THE 2ND INTERNATIONAL CONFERENCE
GEOGRAPHICAL SCIENCES
AND FUTURE OF EARTH
12 November 2021

University of Bucharest, Faculty of Geography

Department of Geomorphology, Pedology, Geomatics

THE 2ND INTERNATIONAL CONFERENCE: GEOGRAPHICAL SCIENCES AND FUTURE OF EARTH,

12 November 2021

– Abstract Book –

Bucharest, Romania

Editors

Răzvan-Constantin Oprea

Andreea Marin

Marius Budileanu

Marina Vîrghileanu

Răzvan Popescu

THE 2ND INTERNATIONAL CONFERENCE: GEOGRAPHICAL SCIENCES AND FUTURE OF EARTH,

12 November

– Abstract Book –

University of Bucharest, Faculty of Geography

Department of Geomorphology, Pedology, Geomatics

Scientific committee

Dr. Iuliana ARMAȘ, Professor
Dr. Georgeta BANDOC, Professor
Dr. Mihai BOGDAN, Professor
Dr. Laura COMANESCU, Professor
Dr. Liliana DUMITRACHE, Professor
Dr. Marian ENE, Professor Assoc.
Dr. Cristian IOJA, Professor
Dr. Alexandru NEDELEA, Professor
Dr. Mihai Razvan NIȚĂ, Professor Assoc.
Dr. Constantin-Răzvan OPREA, Professor Assoc.
Dr. Daniel PEPTENATU, Professor
Dr. Ionuț SĂVULESCU, Professor Assoc.
Dr. Bogdan SUDITU, Professor Assoc.
Dr. Adrian TISCOVSCHI, Professor Assoc.

Organizing committee

Constantin-Răzvan OPREA
Laura COMĂNESCU
Alexandru NEDELEA
Iuliana ARMAȘ
Mihai BOGDAN
Ionuț SĂVULESCU
Marian ENE
Robert DOBRE
Octavian COCOȘ
Gabriela OSACI-COSTACHE
Traian DEMETER
Cornel TUDOSE
Iulian SĂNDULACHE
Florina TATU
Mihaela VERGA
Constantin NISTOR
Florin ACHIM
Ionuț OVEJANU
Andreea TOPÂRCEANU ANDRA
Anca MUNTEANU
Marius BUDILEANU
Diana POPOVICI
Răzvan POPESCU
Marina VÎRGHILEANU
Andreea MARIN
Mihail DUMITRACHE

Mihaela GHEORGHE
Sorin CARABLAISĂ

Conference secretariat

Marius BUDILEANU
Andreea MARIN
Răzvan POPESCU
Diana POPOVICI
Marina VÎRGHILEANU
Luminița SĂFTOIU

Contact:
University of Bucharest
Faculty of Geography
Tel: 021.305.38.31
E-mail: info@geoearth.info

112, what is your emergency? I called about an animal!

Mihai Pop[1], Viorel Popescu[1], Cristian Iojă[1]
[1]Centre for Environmental Research and Impact Studies, University of Bucharest
mihai.pop@drd.unibuc.ro

Quantifying and describing human wildlife interactions at large scale is challenging due to the individual level at which they occur. One context allows data collection, namely the stress situation on which a person might ask for authorities support by calling 112, the emergency phone number. We obtained from the National Emergency Call Centre a data base consisting in 22,450 calls for the period 2015-2020 at national level, from which we selected 4,601 emergency calls related to 319 urban spaces (cities and municipalities) from Romania. We considered this data as an indicator of human wildlife interactions. For the urban space calls the main species that were object of the calls were roe deer (Capreolus capreolus) and brown bears (Ursus arctos). Other species were the wild boar (Sus scrofa), red fox (Vulpes vulpes), red deer (Cervus elaphus) and undetermined snake species. For 319 urban space we analyse the landscape context in order to determine the ecological factors influencing the number of human wildlife interaction described by the number of calls at 112. The results showed a increasing trend of calls, most of them related to bears and reed dear, on both contexts human in danger or animal in danger. The preliminary interpretation of the landscape factors using mixed models suggest that in the case of the brown bears, wild boar, fox and snakes landscape factors like the surface of urban green space and the naturalness of habitats in the proximity of the urban space have an influence on the numbers of calls, while for red deer and roe deer, landscape plays no role. The significant difference between the number of calls from different cities suggest that local context cannot be extrapolated at national level and social factors might play the most important role when analysing specific situation of human wildlife interactions.

A new method of sea level reconstruction based on particle size analysis of beach ridge plains

Ionel Bogdan Stan, Alfred Vespremeanu-Stroe, Luminita Preoteasa, Denisa Gabriela-Ungureanu, Laurentiu Tutuianu, Mihaela Dobre, Alexandru Berbecariu
Faculty of Geography, University of Bucharest
ionel.stan@s.unibuc.ro

In the current climate change conditions leading to accelerating sea level rise, it has become extremely important to understand the transformation of the coastal environment under the impact of aggressive eustatic, with a focus on the response of the lower coasts and especially deltas that are the most vulnerable coastal regions.

In order to be able to model and anticipate the effects of current eustatic, it is critical to know better (in more detail and more accurately) the evolution of sea level in the recent past, respectively in the Holocene, as well as the associated landscape changes.

The methodologies that determine the paleo-sea level currently use various level indicators, Sea Level Index Points (SLIP), but which remain extremely few, such as: (a) basal peat (supposed to form in lagoons and swamps whose substrate is very close to average sea level), (b) biological indicators (those species of foraminifera that support only very shallow depths or that live at known depths + species associated with seaports from different historical periods), (c) speleothems (which cannot directly quantify sea level, but may indicate a maximum level below which the sea surface was during their formation), (d) archaeological sources, (e) marine paleo-terraces. That is why it is necessary to improve the accuracy of these indicators, but also to develop new ones.

Our previous studies on the beach ridge plains of the Danube Delta (Preoteasa and Vespremeanu-Stroe, 2010; Vespremeanu-Stroe et al., 2016) showed that there is a definite link between the average sea level and the distribution of textural parameters (average-size, sorting, asymmetry and flattening) in sediments in the foreshore system, especially on the beach face. In the present study, we deepened this finding and took new vertical profiles (13) from beach ridge plains using an auger probe to describe the vertical distribution of textural parameters and to capture those indicators or changes that would could be attributed to the presence of SLIPs, on a larger time scale. The dating of the sampling points is based on the interpolation of some OSL ages (from studies previously carried out by the team of the St. George Marine and River Research Station) on nearby beach ridges. The granulometry (GS) and Loss of Ignition (LOI) analyzes were performed at the sedimentology laboratory of the Faculty of Geology within the University of Bucharest.

Our results show that the particle size parameters change visibly. Thus, sorting is lower on the beach, especially in the lower-central part, while the content of inorganic carbonates usually increases near the average level and then up to about 15-30 centimeters below local sea level. Visual observations in the field confirm this finding related to the carbonate content. We have preliminarily made a first draft of a sea level curve for the last 3500 years based on profiles, which show clear fluctuations in sea level during different climatic periods.

In the future, new samples will be needed from several locations in the beach ridge plains, in order to be able to develop and propose to the international community this new method of sea level reconstruction.

An INSAR based approach for detection and description of active salt diapirs

Mihaela Violeta Gheorghe, Iuliana Armaș
Faculty of Geography, University of Bucharest
mihaelagheorghe10@gmail.com

In recent years, salt diapirs have become a widely used solution for storing of gas and hazardous waste disposal, but they were also associated with the presence of hydrocarbon energy resources such as petroleum or natural gas. Detecting new salt diapirs can support prospection of discovering new gas and oil fields, while knowledge about their movement patterns is crucial for planning industrial utilizations. A series of InSAR studies conducted in the East Carpathians Bend have unravelled the presence of a

previously unknown salt diapir displaying a surface uplift, which was confirmed using high-resolution two-dimensional thermomechanical modelling.

In order to depict deformation patterns in the study area, the Small-BAseline Subset (SBAS) technique was applied for processing two stacks of 123 Sentinel-1 A and B satellite images acquired from both descending and ascending orbit over a 4-year period, between 2014 and 2018. Optimal temporal and spatial baselines were set for each of the datasets in order to increase coherence of the interferograms. Resulted displacement time series over a time span of four years reveal a clear deformation pattern located in the southern part of the Campina city. Stable areas display velocity values between −0.5 and +0.5 mm/year while velocity values over the whole study area range from −20 up to +6 mm/year. The values attributed to the presence of salt diapirs are uplift values of approximately +5 mm/yr. The authors consider that the use of InSAR techniques proved to be an effective prospection technique and plan to employ it in the future on an extended study area discovering new salt diapirs.

An overview of the renewable energy sector evolution in Romania in the last decade

Marina Antonescu
Faculty of Geography, University of Bucharest
marina_antonescu@yahoo.com

The need for energy and its related services to satisfy human social and economic development is increasing. Returning to renewables to help mitigate climate change is an excellent approach which needs to be sustainable in order to meet energy demand of future generations. Renewable energy has also been adopted as a crucial step forward in most countries around the world that have clear renewable energy targets.

Obtaining energy from renewable sources has gained more and more interest in Romania over the last ten years, starting from the need to gradually replace polluting energy sources. What had seemed to be a small segment of the electricity industry, electricity produced from renewable sources, has become an essential one, and its role in the current and future energy mix dominates discussions regarding the legislation and policies in the sector.

The past 10 years have brought significant changes in the evolution of the energy sector in Romania. Even if Romania’s electricity mix is one of the most balanced in the European Union (hydropower, coal, natural gas, nuclear energy, wind and solar power), having comparable shares of capacity and power generation, renewable sources are not fully exploited; in 2020, the RES share in final energy consumption was 24%. Also, in 2020, up to 44% of Romania's electricity production came from renewable sources (12.4% wind power, 3.4% photovoltaic solar panels, 27.6% hydropower). Alignment of energy legislation with the requirements of the European Union and the promotion of renewable energy has determined significant changes in energy Romanian policy. In this context, the paper aims to provide a comprehensive overview of the renewable energy sector in Romania.

Based on an extensive research of Romanian and European energy policy and legislation, the article presents the Romanian energy sector and the current status of the main renewable energy sources. The

information was gathered from the statistical reports data, energy and environment strategies, energy reports, NGO data and studies and research articles.

Analysing the potential for achieving active ageing in Bucharest

Mihaela Preda[1], Ana-Irina Lequeux Dincă[1], Ana-Maria Taloş[1], Alina Mareci[1],
Camelia Surugiu[2], Marius-Răzvan Surugiu[3]
[1]Faculty of Geography, University of Bucharest
[2]Faculty of Administration and Business, University of Bucharest
[3]Institute of National Economy, Romanian Academy
mihaela.preda@geo.unibuc.ro

The continuous growth of elderly population cohorts represents a global challenge for implementing economic and social policies, and as such, many countries, including Romania, try to encourage an active and healthy lifestyle and transform seniors into an economically and socially active group. This study aims to depict an overall image of the active ageing possibilities for Bucharest's elderly and their perception of this matter. The main objectives refer to assessing: their financial security and reasons motivating them to work after retiring, their capacity and needs for independent living, their access to health services, and the enabling environment, which can act both as a facilitator and a barrier. The main results reveal that an active lifestyle depends on socio-economic and psychological characteristics and that the elderly's contribution to economic life is often a continuation of their previous activities, not necessarily a result of successful policies for achieving active ageing. Low revenues also reflect low access to health care and usage of ICT tools.

Analysis of pollution indicators. Case study: Valjevo, Serbia (November 2020 - November 2021)

Andrei Ducman[1], Camelia Teodorescu[1], Andrada-Elena Stoica[2],
Alexandra Cioclu[1], Alin Butoi[3]
[1]Faculty of Geography, University of Bucharest
[2]Faculty of Sociology and Social Work, University of Bucharest
[3]Tudor Vladimirescu Middle School, Călărași
andreiducman@gmail.com

The city of Valjevo (the administrative center of the Kolubara district) is facing extremely serious air quality problems, due to extremely high levels of PM2.5 indicators in the city. For a higher accuracy of the study, the following indicators were analyzed: PM2.5 level, PM10 level, NO2 level, SO2 level, as well as CO level.

For a more accurate understanding of the air pollution indicators, the data comparison is made in parallel with the level recommended by the European Commission, which are expressed exclusively in μg / m3. The central objective of the study is to identify the degree of pollution for the Serbian municipality of Valjevo, as well as to identify potential correlations with the causes of death in the city of Valjevo. The data sets on pollution indicators were obtained from the website of the AQI platform, which is managed by a non-profit organization that wants to combat pollution on Earth, while data on the causes of deaths in the territory Valjevo are provided by the National Statistics Institute of the Republic of Serbia, being public data. The results of the research provide clues about links between air pollution and a high number of deaths from respiratory problems. The aim of the research is to raise awareness of maintaining an optimal balance of pollution in cities, as a high level of pollution indicators can significantly increase the number of deaths.

