a 3D urban model of a part of the city of Brno has been carried out. The main task of this thesis is to complete the database of the 3D building model with data needed to determinate the parameters for the study of spatial differentiation of thermal urban environments. The parameters under study describe partly built-up areas and partly natural conditions of the study area. Comparison of the acquired parameters with a land surface temperature map and computation of correlation indices is included. The thesis proves that orography is a dominating factor that influences the thermal conditions of Brno, and that other characteristics are of minor importance.

Lucie

The UN Security Council Resolution 1267 (1999) and Following: Obstinate Fight of the UN against International Terrorism

(Abstract)

For the last 10 years many attacks conducted by Al-Qaida terrorists have been witnessed as well as the measures adopted in trying to avoid them. One of the most important actors in this field, acting on the international level, is the United Nations. This organization has adopted through its body - the Security Council - many resolutions dealing with the issue.

The submitted contribution monitors UNSC resolution 1267 (1999) and the related resolutions that have ensued ever since, focusing on the process of the listing and delisting of the alleged Al-Qaida terrorists. Further, the paper highlights the problematic issues of the processes with regard to the right to a fair trial of every individual. Finally, it shows that even after the creation of the Office of the Ombudsperson that was meant to ensure independence and impartiality, the processes are still not in accordance with the right to a fair trial.