Analysis of significant wave height data in the Black Sea using satellite altimetry measurements and SWAN model simulations

Eduard Luca[1, 2], Georgeta Bandoc[1, 2]
[1]University of Bucharest, Faculty of Geography,
[2]Center for Coastal Research and Environmental Protection, Faculty of Geography
eduardluca92@yahoo.com

The purpose of this material is to analyse the significant wave height in the Black Sea basin between January 1, 2019 - December 31, 2020. This wave characteristic is an important parameter in statistical wave analysis and the research in areas interested in this aspect has had a special contribution over time to the development of technologies that allow a thorough and detailed understanding of this parameter. Satellite altimetry data from the IMOS database and results from SWAN model simulations were used to achieve the proposed goal. The obtained results complete the knowledge regarding the significant wave height in the Black Sea basin and show that, for the current setup, the values simulated by the SWAN model are underestimated when compared with the data coming from the satellite altimetry measurements.

Analysis of the Romanian transport system in terms of density, connectivity and complexity of communication network"

Gheorghe Lixăndrescu, Adriana Bianca Ovreiu, Alina Simona Caloian, Alexandra Cioclu
Faculty of Geography, University of Bucharest
lixandrescu.george@gmail.com

In the world of economic globalization, transport infrastructure has become a key factor in the economic development of a region, by facilitating trade and increasing the connectivity of some territories. Transport services contribute significantly to the expansion of trade relations between producer,

consumer and natural resources, impacting the economy of states both internally and externally. Giving this context, scientific research in the field of transport is essential to understand its evolution. However, in order to be relevant and usable, it must consider the determining factors of the transport system development, as well as its natural conception and knowledge of analytical (methodological) tools offered by specialists in transport engineering/economics, management science, mathematics, statistics and other sciences. Romania is transitional pivot between Western and Eastern Europe, with cardinal crossing geoeconomics axes sustaining the transfer of technology, as well raw materials between Western European and Eastern European states. Therefore, it is necessary to carry out studies to evaluate and explore the Romanian transport network, and to identify the improvement measures, meant to eliminate the shortcomings of the Romanian infrastructure. The present study aims to carry out a territorial analysis of the transporting network by applying the indices of connection and complexity, as well the indices defining the density of the transmission network. They highlight both the characteristics of the communication routes and their connectivity with the core cities.

The results showed that Romania has a dense and diversified transport infrastructure, which, however, requires extensive expansion and modernization efforts to meet the growing requirements of society and European Union standards.

Aspects concerning the precipitation regime along the Lower Danube River. Case study: Călărași-Pătlăgeanca sector (Romania)

Dana Maria (Oprea) Constantin[1], Adrian Tișcovschi[1], Elena Grigore[1], Irina Onțel[2], Raul Ilea[3,4]
[1]Faculty of Geography, University of Bucharest
[2]Center of Remote Sensing and Satellite Meteorology, National Meteorological Administration
[3]Simion Mehedinți "Nature and Sustainable Development" Doctoral School, Faculty of Geography, University of Bucharest
[4]National Meteorological Administration, Center of Operational Forecasting Romania
oprea.constantin@geo.unibuc.ro

In the current context of global warming, a hydrological cycle has been observed, so that the effects of climate change on water resources are reflected in: water supply, water quality, water requirements and in extreme events (floods and droughts). Atmospheric precipitation is directly or indirectly the natural source of water supply to the soil and contributes to its formation. The knowledge of the spatio-temporal variability of the precipitation regime offers the possibility to objectively evaluate the effects on water resources. The course of the Lower Danube represents a significant part of Romania's surface water resources, through the 1,075 km (38% of the total length of the river) and 28.4% of its catchment area. In this article we will analyze the variability of precipitation amounts in the Călărași-Pătlăgeanca sector, one of the four sectors of the Danube, on the Romanian territory. This sector is distinguished by the largest width of the river meadow (25-30 km) and a length of 328 km (30.5% of the length of the Lower Danube). From a climatic point of view, it is characterized by a temperate continental climate with arid influences.

The analysis of the variability of precipitation quantities (average monthly quantities and maximum quantities in 24 hours) will be made for the meteorological stations (m.s.) Călărași and Galați belonging to the National Meteorological Administration (NMA) for the time interval 2000-2019. The meteorological data used are extracted from the NMA databases. These meteorological data are supplemented by MODIS satellite images on the basis of which the Normalized Difference Drought Index (NDDI) was extracted. In the annual precipitation quantities, a significant variability was found for the Călărași m.s., being between 336.4 mm in 2000 and 858.0 mm in 2005 and with an annual average for the study period of 557.1 mm. At the Galati m.s., the annual amount of precipitation varied between 208.8 mm in 2019 and 740.5 mm in 2016 with an average for the analyzed period of 509.4 mm. As a result, there is a decrease in precipitation from the south to the north of the sector, and the analysis of the variability of the precipitation regime can ensure better management both in water management and security and in socio-economic adaptation to climate change.

Assessment, a significant step in the study of geosites. Applications at Fierbătorile din Berca, Buzău Valley, Romania

Gabriel Cosmin Ilie, Florina Grecu
Faculty of Geography, University of Bucharest
gabriel.ilie@drd.unibuc.ro

The paper presents the importance of the evaluation stage as a distinct part of the study of geosites by applying a method resulting from the geographical characteristics of a site. To this purpose, the relief created by the muddy volcanoes in the area known as Fierbătorile de la Berca (the Boilers from Berca) is analyzed, emphasizing the scientific value based on the following indicators: the integrity of the geosite (the stage of conservation, the degree to which it was influenced by both natural factors and anthropogenic intervention), the representativeness (the specificity of the site compared to the reference space), the rarity, the educational importance and the geohistorical value. The representativeness and rarity of the landscape/site require consideration and analysis of additional values, such as ecological, aesthetic, cultural values. The Boilers from Berca, a representative geoheritage element for the Buzău Subcarpathians, but also for the entire territory of Romania, is little studied in this respect by the specialized literature. The goal of the study aims at the importance of awareness with regard to this geosite, necessarily starting from the scientific value, including the institutionalized educational, or tourist value.

Authentic gastronomy – a tourist attractiveness factor of Bucharest

Ana-Irina Lequeux Dincă, Mihaela Preda, Iuliana Vijulie
Faculty of Geography, University of Bucharest
ana.dinca@geo.unibuc.ro

Once with post-communist transformation of Romania and its rebranding as an international tourism destination, Bucharest has registered a gradual increase in the number of incoming tourists. This coincided with a boom of its hospitality and catering units, which grew in number and variety, especially in its central old part that also concentrates its main historical buildings and cultural attractions. Local dishes and their autochthonous denominations are present in the menus of numerous restaurants in the Bucharest old city-center outstanding as one of its cultural landmarks. The taught competition imposed by the more popular and cheaper international dishes offered by numerous terraces and fast food units jeopardize the autochthonous cuisine in search for resources to attract both locals and tourists. COVID-19 pandemic induced a supplementary hit and new challenges to hospitality sector reducing almost to zero both the economic activity of restaurants and international travelling. The authentic gastronomy could be an accelerating factor for recovery of the hospitality industry in the present context and continue to represent a particular attractor for less known destinations. The study used complementary research methods, mapping different types of restaurant units located in the center of Bucharest and focused on the themed Romanian traditional restaurants for which an extensive analysis of their menus and interviews with certain employees were performed. Both analyses outlined the importance of the ethnic theme and of the autochthonous specific for the local hospitality industry with a particular importance for international travelling.

Can collecting data from media sources be used in spatial analysis? An example for landscape disservices

Andreea Ionescu[1], Alin Pleșoianu[2], Radu Tudor[3], Mioara Clius[3], Ileana Stupariu[2,3]
[1]Simion Mehedinți "Nature and Sustainable Development" Doctoral School, University of Bucharest
[2]University of Bucharest Research Institute, Transdisciplinary Research Centre Landscape-Territory-Information Systems
[3]Department of Regional Geography and Environment, Faculty of Geography, University of Bucharest
ionescuandreea1020@gmail.com

The pandemic Covid-19 period has brought multiple changes in our lives. The researchers had to find resources in order to support their research. Our study is in the same situation in which we want to show that the use of online data can be a temporary solution. Our research is mainly focusing on landscape which offers services and disservices. Recent studies have appeared that rely on landscape disservices. We associate wildlife-human-interactions (WHI) and human-wildlife-interactions (HWI) as part of landscape disservices in Prahova, Brasov, Covasna and Harghita Counties.

Our hypothesis is that the collecting data from media sources can be used in spatial analysis. We divided the results of the spatial analysis into two categories: heatmap and colocation analysis.

Heatmap combines the representation of an effect and its statistical significance, but also it can show data ordered by effect of two sets of variables, both types aiding the recognition of significant models of associations (Benno Haarman et al., 2015). The heatmaps were created by precisely vectorizing the locations mentioned in the database articles, showing the intensity of the phenomena locally. Thus, we can visualize the hot points of affected county (HWI and WHI).

The second spatial analysis used in the present study was colocation. The most used colocation analysis techniques can be based on area or points (Fahui Wang et al., 2017). For point-based colocation analysis, the cross-function K (bivariate K) is used for two categories of populations (Fahui Wang et al., 2017). It is used to observe the relationship between two spatial processes under the assumption of independence, but also to measure the ratio between the general density of points between the two categories of points over a specified distance (Fahui Wang et al., 2017). In our study, the colocation technique based on points was used, on the two categories - HWI and WHI.

References:

Benno Haarman, B. C. M., Riemersma-Van der Lek R., Nolen A.W., Mendes R., Drexhage A.H., Burger H., (2015) 'Feature-expression heat maps – A new visual method to explore complex associations between two variable sets', Journal of Biomedical Informatics, 53, pp. 156–161. doi: 10.1016/J.JBI.2014.10.003.
Wang F., Hu Y., Wang S., Li X., (2017) 'Local Indicator of Colocation Quotient with a Statistical Significance Test: Examining Spatial Association of Crime and Facilities', The Professional Geographer, 69(1), 22-31. DOI: 10.1080/00330124.2016.1157498

Chimney circulation at Detunata Goală low altitude permafrost site: six months of high resolution ground air current monitoring

Răzvan Popescu[1], Alfred Vespremeanu-Stroe[1], Mirela Vasile[2], Ilie Andrian[1], Sabina Calisevici[1], Bogdan Niculiță[1]
[1]University of Bucharest, Faculty of Geography
[2]University of Bucharest Research Institute
razvan.popescu@geo.unibuc.ro

The talus below Detunata Goală peak is proved to be a cold scree with probable permafrost occurrence in spite of a high mean annual air temperature (>6 °C) because of chimney circulation that causes the continuous and intense overcooling in the lower parts of the scree. In the FrozenCORE postdoctoral research project we initiated intensive monitoring of ground air circulation using ultrasonic anemometer Windsonic (Gill Instruments, UK) that can measure accurately and in the most difficult field conditions the air current speed and direction. We present here what we found out from 6 months of high temporal resolution and accuracy monitoring of chimney circulation. Besides, repeated aerial survey in winter allowed the precise detection of warm air areas positions, shape and temporal changes by snow melting patterns analysis. Thermal monitoring of air between the blocks was also performed by BTS probe and waterproof and Bluetooth miniature datalogger Hobo Pendant MX 2201 (USA).

Change detection of vegetation cover conducted using random forest algorithm in R with QGIS - Case study of the region of Boussaada, Algeria

Takki Eddine Kharchi[1], Florina Grecu[2], Manel Yakhlefoune[1], Mohamed Chadi[1], Benabbas Chaouki[1]
[1]University of Constantine 3, Constantine, Algeria
[2] Faculty of Geography, University of Bucharest
takkieddine.kharchi@univ-constantine3.dz

In remote sensing field, change detection is a systematic process that aims to detect changes of the land cover over time and space, our work intends to highlight the change detection of the vegetation cover using GIS and Machine Learning techniques for the region of Boussaâda in the Atlas Saharien with an arid climate and subject to an anarchic and increased urbanization since 1974 and with natural constraints such as hydro-climatic hazards like drought, desertification and inundations.

In our communication we will be conducting a step by step two-dates supervised image classification, by using random forest algorithm in R within QGIS environment to identify areas of change and no change. the bands of two Landsat images from different dates will be stacked together and the random forest algorithm will be performed to generate a change image that will designate areas where the vegetation cover has decreased, increased or haven't undergone any changes.

Changes in the breeze cell in climate scenarios

Crina Radu[1], Mihaela Caian[2]
[1]Faculty of Geography, University of Bucharest
[2]National Meteorological Administration
crinaradu7@gmail.com

The study aims to analyze and compare the mean sea level pressure, precipitation and wind fields to show the changes in the breeze regime in the coastal area of Romania in the current climate and projected in climate scenarios for upt to 2050. Actual climate was analysed using reanalysis EraInterim. Projections were first analsyed on very high resolution scenarios downscaled from CMIP5 using a regional climate model: nonhydrostatic RegCM5 model, for extreme summers. These results for projections were then analysed for whole warm season using extended databasae of 30 years projections the CORDEX database (10 km resolution). The dynamical downscaling methods used for regionalisation at 5 km were performed for the first time for Romania in Meteo Romania during the AZURE-Microsoft project (2018), and was shown to refine the process-scale being suitable for extremes analysis. Data processing here used Fortran language, CDO software and visualized through GRADs. The overall results indicate changes in the frequency of intense events and the spatial development of the breeze cell. Large scale-dynamics changes in interaction with the breeze circulation lead to a rotation of the associated frontal line (and of the cell,

with a clockwise -anticyclonic rotation) and a mean advancen further deep over land in a warmer climate compared to historical period. These two, composed, lead to a SW displacement of the frontal line and its gust and show an impact on the location of the associated precipitation that shifts correspondingly. Therefore, sea breeze cell is changing under the current and projected climate especially in the context of severe cases of a warmer climate and may have signifficant impact of the regional climate, ecosystems and key sectors of activity.

Characteristics of the degradation of agricultural surfaces in the southern bărăgan plain, through rain-erosion processes

Florin Achim
Facultatea de Geografie, Universitatea din București
florinachim2000@yahoo.com

The Southern Bărăgan Plain is a geographical unit where the rainfall processes have a moderate action, even reduced in some places, taking into account the low rainfall as well as the morphology and morphometers of the relief. These processes have an impact on man and human activities, primarily through the action they have on land on which intensive agriculture is practiced or even on inhabited areas.

Cultural Tourism and the Planetarium Hall of Bucharest Astronomical Observatory

Sorin Marin
Astronomical Institute of the Romanian Academy
emailsorin38@gmail.com

The presentation aims to briefly show the status and perspectives of Bucharest Astronomical Observatory's Planetarium Hall. This observatory is one of the specialized facilities of the Astronomical Institute of the Romanian Academy. The features and role of its planetarium hall, so far unused as a functional planetarium, will be discussed in the broader cultural and urban context of AIRA's scientific park in Bucharest and of the neighboring Carol I Park. By analyzing the local cultural landscape as well as the role of planetariums in general in our contemporary visual civilization, the presentation will discuss the role of AIRA's planetarium hall as an educational and leisure addition to the existent patrimony of this place, which can facilitate cultural touristic activities and complete the offers of such services provided to the public in this area. As this technology was joined in the last decades by the use and extensive role of the Internet, the presentation will discuss on how a functional Planetarium Hall of Bucharest Astronomical Observatory (AIRA) will improve the experience of the cultural tourists before, during and after their visits here.

Demographic vulnerability of Romanian small towns

Daniela Zamfir, Valentina Stoica
Faculty of Geography, University of Bucharest
daniela.zamfir@unibuc.ro

Within the national system of settlements, the group of small towns (less than 20000 inhabitants) is considered an intermediate level, often defined by a mix of urban and rural characteristics. Although this part of the urban network is not in the spotlight like large cities, it constitutes 70% of the entire urban system and comprises around 19% of the urban population. In this context, the aim of this study is to explore the demographic challenges faced by small towns and to identify their degree of demographic vulnerability. Their path is related to the political and socio-economic changes Romania has gone through since the fall of communism, but also to place-specific factors (such as geographical location, local governance). The methodology of this study consists of several major steps: data collection, selection of relevant indicators based on population dynamics and structure, establishment of an index of demographic vulnerability, mapping of results and their analysis. The findings highlight that a significant proportion of small towns are affected by population decline and demographic aging. The hierarchy established using the index of demographic vulnerability reveals that 60% of these urban settlements fall into the medium category, while 14% register high values. The latter indicates the small towns with the most problematic situation in terms of demographic characteristics, which are evenly spread throughout the country. In this regard, it appears that the demographic difficulties are rooted in the inability of this type of urban settlements to adapt to the new economic and social perspective established after 1990, rather than in the regional context.

Developing Key European Competences with the help of interactive learning activities in Geography (5th grade - study case)

Valentin Cocârlea[1], Cristina Maria Popescu[2], Florentina Toma[3], Florin Bogdan Petre[4]
[1]C. A. Rosetti High School, Bucharest
[2]Viilor Economic College, Bucharest
[3]Mihai Eminescu National College, Bucharest
[4]Matei Basarab National College, Bucharest
valentincocarlea996@gmail.com

In an increasingly globalised world, people need a wide range of skills to adapt and thrive in a rapidly changing environment. As a result, the European Commission has carried out an initiative in this regard in the period 2002-2006, which ended with the implementation of the "Education and Training 2010" programme. In this context, the role of key competences throughout the education system in the Member States of the European Union was stressed. According to the European Commission, keyskills are a transferable and multifunctional package of knowledge, skills (abilities) and attitudes that all individuals need for personal fulfilment and development, social inclusion and employability. They must be

developed until compulsory education is completed and must act as a foundation for further learning as part of lifelong learning. The category of European key competences includes the following competences: communication in the mother tongue, communication in foreign languages, mathematical skills and basic skills in science and technology, digital competence, social and civic competence, learning to learn, sense of initiative and entrepreneurship, as well as sensibilisation and cultural expression. Given these theoretical aspects, the Geography teacher can smoothly train the aforementioned competences with the help of interactive learning activities in the 5th grade. According to statistics, with the implementation of these competences, many teachers have faced a real problem of the formation of key competences, namely the problem of identifying learning activities corresponding to the content taught. Thus, this paper aims to identify and present learning activities corresponding to each key competence, but also the teachers' perspective on their training.

Development of the metropolitan train concept in Romania

Robert Dobre[1], Mădălina Teodor[1,2,3], Mădălina Pica[3], Alexandru Giurea[4],
Adriana Ilie[4], Cosmin Păunescu[4]
[1]Faculty of Geography, University of Bucharest
[2]Ministery of Transport and Infrastructure
[3]Romanian Young Academy
[4] Simion Mehedinți "Nature and Sustainable Development" Doctoral School, Faculty of Geography, University of Bucharest
dobre@geo.unibuc.ro

The impact of the COVID-19 pandemic on all sectors of human activities, including transport, has been huge. The year 2021, as the European Year of Rail, is dedicated to exploring the most sustainable, innovative and safest transport modes. In line with the Global Challenges of the 21st Century, we have the right context for developing the policy path towards EU Mobility, against the backdrop of the European Green Deal and for effectively contributing to the achievement of the EU Strategy on Suitable and Smart Mobility. The metropolitan train concept is a local or regional railway system that offers a public transport service for large urban areas, which ensures the mobility of the population in and around the big cities. The concept has been successfully implemented in various urban areas of Europe. In order to meet the country-specific recommendations of the European Semester, it is necessary to implement initiatives meant to facilitate the green transition, with the potential for economic growth and job creation. Thus, the implementation of the metropolitan train in Romania becomes a necessity and a smart way for bridging the gap between population mobility and traffic decongestion. Given the growing traffic congestion in populated cities caused mainly by individual mobility, the shift to rail solution for shuttle traffic is supported by European examples where the implementation of the metropolitan train has driven a change of paradigm, with a focus on modern passenger transport services and integrated connections: subway, tram, buses, trolleybuses and even individual transport. The methodology of this study is focused

on the use of GIS techniques, applying cartographic and statistical methods, creating a multicriteria analysis, proposing a score function that will ensure a proper weighting of the parameters identified to be relevant and also providing support for the concept implementation.

Designing a new high school curriculum for Geography and future fields of reflection

Octavian Mândruț
Constantin Brâncuși University, Târgu Jiu
octavianmandrut@yahoo.com

The options of the vertical structure concerning the succession of the school subjects are determined by the structure of the pre-academic education (the duration of the compulsory education, goals and outcomes, the conclusion of the studies at various levels, time resources).

The main purpose of the geography innovation project is to contextualize it to the requirements of a modern and future-oriented education. A possible projection of geographical school subjects could be:
9th grade: Physical Geography and Elements of the Sciences of the Earth;
10th grade: Human and Environmental Geography
11th grade: Geography of the Contemporary World (Spatial size of globalization)
12th grade: Europe, Romania, European Union
The approach is according to the scale paradigm: Earth – Europe – Romania, or the 9th, 10th, 11th and 12th grades.

We propose a set of fields of reflection on the following topics:

- School geography among various fields of studies;
- Geography in the syllabus versus teachers' desiderata (maximum, minimum);
- Elements of the "vertical" structure re-organization of the school geography;
- Constructive traditions from the history of the Romanian education (with references also to geography);
- Impact of the results in school competitions and Olympics on the geography of the pre-academic education and pupils' training;
- Competences in learning geography (recent innovative developments);
- Significant experiences of teaching – learning - assessment;
- Geography as functional subject, with relevance for the daily activity;
- Other relevant aspects and arguments for the development of the school geography;
- The influence of the trans-disciplinary vision on the geography.

The significant elements resulting from the above-mentioned analyses will have to be subject of a negotiable project for renovation of the geography in the pre-academic education.

Diachronic analysis of the Buzău riverbed dynamics (Transylvanian sector) and the impact on transport infrastructure

Adriana Ilie[1], Florina Grecu[1], Robert Dobre[1]
University of Bucharest, Faculty of Geography
ilie.adriana.gabriela@gmail.com

Buzau River presents some of the most significant problems of evolution and dynamics of rivers. They derive from the position of the basin within the Curvature Carpathians and the Romanian Plain. In this sense, an analysis by sectors is required in order to argue a total general evolution. The objective of the study is the analysis of the riverbed dynamics for the years 1980 and 2017 in the Transylvanian sector (from their sources to the Buzau-Crasna confluence). The diachronic analysis is based on the calculation of the morphometric values, the establishment of the morphography of the riverbed and of the natural and / or anthropic causes. These data are useful for issuing evolutionary forecasts and their impact on society. The study brings into discussion the need for works to arrange the riverbed and the slopes, especially along the national road (DN10) and in the localities crossed by the Buzau river.

Detecting land-atmosphere carbon fluxes at global scale after 2001

Remus Pravalie[1], Georgeta Bandoc[1]
University of Bucharest, Faculty of Geography
pravalie_remus@yahoo.com

Land systems, especially soils and vegetation, are crucial to the Earth's climatic stability, by controlling carbon fluxes between the Earth's surface and the atmosphere. Soils are the largest terrestrial carbon pool on the planet, so changes in the (organic) carbon flow between this major land carbon pool and the atmosphere are critical in understanding current and future climate change. However, recent changes in soil organic carbon dynamics have not yet been explored worldwide, due to the unavailability of high-resolution global multitemporal spatial data series. This study is the first spatio-temporal investigation of soil organic carbon dynamics in the period 2001–2015, based on the analysis of an interannual geospatial database that has recently become available on a global scale. Following the processing of a large volume of global data, using specialized software and methods, it was found that, in only 15 years, global soils lost a total amount of >3 billion tons of carbon (by transfer to the atmosphere), thus considerably accelerating the risk of climate change intensification after 2001. The global cartographic and geostatistical findings of this research may be useful to various global policies that are linked to climate change mitigation and land systems management.

Diachronic Analysis of Changes of Soil Texture Classes Between 2013 and 2019 in the Nemamcha Desert (Algeria)

Abdelhafid Bouzekri[1], Thomas K. Alexandridis[2]
[1]National and Higher School of Forests Khenchela
[2]Lab of Remote Sensing, Spectroscopy and GIS, School of Agriculture, Aristotle University of Thessaloniki
hafid123bouzekri@gmail.com

In dry and fragile ecosystem, climatic variations and human pressure brings about a severe degradation of natural resources especially in the soil quality of grazing and arable lands. The land degradation in arid regions transcend into sandy desertification accompanied with critical results. Nemamcha desert is one of the most susceptible areas to desertification in Algeria that located in North-East of the country and confronted with the Big eastern Erg from the south and the Saharan Atlas Mountain from the north. The main objective of this study is to monitor and asses the land degradation using the diachronic analysis of soil texture classes and their changes between 2013 and 2019. The methodology adopted based on the use of multiple linear regression model to determine the correlation between the spectral values of satellite data and soil properties of the field work, and the correlation obtained used in the automated mapping of soil texture classes. The obtained statistical results indicate the accuracy of the multiple linear regression model in the estimation of soil properties. The change detection applied on the soil texture classes between 2013 and 2019 shows that 11 % of the study area suffers from the soil deterioration within 3 % turned into irreversible sandy lands.

Dracula's menagerie: interactions between wolf, lynx and wildcat in the Romanian Carpathians

Anna-Steluta Manolache, Viorel Popescu, Mihai Pop, Teodora Sin, Anna Steluta Manolache, Marissa Dyck, Ruben Iosif, Barbara Promberge
Centre for Environmental Research and Impact Studies, Faculty of Geography, University of Bucharest
aanamanola13@gmail.com

Terrestrial carnivores are among the most imperiled species today, due to their large home range requirements, high metabolic demands, and sensitivity to habitat fragmentation. Loss of apex predator populations can cause widespread ecosystem effects, and recent rewilding initiatives have focused on restoring top predators. In this study, we assessed the distribution and interactions between three carnivore species in Transylvania. Romania houses one of the last fully intact carnivore guilds in Europe, making it an ideal system to assess interactions between carnivore species and serve as a guide for reintroductions elsewhere. We used data from 64 camera traps distributed throughout Transylvanian forests to assess occupancy and co-occurrence of Eurasian lynx (Lynx lynx), European wildcat (Felis silvestris) and gray wolf (Canis lupus). We modeled marginal and conditional occupancy as a function of

environmental and anthropogenic covariates to explore intraguild interactions between species. Both lynx and wolf occupancy were highly influenced by road density, while wildcat occupancy was most influenced by altitude. Co-occurrence of lynx and wolf increased with increasing forest cover suggesting similar habitat needs and lack of interference competition. However, co-occurrence of wildcat and wolf decreased with increasing forest cover and lynx and wildcat co-occurrence increased with increasing terrain roughness. Understanding the distribution of species can provide valuable insight for management decisions in Romania and areas aiming to promote coexistence between humans and carnivores.

Dynamics of land use in historical context in the Southern Region of Romania. Case study: the Vlăsia Plain

Constantin-Razvan Oprea, Roxana Cuculici, Andreea Marin
Faculty of Geography, University of Bucharest
constantin.oprea@geo.unibuc.ro

In the last decades, the land use and land cover dynamics has become an important subject in the context of the global environmental change and local socio-political and economic changes. Land use and land cover changes are influenced by a series of factors, such as: increase and decrease population number, economic growth, topography, slope condition, soil type or climate. In the present study, supported by the long time series of land use and land cover data from 1990, 2012 and 2018, we used diachronic method to analysis the dynamics of the land use in the Vlăsia Plain (subunit of the Romanian Plain), Romania. Also, these sources are supplemented by the Map of Southern Romania from 1864 and Map of Soils of Romania 1:200 000, from 1963-1994. The classification had done using seven categories: forests, pastures, arable terrain, vineyards/orchards/gardens, aquatic area, non-productive and built up area.The results highlight the fact that in the Vlăsiei Plain, the arable lands occupies most of the surface of the plain (over 55%). The presence of certain types of soils, such as reddish-brown soil, shows us that in the past forests predominated. This is also supported by existing historical maps. The driving force behind this change was different agrarian reforms in Romania, the urbanization, population growth, deforestation and climate change.

Education reform and school development in the Internet age

Marian Ene, Constantin-Răzvan Oprea, Roxana Cuculici
Faculty of Geography, University of Bucharest
ene2466@gmail.com

The current educational system in Romania is built on the legacy of the Industrial Revolution, maintaining massive education. This system puts efficiency above everything else, considering the spread of learning

as its main mission. What can be done to replace this outdated system with a system adapted to the present time? Is it possible for current standardized education to become individualized and personalized?

Evaluation of morphometric parameters using geographic information system (GIS) in the Rhumel watershed study case North East of Algeria

Manel Yakhlefoune[1], Chaouki Benabbas[1], Florina Grecu[2], Kharchi Takki Eddine[1], Abdeldjalil Belkendil[3]

[1]University of Constantine 3, Constantine, Algeria

[2]Faculty of Geography, University of Bucharest

[3]Science and Technology Faculty, University of Tlemcen, Algeria

manel.yakhlefoune@univ-constantine3.dz

This study aims to analyze the correlation between morphometric parameters and their influence on watershed hydrology. Morphometric analysis is very important in geomorphology to evaluate the landform also to understand the dynamics of rivers and the hydrological process through quantitative measurement, the characterization of the dynamics of the landscape and the landforms mainly involves a geomorphometric and quantitative approach based on the digital elevation model. An SRTM image of 30 m of resolution was used to obtain the DEM of the watershed, this image was automatically processed with GIS to obtain the morphometric characteristics. The stream order is the first step of measurement the landform characteristics.

The results obtained from morphometric analysis of the linear aspect reveal that the Rhumel watershed has order 6 characterized by a strong sinuosity about 2.96 and a bifurcation ratio of 3.99 these values signify that the watershed has an irregular form and homogenous rock type and the drainage pattern is controlled by geologic structures, which mean that there is high possibility of flooding. The basin shape depends upon relief rock type slope and geological structure Shum's elongated ratio it's used to calculate basin shape the elongated ratio of the Rhumel watershed is 0.93 which mean that the basin has a circular shape, his drainage density is 0.61 and it's a very significant characteristic of drainage basin because it influences the texture of the drainage system like drainage frequency which is 0.23. The low class of density shows a poorly drained basin with a slow hydrographic response surface runoff is not rapidly removed from the watershed making it highly susceptible to flooding gully erosion besides low class of density shows a quick hydrological response to rainfall events.

Experimental assessment of urban green features influences over urban microclimate

Athanasios-Alexandru Gavrilidis, Diana-Andrea Onose, Simona-Raluca Grădinaru, Ana-Maria Popa, Raluca Slave
Centre for Environmental Research and Impact Studies, Faculty of Geography, University of Bucharest
athanasiosalexandru.gavrilidis@g.unibuc.ro

Urban green spaces have been widely considered to enhance microclimate regulation in cities. Most assessment focused on remote sensing analysis which determined the differentiated heat emission from various urban land covers. In this research we shift the focus from land surface temperature to air temperature and aim to determine the vertical temperature differences in multiple points spread around the cities, with different types and amounts of green features. We developed an experimental approach using dataloggers and a drone to extract temperatures at different altitudinal thresholds (0m, 5m, 10m, 20m, 40m). The experimental methodology was tested in September, after noon, in days with no clouds. The drone flights took place in an urban fabric from Bucharest and the results may indicated a peculiar relation between land cover and altitudinal temperature distribution. The initial flight sessions were aiming in calibrating the design of the experiment, highlighting flaws and aspects that should be further considered before expanding the sample areas, event schedule for the incoming summer.

Effectiveness of Natura 2000 network for protecting Rosalia longicorn in Romania

Dumitru Marian Mirea[1], Iulia Miu[1], Steluța Manolache[1], Cristiana Pioarca-Ciocănea[1], Laurentiu Rozylowicz[1], Viorel Popescu [1,2], Bekka Brodie[2]
[1]Centre for Environmental Research and Impact Studies, Faculty of Geography, University of Bucharest
[2]Ohio University, Athens, United States of America
mirea.marian.d@gmail.com

Natura 2000 network has been created to protect rare and threatened species and natural habitats across all EU Member States. In many cases, Natura 2000 sites were designated using limited species and habitats distribution data, leading to a potentially limited protection of data deficient species and habitats. To test the effectiveness of Romania's Natura 2000 network for conservation of data deficient species, we modeled the distribution of Rosalia longicorn (Rosalia alpina) and compared it to the distribution of Natura 2000 Sites of Community Importance (SCI) in Romania. Rosalia longicorn is a vulnerable saproxylic beetle, dependent on patches of old-growth forest, known as under-reported by scientists, foresters, and protected areas administrators. To analyze the potential distribution of Rosalia longicorn in Romania, we used occurrence records from public access databases (https://www.gbif.org/), Standard Data Forms of Natura 2000 sites, scientific literature, and citizen data. Then, we generated several species distribution

models (Maximum Entropy Species Distribution Modelling - MAXENT) using relevant environmental data variables obtained from the WorldClim (Isothermality, Temperature Seasonality, and Temperature Annual Range bioclimatic variables) and 2018 CORINE Land Cover at a resolution of 30 arc seconds. Finally, using the best model, we extracted the areas suitable for Rosalia longicorn as the 10th percentile threshold binary map and overlapped with Natura 2000 network. The results show that while the species has a potential distribution in more than half of Romanian Natura 2000 SCIs, only 15% of sites include the species in their Standard Data Form. Thus, the existing network of SCIs in Romania does not perform well for conserving the Rosalia longicorn. We recommend more intensive national inventories to detect in areas with high suitability for Rosalia longicorn and updating of standard data forms of Natura 2000 sites where the presence has been confirmed. This research was financed by LIFE ROsalia LIFE19 NAT/RO/000023 grant.

Enhancing the quality of EIA reports: A focus on urban projects from Romania

Cristina-Gabriela Mitincu[1], Alina-Constantina Hossu[1], Ioan-Cristian Iojă[1], Andreea Nițǎ[1]
Centre for Environmental Research and Impact Studies, University of Bucharest, Romania
cristina.gabriela.mitincu@drd.unibuc.ro

Environmental Impact Assessment (EIA) has experienced difficulty in effectively achieving its purpose due to the interplay of political, social and economic interests and particular institutional and policy contexts. Our study aims to proceed a systematically evaluation of the quality of Environmental Impact Assessment Reports (EIA reports) in seven urban area in Romania. We followed an updated Lee and Colley evaluation model to assess the quality of 21 EIA reports on four main categories. Our results show that the range of impacts studied, alternatives, and the mitigation measures are poorly outlined, while the description of the project and of the environmental factors is better performed. Our study identifies EIA reports weaknesses and suggests ways to achieve a better quality of EIA reports to enhance sustainable policy decisions in developing countries that are struggling with the implementation of this procedure depending on the scale of the project and involved actors.

Evaluation of the degree of artificialization of the urban space and the implications regarding the drainage of rainwater - case study of the Municipality of Bucharest and Ilfov County

Diana Marinela Vasile[1], Mila Chilikova – Lubomirova[2], Daniel Constantin Diaconu[3]
[1]Simion Mehedinți "Nature and Sustainable Development" Doctoral School, Faculty of Geography, University of Bucharest

[2]Climate, Atmosphere and Water Research Institute at Bulgarian Academy of Sciences, Sofia, Bulgaria
[3]Centre for Integrated Analysis and Territorial Management, University of Bucharest
diana.vasile@drd.unibuc.ro

In constantly developing cities we find a space competition available for fitting and development with the natural one. Multifunctional parks are important in a city and serve for recreational activities but also for improving environmental factors. Besides cleaning polluted air, green spaces play an important role in infiltration and underground accumulation of precipitation water. This process helps better manage excess rainwater and avoid the production of urban floods. Research wishes to evaluate and mapping the potential for rainwater absorption at the scale of Bucharest and Ilfov County, which is a continuity of the Metropolis of Bucharest. Thus, we will represent urban areas with potential for the development of areas with natural regime. The study is based on a multicriterial spatial analysis, field vision and mapping. Thus, the types of land coverage and use and anthropogenic elements affecting the underground water infiltration process have been identified. This process highlights the link between the artificialization of the environment and the production of floods, as well as the identification of solutions to mitigate the issues generated by them. The results of the study can also be applied in other cities that propose their urban transformation by calling for nature-based solutions.

Extreme thermal indices relevant to agriculture in the Romanian Danube valley (Drobeta Turnu-Severin – Brăila sector)

Loredana-Elena Havriș
Institute of Geography, Romanian Academy
loredana_myc@yahoo.com

Located in the south of the Romanian Plain and overlapping on the two large agricultural regions Oltenia and Muntenia, like most of the relief subunits within it, the sector chosen for investigation represents next to them, some of the most affected geographical areas by climate extremes (positive and negative thermal), especially from an agricultural point of view. Therefore, a comparative study is required both locally and regionally by exceeding the limits of the selected sector of the Romanian Danube Valley and extending the analysis of the indices in question (summer days - US; tropical nights - TR; absolute maximum temperature in year - TXX, heat wave duration - WSDI on the side of positive and extreme thermal extremes, frost days - FD, winter days - ID, absolute minimum temperature of the year - TNN, cold wave duration - CSDI on negative thermal extremes) for the entire agricultural territory of the southern part of the country. This involves, in addition to extracting the daily temperature data from the ROCADA database for a period of 53 years (1961-2013) corresponding to the grid points closest to each of the 33 weather stations and the use of a series of non-parametric tests and statistical-climatic methods for characterizing the trends of thermal extremes associated with the current process of climate warming

and which are relevant for agriculture through the negative and positive effects they can have on the quality of agricultural crops and agricultural production.

Floods in the Romanian sector of the Danube Valley from the media perspective, between 2000-2020

Valentin Cocarlea
Simion Mehedinți "Nature and Sustainable Development" Doctoral School, Faculty of Geography, University of Bucharest
valentincocarlea996@gmail.com

Water is considered the source of life, being all around us, in a continuous movement and transformation. Analyzing the previous stated idea, we can observe that the water is essential to humanity, but it has also a destructive potential to humans, by producing floods and natural hazards.
Floods are part of the countless natural hazards to which contemporary society is exposed, being the main phenomenon that leads human, economic and environmental losses and have become increasingly common in Europe. For example, in less than two weeks, in May and June 2016, floods killed at least 18 people and caused the loss of more than 3.7 billion euros in countries such as Germany, France, Romania, Poland, Belgium etc. The losses caused by floods are directly proportional to the degree of vulnerability of the affected element. According to the statistics, Romania is and will remain one of the countries vulnerable to this kind of natural hazard, due to the deficient infrastructure and to the irrational exploitation of the territory. This scientific approach aims to identify the role of media in the matter of floods that occurred in the Romanian Danube Valley, within the reference period, between the years 2000 and 2020. Therefore, articles related to the floods caused by the Danube River on its course in Romania, will be identified and analyzed. Following the realization of this desideratum, we will be able to observe and discuss the role that the media has in this issues that annually affects dozens of inhabitants of our country.

Forest habitat fragmentation in mountain protected areas using historical Corona KH-9 and Sentinel-2 satellite imagery

Bogdan Olariu[1], Marina Vîrghileanu[1,2], Bogdan-Andrei Mihai[1], Ionuț Săvulescu[1], Liviu Toma[3]
[1]Faculty of Geography, University of Bucharest
[2]Romanian Young Academy (RYA)
[3]GISBOX
bogdanolariu28@gmail.com

Forest habitat fragmentation is one of the environmental global issues of concern, as a result of the forest management practices and socioeconomic drivers. Mountain protected areas situated near settlements

can be extremely vulnerable to degradation and biodiversity loss. In this context, constant evaluation is still a challenge in order to achieve a general image of the environmental state of the protected area for a proper management. The purpose of ourstudy is to evaluate the evolution of the forest habitat in the last 40 years, focusing on Bucegi Natural Park, one of the most frequented protected areas in Romania, as relevant for highly human impacted areas. Our approach integrates historical panchromatic Corona KH-9 image from 1977 and a present-day Sentinel-2 multispectral data from 2020 in order to calculate a series of spatial metrics that reveal the changes in the pattern of the forest habitat and illustrate the forest habitat fragmentation density. The results show a growth of the forest surface, but also an increase of habitat fragmentation in areas where tourism was developed. The method can be of extensive use for environmental monitoring in protected areas management, understanding the environment history connected to the nowadays problems that are to be fixed under a rising human pressure.

Geodemographic evolution in urban settlements in Mehedinți county

Amalia Mihaela Oglindoiu[1], Ana-Maria Roangheș-Mureanu, Sorin Carablaisă
[1]University of Bucharest, Faculty of Geography,
mihaelaoglindoiu@yahoo.com

The changes that have occurred in recent years in the demographic characteristics of the urban population in Mehedinți County must be understood as a reflex response to changes in natural and anthropogenic components. Regardless of the nature of the processes affecting this territory, they can lead to either superficial or extensive changes that have a rapid impact or are assimilated over a long period of time, influencing the maintenance of a balanced, stable territorial structure. The covid epidemic 19, whether of natural origin or man-made, highlighted the fragility of territorial systems, of the population (changes in the number of the population; in the behavior of the population - acceptance / non-acceptance of vaccination, confidence in the health system; increasing number of deaths, decrease in births, in the migratory movement, in the change of the structure by age groups, increase of the number of unemployed, etc.), of the sanitary system, of the education system, of the economic activities. In the analyzed time interval (2011-2021) the number of population in the urban environment registered a continuous decrease, a phenomenon registered at county level, but with a lower intensity. The average growth rate of the population registered negative values throughout the interval, the average time interval being -0.95% in the urban environment of Mehedinţi. There can be accentuated decreases in the intervals 2011-2012 when the average annual growth rate of the population had the value of -1.17%, value generated by an accentuated increase of the migratory balance, in the interval 2015-2016 when the value was -1.19% against the background of a natural and migratory balance with a markedly negative evolution, and in the period 2018-2019, 2019-2020 when the average annual growth rate of the population reached the value of -0.87%, respectively -1 , 09%, when the natural balance increase.

Ghost towns in Romania

Ioana-Alexandra Mirea[1], George-Alexandru Moțoiu[2], Cocârlea Valentin[2]
[1]Faculty of Geography, University of Bucharest
[2]Simion Mehedinți "Nature and Sustainable Development" Doctoral School, University of Bucharest
amirea290@gmail.com

The problem of digitalization in Romania is more and more acute and is felt in more and more fields. A poor development of technology leads to the existence of gaps such as those of the ghost towns in Romania. There are many fictional localities that appear only on paper, and in reality they are either abandoned, or the inhabitants have been displaced elsewhere, or the land there is barren. However, the localities are part of the Territorial Administrative Units and appear as existing on the country map. There are over 100 localities in this situation, and a team of young programmers, engineers collaborated using open source data to identify these localities and to make a record of them.
In an attempt to strengthen the study and develop the problem of phantom localities, we made this presentation where we put on the map all the localities listed only with the name in the state registers and we tried to categorize them to find more patterns after which they would be could disappear: natural causes (geomorphological processes, floods, fires, etc.) or anthropogenic or socio-economic causes due to lack of jobs, the abolition of major types of industry, which forced the inhabitants of certain areas to move to others where market demand work is higher or the standard of living is higher, either the urbanization process has taken place, the inhabitants have left the localities to the detriment of the cities due to the higher standard of living. Thus, in an attempt to find explanations for the identified problems, a small geographical study of spatial and demographic analysis was carried out in order to better understand the phenomenon.

Glacier monitoring over the last 5 years (from 2017 to 2021) using MODIS LST data. Detection, analysis and evolution pattern: A case study of Svalbard Archipelago

Alexandru Berbecariu[1]
[1]Faculty of Geography, University of Bucharest
alexberbecariu@yahoo.com

The use of the MODIS LST sensors is the most frequently used method in terms of analyzing the variations in ground temperature or water surface over a period of time. This method has a special applicability in several scientific fields: the retreat of glaciers, the direction and influence of the ocean currents, fire detection, the detection of urban heat islands, etc, favoring large-scale analysis (both spatial and temporal). Temperature sensors in MODIS satellites allow the extraction of temperature from the surface of the ground or water by using two fundamental laws of thermodynamics applied in remote sensing: (a) radiative transfer equation and (b) Planck's law (www.cen.uni-hamburg.de). This study proposes a

comparative analysis regarding the detection of glaciers in Svalbard by using the MODIS LST data between 2017-2021 and the global Randolph Glacier Inventory (RGI Version 6.0: released July 28, 2017) (www.glims.org) Thus, the objectives of this study are closely related to (i) analyzing the accuracy and timeliness of the Randolph Glacier database, (ii) making the connection between the vector data provided by this inventory and the LST data obtained through MODIS, respectively (iii) interpreting the cause of temperature changes occurred between 2017-2021.

Global challenges and perspectives of urban protected areas

Cristian Iojă, Mihai-Răzvan Niță
University of Bucharest, Faculty of Geogrpahy
cristian.ioja@geo.unibuc.ro

In many parts of the world, cities have established urban protected areas (such as national urban parks in Sweden, Finland and South Africa; urban natural reserves, urban nature parks and urban wilderness in United States; urban natural parks in Australia) as a way to preserve urban biodiversity and provide ecosystem services, but also as a planning tool to control the increasing pressure of urbanization on green and blue spaces. Urban protected areas can deliver obvious benefits for urban biodiversity (habitats for wild species), urban residents (improved human welfare and happiness through interaction with nature), urban economies (increased land value, fostering various economic activities) and public administration (decreased expenses for public space management, alternatives for urban regeneration).Regardless of their perceived benefits, urban protected areas management remain a challenge for municipalities. Different approaches for planning, design and management, limited knowledge about human and nature interactions in urban settings, high management costs, and especially the high pressure of developers made urban protected areas increasingly fragile. Using a systematic literature review of scientific and grey literature, the current paper proposes a global view of the challenges of urban protected areas, and an evidenced-based approach on aspects related to their management: (a) rationale of designation and the conservation status of protected elements; (b) integration in the national legislation and in the general framework of urban planning and management systems; (c) connection with local and regional economies; (d) features of human use and preferences for specific forms of urban nature; (e) efficiency of urbanization control; and (f) ecological networking with other categories of natural protected areas. We used relevant case studies to present different experiences of urban protected areas designation and management (e.g. Eco Park - Stockholm, Schöneberger Südgelände Nature Park - Berlin, Văcărești Park - Bucharest, Hämeenlinna National Urban Park, Table Mountain National Park - Cape Town). Results reveal firstly the high diversity existing at in-ternational level between urban protected areas, deriving especially from: (a) the diversity of conservation interests, covering a wide spectrum of elements (high biodiversity, landscape features, historical context etc.); (b) the geo-graphical setting and urban patterns; (c) differences in approaches in legislation and urban planning systems. Secondly, we created a tentative typology of urban protected areas according to their main features, and included the main benefits they deliver to the municipality. In the end, we also identified some of the main challenges associated with

urban protected areas and discussed best-practices in coping with them. The perspectives of urban protected areas are strongly influenced by the cities' capacity to harmonize human-nature interactions, to integrate them in urban economy and to connect with the nature conservation efforts. Such results are useful not only for scientific community, but to all relevant stakeholders at urban level (public administration, developers, NGOs or general public) in providing solid arguments in the promotion of the emerging concept of urban protected areas.

Gradul de urbanizare diferențiat și dinamica infectării cu COVID-19 în România. O analiză preliminară asupra valului IV

George Secăreanu, Ioan Ianoș
Centrul Interdisciplinar de Cercetari Avansate Asupra Dinamicii Teritoriale, Facultatea de Geografie, Universitatea din București
secareanugeorge@yahoo.com

România este grav atinsă de valul al patrulea al Pandemiei COVID-19, ceea ce s-a reflectat in locul pe care îl ocupă la nivel european și mondial în raport cu numărul de decedați la 100.000 locuitori. Geneza acestui val a fost ușor întârziată față de restul Europei, chiar dacă o ușoară creștere s-a remarcat începând cu 23 iulie, de când numărul cazurilor active a crescut permanent, cu o accelerare mai ales după 20 septembrie. În comunicarea noastră ne-am propus să răspundem la întrebarea următoare: Care este contribuția urbanului la diferențierea creșterilor infectărilor la nivel de NUTS III în acest val? Am plecat de la ideea că o populație urbană ridicată înseamnă o mobilitate mult mai mare a populației, iar de aici posibilitatea ca județele cu o astfel de pondere să determine un loc superior al acestora în ierarhia infectărilor. Pentru aceasta am determinat și interpretat corelațiile dintre valorile infectărilor și gradul de urbanizare pe județe în câteva momente selectate: 21 septembrie, 1, 10, 15, 20, 25 și 30 octombrie 2021. Valoarea corelației maxime se înregistrează la data de 10 octombrie 2021, fiind de R=0.65. ceea ce ne arată rolul puternic pe care îl joacă variabila dependentă. Astfel, cu variații ale ponderii urbane cuprinse între 31.6 % în Dâmbovița și 77.5 % în Hunedoara (exceptând Municipiul București), pe de o parte și cu valori ale cazurilor active cuprinse între 1 la %0 în județul Gorj și 13.9 %0 în județul Cluj (excepție fac Municipiul București și județul Ilfov cu 18.9 respectiv 17.9 de cazuri la mia de locuitori) putem să constatăm o dispunere logică a valorilor. Principalii poli urbani și economici ai țării influențează în mod evident numărul de infectări, prin densitatea mare a numărului de persoane, cât și, probabil, prin numărul mare de teste efectuate.

Ground water levels under climate change pressure in north-eastern Moldova

Lucian Sfîcă[1], Ionuț Minea[1], Vlad-Alexandru Amihăesei[1,2], Robert Hrițac[1], Daniel Boicu[1]
[1]Faculty of Geography and Geology, Alexandru Ioan Cuza University of Iași, Romania
[2]National Meteorological Administration
sfical@yahoo.com

Ground water levels are very likely to change under the influence of climate variability. In climate change conditions, the changes in ground water levels can affect their value as water resource with negative impact on the natural and anthropic environment. In our study we investigate more than 45 hydrogeological stations distributed homogeneously over the Moldavian Plain with monthly data for the 1983-2017 interval. These data were analyzed together with monthly climate parameters from the main weather station in the region (Cotnari, Darabani, Botoșani and Iași). The relation between groundwater levels and climate parameters is assessed through correlation analysis, linear regression and nonlinear autoregressive neural network with external inputs. The results of these analyses indicate firstly an intense negative/positive correlation between air temperature and evapotranspiration/precipitation amount and ground water levels. Also, the neural network model performs better (R2 = 0,84) than any linear/non-linear regression approaches (with R2 < 0,30). Therefore, the data for air temperature and precipitation amount from an ensemble mean of 10 bias-corrected regional climate models of two climate scenarios (RCP4.5 and RCP8.5) are assimilated in this model in order to build projections of ground water levels towards the end of the century. These projections are presented in seasonal and annual details highlighting the impact of climate change on ground water levels in extreme north-eastern Romania.

Identity reconsideration of Carol I park - the first step in (re)discovering its multiple values

Titus Bazac[1]
[1]Faculty of Geography, University of Bucharest
titus.bazac@yahoo.com

Representing one of the historical parks of Bucharest, Carol I Park had a troubled history that altered its initial identity. The park was subjected in the 60s of the last century to a partial transformation that imprinted an ideological content and today, freed from these connotations, is still in the situation of redefining its identity. The purpose of this study is to present the first actions performed to reconsider this area with profound significance for the history of the city in order to (re) discover its multiple values.

Insights into the redevelopment of industrial heritage. Case study: Craiova, Romania

Amalia Niță
University of Craiova, Geography Department
amalia.nita@edu.ucv.ro

The industrial heritage has become a source of space redevelopment of many areas that were not well accepted previously by the public, becoming a valuable asset for urban economy. There are a significant number of used or unused industrial buildings included in the national cultural heritage list in Craiova. The redevelopment projects in this urban area focused mostly on the commercial, administrative or sport reuse of these facilities and wanted to attract specific targets such as young people or professionals. The

study reveals the perception of a group that were not necessarily residents of the city, towards the industrial heritage of Craiova in terms of understanding its value as a cultural asset and its reuse and capitalization in the context of urban and local development. There were highly valued some industrial buildings of the city and a strong interest towards their potential and conservation/reuse was identified among respondents. Problems are related to visual identification issues, poor economic benefits because of the improper reuse of facilities and lack of financial support. Thus, many of these industrial buildings are still trying to find a way for urban regeneration and economic development.

Impact of travel prohibitions and restrictions in the current context of the COVID-19 pandemic

Mădălina Maria Mateescu[1]
[1]"Octavian Goga" National College Sibiu
madalina_mateescu@gmail.com

The movement of people, especially outside the borders, has been and is still limited by the conditions imposed by the COVID-19 pandemic. Faced with the obstacles imposed by the prohibitions and restrictions on the free movement of persons both in the country and abroad, but also with the desire to travel, people, in this pandemic period, still chose to travel taking into account a number of factors, which he probably wouldn't have thought of before the pandemic.

The purpose of this study is to show the adaptability of human movement to the conditions imposed by the COVID-19 pandemic. During this restricted period, spending holidays and vacations seems to have remained the main purpose of traveling abroad. The analysis method used was that of the online questionnaire, developed and interpreted using the Microsoft Forms program. This questionnaire was applied to people of different ages, residing in Sibiu, Vâlcea and Hunedoara counties. The results of the study show that between June 2020 and September 2021, most of the respondents traveled to the country, of which 86% also traveled for tourism, recreation and leisure purposes. The predominantly chosen types of stay were weekends and holiday / vacation stays. Travel abroad from June 2020 to September 2021, had a small percentage with the predominant purpose of spending the holiday / vacation. By age groups, the 21-40 year old group traveled most often in the country and the 41-60 year old group traveled most often abroad. The study does not aim to follow only the share and purpose of the movement of people in the country and abroad, but also the means of transport used, the duration of the trip, the preferred tourist area, etc. Although during the studied period there were a number of travel restrictions, people did not give up travel for tourism, recreation and leisure.

Importance of multiscale predictors for digital mapping of soil properties

Andrei Dornik[1], Marinela Adriana Cheţan[1], Lucian Drăguţ[1], Daniel Dorin Dicu[2], Iliuţă Andrei[3]
[1]West University of Timisoara
[2]Banat's University of Agricultural Sciences and Veterinary Medicine "King Mihai I of Romania", Timişoara, [3]Pedological and Soil Agrochemistry Office, Arad)

andrei.dornik@e-uvt.ro

This study tests to what extent the use of multiscale predictors leads to improved digital mapping accuracy of soil properties. Experiments were carried out in two study areas located in the western part of Romania, along a transition zone between the Western Plain and Western Hills, where a digital soil database consisting of georeferenced soil profiles was available. The database includes 96 soil profiles in the first study area and 92 in the second one, each profile recording nine soil property values (clay, silt, and sand content, soil porosity within the 0-20 cm range, soil porosity within the restrictive horizon, pH, edaphic volume, humus reserve, and base saturation). We started with a set of 15 predictors (10 terrain attributes, a rock type map, precipitation, temperature, land cover, and a soil subtype map). Scaling was performed to reduce the topographic detail through resampling with bilinear interpolation. Thus, the original 12.5 m digital elevation model (DEM) was resampled to 25 m, then in 25 m increments to 1000 m, which result in 40 broader versions of the DEM. The 10 terrain attributes were derived from each downscaled version of the DEM, thus resulting in 400 terrain attributes used as feature space to map soil properties, along with the other five predictors. For each soil property, the predictors were prepared into two groups: 15 original (not scaled) predictors, and all 405 multiscale predictors. Our results confirm earlier studies, showing an improved accuracy in 8 out of 9 cases (first study area) and 5 out of 9 cases (second study area) when employing multiscale predictors instead of the original (not scaled) predictors. This study concludes that more accurate and less uncertain soil property maps can be produced by employing multiscale predictors, as compared to using only the unscaled predictors derived from the original DEM.

Innovating with nature-based solutions in the Romanian planning system

Mihai-Razvan Nita[1], Cristian Ioja[1]
[1]Centre for Environmental Research and Impact Studies, University of Bucharest
mihairazvan.nita@g.unibuc.ro

Nature-based solutions are increasingly being used by cites as means of achieving their sustainability and resilience objectives. Most frequently city managers and policy makers understand the value of NBS and also have the specific mechanisms and instruments in promoting and developing them. We start off from the experience of Romania, where the planning system is facing important challenges coming out from the weak enforcement of legislation, continuous pressure of developers and a deficit of well-trained specialists in the field working in the right positions. Even the strategic aspect is neglected, out of the 320 Romanian cities only 213 (roughly 66%) have development strategies or plans, and even in those cases they are poorly sustained by specific measures and indicators for monitoring progress. The most common objective of administrations for natural elements in the city seems to be just maintaining, or eventually increasing, the surface and percent occupied by green and blue

spaces at city level. From the 38 Environmental Actions Plans analyzed most of them include nature-based solutions only as peripheral actions, and most important the responsibility for developing NBS is always put on public authorities and institutions, even if some of them lack the specific competences to do it, and other are in significant financial constraints. In the end of the current presentation, we present ways in which the planning system in Romania (and discuss about the greater situation to be found in eastern Europe) has found the path for promoting NBS.

Involvement of cyclotouristic activity in sightseeing in the city of Călărași

Florian Alin Butoi[1], Nicoleta Narcisa Bira[2], Adelina Teodorescu[3], Camelia Teodorescu[4,5], Andrei Ducman[4]
[1]Tudor Vladimirescu" Middle School, Călărași
[2]Middle School "Spiru Haret" Oltenița City, Călărași
[3] „Ștefan Velovan" National Pedagogical College, Craiova, Dolj
[4]Faculty of Geography, University of Bucharest
[5]Research Center for Integrated Analysis and Territorial Management (CAIMT);
camelia.teodorescu@gmail.com

The evolution of tourism is taking on new directions at a time when society is going through a series of behavioral mutations. The attractiveness of the tourist attractions has appeared as a priority lately, whereas the cultural peculiarities of a geographical area or of a city must be highlighted. The purpose of this study is to show new ways of visiting the tourist attractions in Călărași. The combination of sports and tourism seems to be a creative activity. The method of analysis is empirical, that of the questionnaire, applied to those who have chosen as a way of visiting, the routes where they have been able to travel by bicycle, between June and September 2021. To complete the picture of the touristic action, the data has been interpreted with the SPSS program. The results show an increase of those interested in participating in tourism activity The attractiveness has increased, as a result of the appearance of this new way of travel, by bicycle. The age groups with a higher degree of involvement have been those between 10-14 years and 30-55 years old. The relationship between the two age groups is that of satisfying the curiosity of those in the first age group, by accompanying the adults. There have also been increases among the other age categories, but much more modest. The study aims to pursue other forms of discovery and valorization of tourist attractions. The existence of cultural and historical monuments without being visited and having an involvement in the local cultural education is irrelevant. Finding solutions that increase the attraction for the culture of both residents and tourists is commendable.

Local Education Clusters - Models of STEAM Commitment within Open Schooling Approaches

Laura Cristea, Elena Matei

Faculty of Geography, University of Bucharest, Romania
laura.cristea@unico.org.ro

Open Schooling (OS) is an innovative concept targeted to enrich the educational process beyond the curricula. The case of PHERECLOS project is an example of the European effort to bring its inputs by implementing the three main concepts: the Science Capital, the Children's Universities (CUs) and the understanding the OS culture, as innovative STEAM models of collaboration between varied numbers of diverse stakeholders. Starting from the idea that the STEAM is an approach to learn through critical thinking based on Science, Technology, Engineering, Arts and Mathematics, the purpose of this study is to reveal how beneficial are the models of commitment for educational establishments and different social communities which they interact with. Six Local Educational Clusters (LECs) serve as initiatives and experimental testbeds for schools seeking to boost the quality/quantity of STEAM commitment opportunities. Located in six different regions of the World, they consist of varied approaches and supporting tools, developed to help to build a thriving OS culture. A special focus is given to the interaction of stakeholders and key actors including schools and local businesses that are built upon the model of CUs. LEC participants were introduced to the principles of implementation research and to the importance of establishing a joint vision regarding the most important steps in the implementation processes by using dedicated templates to create specific work plans for each region. The templates covered the general description of the LECs and a widely used aid in implementation science, the Hexagon Tool. It allows a better understanding of how a new or existing program/practice fits into an implementing site's, figuring out the strength and weaknesses of innovation indicators: usability, evidence, support, and of the system: need, fit with current initiatives, capacity. Within the sustainability planning process of the LECs, a diagnosis of the current sustainability capacity was conducted to identify areas for developing sustainability strategies.

ACKNOWLEDGEMENTS: PHERECLOS has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 824630. (www.phereclos.eu)

Microfauna evidences of Black Sea connection to Mediterranean Sea during MIS 3 highstand

Mihaela Dobre[1,2], Alfred Vespremeanu-Stroe[1,2,3], Glicherie Caraivan[4], Luminiţa Preoteasa[1,3], Laurenţiu Ţuţuianu[1,2], Ionel Stan[1,2], Alexandru Berbecariu[1,2], Marius Stoica[5], Mihaly Molnar[6], Titanilla Kertész[6], Tiberiu Sava[7], Vasile Ersek[8], Bogdan Ispas[4], Cristian Panaiotu[9], Diana Hanganu[1]
[1]GEODAR Research Center for Geomorphology, Geoarchaeology and Paleo-Environments, University of Bucharest
[2]Faculty of Geography, University of Bucharest
[3]Sfântu Gheorghe Marine & Fluvial Research Station, Faculty of Geography, University of Bucharest
[4]National Institute for Marine Geology and Geo-ecology
[5]Faculty of Geology and Geophysics, University of Bucharest
[6]Hungarian Academy of Sciences

[7]RoAMS Laboratory, Horia Hulubei National Institute for Research and Development in Physics and Nuclear Engineering
[8]Northumbria University
[9]Faculty of Physics, University of Bucharest
miha.dobre06@gmail.com

Our work has focused on the Late Pleistocene evolution of the costal barrier from western Black Sea, in relation to the past sea-level changes, in order to achive new data on MIS 3 highstand and constrain further eustatic and paleoclimatic interpretations. For this study we used a 52 meter core from Mamaia barrier. We emphasized the role of ostracods as a paleoclimatic indicator. Ostracods play a fundamental role in our understanding of the geological and hydrological evolution of water bodies. Through ostracods we managed to see the periods of communication of the Black Sea with the Caspian Sea and Mediterranean Sea, or the periods when it was isolated. In addition to the ostracode analysis, we also used sedimentology and geochemistry analyzes.

Migration dynamics in the South - East Region of Romania in the period 1990 - 2020

Alina Caloian, Alexandra Cioclu, Gheorghe Lixandrescu, Adriana Bianca Ovreiu
Faculty of Geography, University of Bucharest
alinacaloian22@gmail.com

In the context of the demographic evolutions in Romania that started with the end of the last century, against the background of some changes in the socio – economic structure of the population, a significand position is given by the migratory stream as a result of economic, political or socio – cultural events, which over time, has caused territorial contrasts, generating compensatory population flows, between different regions of the country. Against the background of the phenomenon of demographic aging, the interest for education and implicitly of the economic restructurings, the migration dynamics of the South-East Region of Romania, took different forms, most of the times, following the trend of changes in the economic sector. The study analyzes the temporal and spatial dimensions but also the exposure of territorial contrasts, regarding the geographical distribution of the population in relation to the main favorable and unfavorable aspects, which resulted in a reconfiguration of the demographic structure of human capital. This facts determined the need for a series of spatial representations to reproduce the typology and mechanism of the migratory route of the population within the analyzed region, as well as the changes in the territory due to the intensity of the phenomena. Overall, there is a more and more pronounced movement of emigrant areas to the main polarizing centers, which determine various forms of spatial mobility, such as rural - urban or urban – rural mobility, inter - county migration, as well as long-distance travel.

Multicriteria analysis of favorability for the development of the radial roads - Bucharest Orbital

Robert Dobre[1], Cosmin Păunescu[2], Adriana Ilie[2], Alexandru Giurea[2],
Mădălina Teodor[1,3], Ionuț Săvulescu[1]
[1]Faculty of Geography, University of Bucharest
[2] Simion Mehedinți "Nature and Sustainable Development" Doctoral School, Faculty of Geography, University of Bucharest
[3]Romanian Young Academy
dobre@geo.unibuc.ro

Favourability analysis for the design, construction and operation of transport infrastructure is an important decision-making tool for both public authorities, beneficiaries and/or transport infrastructure managers, and also a real supporting document for consultants conducting technical and economic studies for the implementation projects. The general objective of the feasibility analysis is to faithfully highlight the main elements and the main restrictive or favourable factors for the development of transport infrastructure and to perform a detailed spatial analysis of the physical-geographical and socio-economic context of an area. The favourability analysis is based on the principles of multicriteria analysis and uses GIS and remote sensing methods and techniques, currently used both in Romania and in Europe. New, current and up-to-date databases, some of them of high-resolution and processed with GIS solutions are used in this analysis. The alignments established following the multicriteria analysis as well as the results of the evaluation of the relevant factors constitute a primary source of information - support in order to prepare the necessary documentation for public procurement for feasibility studies, design and construction works.The present analysis represents the source of information - support for starting and accelerating the preparation and implementation of transport infrastructure projects and does not replace the feasibility study or the technical execution project.This type of radial roads is a modern and current solution for connectivity to the A0 motorway, the surrounding areas, commercial, logistical and residential areas, and also for the exchange of traffic flows between A0 - Bucharest National Ring Road (DNCB) - metropolitan area and Bucharest. Feasibility studies will analyze and investigate the proposals made in this study and will be able, if necessary, to propose changes and new route alternatives based on justifications.

Nuclear energy in the context of climate change

Vasile Popa
Faculty of Geography, University of Bucharest,
popavasile2005@yahoo.com

Human society faces the great challenge of drastically reducing greenhouse gas emissions while providing increased amounts of energy. Although the share of renewable energy sources has increased in recent years, fossil fuels are still widely used and burning them makes large amounts of carbon dioxide enter the atmosphere. However, renewable energy sources may not be able to supply in time enough energy to

replace fossil fuels. Under the circumstances, the question arises as to whether nuclear energy could play a significant role in mitigating climate change. Although there is still confidence and support for nuclear energy, it is unlikely that this energy source will make a greater contribution to combating climate change in the coming decades. This study analyzes the current state of nuclear energy, as well as the development prospects in the context of climate change and risks to the environment and human health.

Patterns of landscape evolution and organic matter sink in the Lower Danube Floodplain since Middle Holocene

Laurenţiu Ţuţuianu[1,3], Alfred Vespremeanu-Stroe[1,6], Mihaela Dobre[1], Diana Hanganu[2,3], Tiberiu Sava[4], Ionel Stan[1], Sabin Rotaru[5], Luminiţa Preoteasa[6], Cristian Panaiotu[7]
[1]GEODAR Research Center for Geomorphology, Geoarchaeology and Paleo-Environments, University of Bucharest
[2]ICUB Research Institute of the University of Bucharest
[3]Emil Racoviţă Institute of Speleology
[4]RoAMS Laboratory, Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering
[5]National Institute for Marine Geology and Geo-ecology
[6]Sfântu Gheorghe Marine & Fluvial Research Station, Faculty of Geography, University of Bucharest
[7]Faculty of Physics, University of Bucharest
tzuk_laur@yahoo.com

The present study is based on 10 cores from the Lower Danube floodplain between Braila and Tulcea, 50 14C ages, over 1000 granulometry and LOI samples analyses, over 100 microfauna, pollen, and XRF analyses. All these data allowed us to understand the landscape evolution patterns of the floodplain since Middle Holocene that is dominated by two major phases: I. Between 8000 and 5500 years BP - a dynamic floodplain (with wet and dry areas interchangeable) developed in a period with a decelerated sea level rise. In that time we find a decrease in the sedimentation rate (from 6.7 to 1.2 mm / year) and in the particle granulometry (from ~ 4.75phi to ~ 6.5phi) and an increase of the organic matter content by about four times (from 2.5 to 10%) and II. Between 5500 BP and the middle of the XX century - a semi-stable floodplain (with large lakes and wetlands which were partially silted by small channels). This phase was developed in a time with a quasi-stable sea level and it can be subdivided into two sub-phases: IIa (5,500 - 2,200 BP) and IIb (2,200 - XX century). In the first, the sedimentation rate decreases slightly (up to 0.7 mm / year) while the organic matter content becomes almost double (~ 19%, 2200 years ago) and in the second, after the rise of the Roman Empire, the sediments become finer with a much lower content of organic matter (~ 12%) and the sedimentation rate become doubles (~1.7 mm / year in the last millennium), all due to increased anthropogenic influence in the Danube river basin.

Plio-quaternary tectonic deformations and gravity processes in north-eastern Algeria

Chaouki Benabbas
University of Constantine 3, Constantine, Algeria
benabbas.chaouki@univ-constantine3.dz

The analysis of the gravity processes in the north-eastern Algerian region reveals a great complexity in their distribution and their influence on the stability of the slopes. The identification, mapping and understanding of these processes have become an essential issue for a good planning policy. Indeed, many regions of north-eastern Algeria are subject to soil erosion and gravity movements. This erosion is becoming a real environmental and economic problem for the sustainable development of these regions. The aim of this work is to present a methodology, adapted to the explored region, based on field investigations and multi-source mapping. This approach has allowed a better knowledge of these phenomena and processes such as:

- The geological substratum of these lands has gone through a complex tectonic history (heritage), the relief is vigorous, dismembered and rugged;
- The neo-active, even seismic character of certain accidents is highlighted by morpho-geological revelators;
- These accidents seem to control the setting up and evolution of the gravity processes. The analysis of the drillings, the reading and interpretation of the inclinometers and piezo meters confirm this;
- The mineralogy and the mechanical and physico-chemical behaviour of the formations in the region contribute also to the setting up of gravity movements.

With the development of this methodology, we have been able to offer a useful and practical tool to the authorities, which can be a basic element for the development of integrated land management in relation to gravity processes in general and landslides in particular.

Preliminary Study on the Evaluation of Spatial Accessibility to Highschool Network in Dâmbovița County

Angelo Andi Petre
Faculty of Geography, University of Bucharest
angeloandi00@gmail.com

Spatial accessibility to school facilities is an important component of spatial analysis that emphasises the disparities in education provision. This paper explores the potential access to high schools in Dambovita County by using the Two Step Floating Catchment Area (2SFCA) method in order to calculate an accessibility index. Distances were calculated by using the Distance Application Program Interface (API) from Open Street Map, using the shortest path by individual car and the distance to the nearest high

school. Also, capacity of the facilities and demand size were determined by using data from the County School Inspectorate Dambovita (ISJ DB) and National Institute of Statistics (INSS). The spatial accessibility index was calculated and the results show a big gap between rural and urban settlements. Also, high school facilities are located mostly in urban settlements, while rural settlements are more isolated making it more difficult to reach the nearest facility. We observe that the simple 2SFCA method might be improved by using a modified or hierarchical two steps floating catchment area (M2SFCA). The high concentration of school facilities in urban settlements makes it more difficult for students residing in rural settlements to reach high schools and the time travel is very high, generating a reduction of school productivity as well as being a factor that influences the dropout rates of school. The results could be useful for the decision-making authorities in order to provide equitable access to education facilities.

Quantitative and qualitative analysis of territorial flaws in the urban-rural interfaces. Case study: Mihailesti town - Bucharest city linkages

Cosmina-Andreea Manea
Simion Mehedinți "Nature and Sustainable Development" Doctoral School, Faculty of Geography, University of Bucharest
cosmina.manea@drd.unibuc.ro

The urban-rural interface spaces are extremely dynamic from economic, demographic, social, cultural, etc. points of view. Also, due to strong external pressures from the polarizing city, their local identity is gradually replaced by urban values, customs and traditions, and in terms of quality of life there is an increasing urban dependence. Using the method of interactive story maps (via the Survey123 platform), local high school students from Liceul Tehnologic Tiu Dumitrescu, a small town in the urban-rural interface of the Romanian capital, Bucharest, identified both the main problems faced by their locality, as well as the main flows between Mihăilești town and the capital. In this way, local public authorities can precisely identify the problems that cause a fall in the youth population, such as accessibility and quality of various services, and are thus able to directly address the causes and fix problems in time, both at whole commune and at street / neighborhood level.

Quantitative expressions of climate variability in the Black Sea coastal region. Case study: Constanta and Mangalia weather stations

Manuela Bărbărie[1], Anca Albu[2],
[1]University of Bucharest, Faculty of Geography;
[2]Constanța "Ovidius" University, Faculty of Natural Sciences and Agricultural Sciences, Department of Natural Sciences
manuelabarbarie@gmail.com

This paper analyzes the quantitative expressions of our coastal area, more precisely at the meteorological stations Constanța and Mangalia. At the level of thermal and pluviometric parameters there was a slight

increase in temperature from south to north, the minimum temperature being in January on the coast and in February in the sea and the maximum in July for both stations. Regarding the precipitation, the maximum rainfall was recorded at both stations in November, and the minimum in February and March.

Reducing the gaps between urban and rural areas, in the context of sustainable developments

Laurențiu Ciornei[1], Paula Munteanu[2], Roxana Cuculici[3], George Muratoreanu[4]
[1]Center for Study and Research for AgroForestry Biodiversity "Acad. David Davidescu", Romanian Academy
[2]School of Advanced Studies of the Romanian Academy, Romanian Academy
[3]Faculty of Geography, University of Bucharest
[4]Departament of Geography, Valahia University, Târgoviște
laurentiu.ciornei@ince.ro

Reducing the gaps between urban and rural areas is one of sustainable development objectives included in the Agenda 2030. Looking from this perspective, in the last thirty years, it can be stated that the heating and endowment with utilities of rural houses in Romania have been the major concern of both the population and the decision-maker, given the critical situation in communism. At the same time, the living area in Romania increased by over 77% and the constructions made in rural areas were more numerous than those in urban areas, with a share of over 52%, most of them being built in the vicinity of large urban agglomerations and in the peri-urban area, on the returned lands, which were previously part of the forest fund, or of the agricultural one. Moreover, more than 50% of the existing buildings have been modernized, increasing the heated area and the water supply and sewerage network, implicitly the energy and utilities consumption.

Through this study we want to highlight the fact that the mitigating of gaps between urban and rural areas, as this process has been understood, throught changing the land usage and increasing consumption of primary resources, has changed the relationship with nature and led to current landscape transformations.

Thus, through several econometric analysis we will demonstrate that this process has a negative impact on the environment, contrary to the sustainable development principles. The results indicate that, although the country's population has declined in the last three decades, the primary resources consumed have increased, especially the firewood used to heat homes. The correlations between indicators suggest that the increase in wood consumption could be attributed to illegal logging, given that over 60% of buildings in Romania continue to depend on this resource.

Resistance and resilience of tourism destinations in Romania during COVID-19 crisis. A spatial perspective

Lucian Roșu, Mihai Bulai
Faculty of Geography and Geology, Alexandru Ioan Cuza University
luci_r2003@yahoo.com

The Covid-19 brought a global economic and social crisis and therefore, a large number of questions are being raised about its effects on all economic sectors. . Like most of European countries, tourism in Romania has been hardly affected, being the most sensitive sector to crisis. Changed in behavior, mobility, consumption and many others led to implications that are difficult to assess. Therefore, the present research questions the changes that occurred in arrivals at local level in the Romanian territory in 2019, 2020 and 2021. The results highlights that the impact was devastating for MICE tourism (50% loss in total arrivals), usually being deployed in large cities and their metropolitan areas. Secondary, crisis has affected bathing and spa resorts - localities which base their economy on tourism sector. On the other hand, leisure tourism (mostly located in rural territories) had an advantage based on changing patterns of proximity mobility. The changing behavior together with administrative limitations led to a different mobility and connectivity, based more on local perspective (Staycation) which enhanced a resistance to crisis and the emergence of resilient territorial destinations.

ROCLIB Climate Data Explorer

Vlad Alexandru Amihaesei, Alexandru Dumitrescu, Sorin Cheval
National Meteorological Administration, Bucharest
vlad.amihaesei95@gmail.com

Romania, like many countries, is under the pressure to reduce the climate change and adopt new measures to current situations which will impact our lives, well-being and economy. Climate service, which provides relevant climate information in a way that assists decision making by individuals and organizations, is an important instrument to face climate change adaptation and mitigation. Climate services can definitely help authorities plans and communicate the relationship between climate and the impact of our actions.

Our study focuses on providing accurate and relevant information about climate change over Romania's territory, by using an interactive dashboard implemented in an open-source web application (RoCliB data explorer - http://suscap.meteoromania.ro/en/roclib). The RoCliB data explorer encompasses the long-term climate projections (up to year 2100). The web application has implemented data of four essential climate variables and, moreover, in order to translate useful information of climate services into

practical (usable) information as required by users, several climate indices (relevant for agriculture) were also calculated.

The application offers to the users the possibility to download the maps as PNG file, and the raster data used to compute the maps can be downloaded for each visualized climate variable in GeoTIFF format. These outputs can be used locally to take concrete climate actions and integrate them into decision-making processes for Romania's territory.

The web application is based on daily climate projections over the 21st century at 0.11° spatial resolution (about 12.5 km × 12.5 km), originating from the EURO-CORDEX initiative. Two Regional Concentration Pathways (RCPs) climate projections were selected: the moderate (radiative forcing to stabilise at 4.5 W/m2 before the year 2100) and business-as-usual (radiative forcing to stabilise at 8.5 W/m2 before the year 2100). The changes of climate variables and indicators are computed for each season and at the annual scale as differences between future periods (2021-2050 and 2071-2100) and the historical period (1971-2000).

In addition, we emphasize the importance of a solid links between climate services and the decision-making (stakeholders), for this, the web application of climate service is under continuous development and new climate indicators will be implemented.

This work was supported by a grant from the Romanian National Authority for Scientific Research and Innovation, CCCDI-UEFISCDI, project number COFUND-SUSCROP-SUSCAP-2, within PNCDI III.

School cultural and touristic offer during the online teaching period due to the covid-19 pandemic

Camelia Teodorescu[1], Alina Viorica Dumitrașcu[2], Bogdan Petre[3], Maria Ciobanu[4], Cristina Ciocoiu[5]

[1]Department of Human and Economic Geography, Faculty of Geography, University of Bucharest

[2]Specialized inspector – Geography, Constanta School Inspectorate

[3]Gh. Lazar" National College, Bucharest

[4]Specialized inspector – Geography, Craiova, Dolj School Inspectorate

[5]Middle School "Mihai Viteazul", Craiova, Dolj

camelia.teodorescu@geo.unibuc.ro

In the current period in which the society has to adapt to a situation that it has not faced before, it is necessary that, even in teaching the notions of tourism and the touristic offer, of school or educated tourist offer, solutions and ways should be found, so that information could be transmitted and, especially, the message should be received by students. The purpose of this study is to show those interested, especially teachers who follow the development of outdoor programs and activities, such as excursions, how these activities can be carried out during the online teaching period. The Covid-19 pandemic considerably limits or eliminates outdoor activities, but teachers can support school education with virtual routes, including historical monuments, natural landscape or flora and fauna. In this case, it is necessary that the message should be clear, adapted to the age and contents, the main purpose being that of acquiring knowledge. The purpose of participating in the development of the general culture of the students and their personal development should not be neglected. The methodology is the one of

choosing topics of school interest, in this case of cultural and historical monuments, by making virtual presentations, then the materials should be presented to the students following the evaluation through discussions of the basic notions that were intended to be transmitted. The results can help students in understanding notions and phenomena, retaining more details about certain monuments or phenomena, all adapted to the school curriculum.

Smart City ideas for Sighisoara. Can a medieval fortress cope with the challenge?

Bratu Daria-Petruța
Simion Mehedinți "Nature and Sustainable Development" Doctoral School, Faculty of Geography, University of Bucharest
daria.bratu@drd.unibuc.ro

A Smart City represents a caring urban area that uses different types of sensors to collect an electronic data in order to provide information that is used to efficiently manage its resources. The Smart City concept comprises six major areas: smart environment, smart mobility, smart government, smart people, smart living and smart economy. This paper aims to present aspects of the urban development of Sighișoara that can be classified in the Smart City category. Although it is a small municipality, with a population of 24,447 inhabitants, according to INSEE on January 1, 2020, and has its hearth located on one of the oldest historical localities in Romania, being at the same time a UNESCO site, it has been experiencing in recent years an application of smart projects in the field of urbanism. Without going into contradiction with the medieval vestiges of the municipality, in Sighișoara we try to intertwine the historical environment with the new technologies of the XXI century based on digitalization. The Internet of Things (IoT) is already present in the city by implementing programs in transport, infrastructure and parking. Projects are underway on the construction of smart residential complexes and the transition of digitalization to industry and agriculture. The new global challenge of SARS-COV-2 virus requires a more alert development of smart systems that help to comply with the rules imposed by the authorities without creating discomfort to citizens. The smart citizen is the most important tool in the fight against the pandemic. A citizen who learns to communicate with public authorities and institutions with the help of the internet, who pays his taxes and taxes online is one of the answers of technology to the problems raised by the COVID-19 pandemic. At present, more than 7 billion euros of European funds are available at EU level for the smart development of communities. Sighișoara is among the cities that have seen this development opportunity.

Socio-economic features of towns neighbouring Bucharest municipality

Bogdan Petre[1], Andrei Ducman[1], Alexandra Cioclu[1], Alin Florian Butoi[2]
[1]University of Bucharest, Faculty of Geography

[2]"Tudor Vladimirescu" Middle School, Călărași
bogdanpetre12c@gmail.com

Every settlement, either urban or rural, is permanently in a state of change from a social and economic point of view. Urban settlements in the neighbouring area of Bucharest municipality are no exception. The objective of this study is to show the socio-economic situation of these areas, analysing part of the statistical indicators. From the methodological point of view, statistical data provided by INS were used, and their processing was done by means of specific programs – Excel and SPSS. The results show the fact that the demographic dimension is closely related to the economic dimension. Bucharest municipality continues to have a major influence upon these cities whose economy is still linked to this to a great extent. It is also obvious that some of them, such as Voluntari and Otopeni towns, from the economic point of view registers a large number of economic agents whose activity have a fiscal value with a high figure. At the opposite pole are the towns Chitila and Măgurele. In these cases, the number of economic agents – the number of companies is quite low, and the economic effects are felt in the wages quality of the population in these urban settlements. The other towns, such as Popești Leordeni, Bragadiru and Pantelimon register data situated in a relative balance between the economic and demographic situation. Each of them has features resulting from endogenous and exogenous influences. For each of the urban settlements in the neighbouring area of Bucharest municipality, the economic analysis shows the greatest diversity of dominant domains in the local economy, which once again emphasises the specific of the economic tradition and their profile.

Space-time model extraction using as input measured data from hydrometric stations in the Oltenia Plain

Cristina Georgiana Zanfir
Simion Mehedinți "Nature and Sustainable Development" Doctoral School, Faculty of Geography, University of Bucharest
cristina.zanfir@drd.unibuc.ro

The paper aims to identify periods with high and low flows on streams using the statistical method of analyzing the data patterns, based on creating of space-time models at hydrometric stations located in the western part of Oltenia Plain. The study area overlaps Jiu catchment area and the analyzed time period is between 2010 – 2020.

The initial step in extracting these space-time models is to create a space-time cube that aggregates the data into a multidimensional cube data structure (netCDF). This is a tool for extracting spatio-temporal models, that can use statistics to incorporate spatial and temporal aspects of the data in order to understand their spatio-temporal trends.

The results consist in creating a database in space-time cube format and a 3D model in fixed locations (e.g. hydrometric stations) having as variables the streamflow, air temperature, and atmospheric

precipitation. The created database will subsequently allow the analysis of spatial and temporal patterns of data over a span of ten years.

Spatial data usable for protected area management in Romania

Vânău Gabriel[1], Iulian Niculae[1], Sorin Avram[2], Carmen Gheorghe[2]
[1]Faculty of Geography, University of Bucharest
"Costin C. Kiriţescu" National Institute for Economic Research, Romanian Academy, Bucharest
gabriel.vanau@geo.unibuc.ro

The management of protected areas nowadays is based on specific spatial data, providing information about the configuration of the geological layers and topographic surface, soil distribution, climate conditions, water bodies characteristics, distribution of habitats and species, land-use, population density, human infrastructures position and so on. It is extremely important that this information is available, accurate and up to date. We have assessed the existing sources of spatial data for the protected areas management in Romania and we have found there are some problems that need to be addressed. We have also identified some alternative modalities to obtain spatial data usable for the management of protected areas in Romania.

Spatio-temporal changes of in-stream vegetation area as indicator for river channel dynamics in multi-thread rivers

Gabriela Ioana-Toroimac, Gabriela Osaci-Costache, Liliana Zaharia
Faculty of Geography, University of Bucharest
gabriela.toroimac@geo.unibuc.ro

Previous studies showed that vegetation is a good indicator of river channel dynamics. Therefore, the aim of our study is to test this hypothesis on case studies of multi-thread rivers. More precisely, the objective of our work is to compare the diachronic behavior of two types of river planforms – braided with high energy versus anabranching with low energy. To answer this objective, we compare the 2D elements of river channels on cartographic documents and satellite imagery for more than 150 years. Along the high-energy braided sector, the Prahova River lost the islands covered by vegetation and riparian vegetation recruited the banks of the abandoned active channel. This finding suggests a decline of the braiding activity and that erosion became dominant over deposition. Along a low-energy anabranching sector of the Lower Danube River, the islands covered by vegetation became relatively stable especially since the middle of the 20th century. The river has less energy to modify the form of islands. Both case studies of river planforms characterize by a change in river style – more obvious for the braided sector of the Prahova River and less dramatic for the anabranching sector of the Lower Danube River. This is probably due to a decrease of sediment load and less morphogenic floods especially in the last decades as

consequences of various human pressures. The patterns of the spatio-temporal dynamics of vegetation area identified in these case studies recommend vegetation as indicator for the analysis of multi-thread river channels evolution.

Students' perception of the classical, hybrid and online teaching-learning-evaluating models at the geography discipline

Florentina Toma[1,2], Daniel Bălan[1,2], Daniel Constantin Diaconu[2,3], Cristian Drăghici[2,4]
[1]University of Bucharest, Faculty of Geogrpahy, Simion Mehedinți "Nature and Sustainable Development" Doctoral School
[2]Research Center for Integrated Analysis and Territorial Management, University of Bucharest
[3] Department of Meteorology and Hydrology, Faculty of Geography, University of Bucharest
[4]Departament of Human and Economic Geography, Faculty of Geography, University of Bucharest
florentina.toma111@gmail.com

Traditional pre-university education in Romania has been replaced by online and hybrid education during the COVID-19 pandemic, carried out on a series of online educational platforms and usage of informational technologies. So, the educational process turned into a distance education through virtual communication. Considering a starting point the research published worldwide about e-learning and the hybrid model, we present and discuss the advantages and disadvantages of online and hybrid education at pre-university level, with reference to the discipline of geography. To achieve our goal, we conducted a literature review on articles dealing with traditional pre-pandemic pre-school education and the online and hybrid model during the pandemic, taking into consideration our personal teaching experience on the subject, as well as the perception of our students. The present study is an attempt to comparatively evaluate the three teaching-learning models from the students perspective through an analysis of an anonymous online questionnaire applied at two schools in Romania, identifying the effects and solutions. The results indicated similarities and differences between them and the fact that the benefits of traditional, online and hybrid education are when using appropriate teaching strategies and reveal that certain students have been affected by the new teaching-learning models used during the pandemic crisis.

TEAM4SEAS Geo-platform - a decision support tool for maritime spatial planning

Natasa Vaidianu[1,2], Florin Tătui[3], Florin Iosub[4], Olimpia Copăcenaru[3,5], Daniel Urdă[4], Mădălina Popa[3], Igor Sirodoev[1,2], Andrei Schvab[1,2]
[1] Ovidius University of Constanța, Constanța, Romania
[2] Interdisciplinary Center of Advanced Research on Territorial Dynamics, Faculty of Geography, University of Bucharest
[3] Faculty of Geography, University of Bucharest

[4] Essensys Software, Bucharest
[5] Terrasigna, Bucharest
natasa.vaidianu@geo.unibuc.ro

European seas are subject to rapid development. With its Blue Growth strategy and Maritime Spatial Planning Directive, the European Union seeks to strengthen the economy, increase jobs, income, and secure long-term wealth by "unlocking the potential of the sea". This triggers interest in interactive platforms, with complex features like technology, governance, financial, socio-economic, and environmental aspects. The perception of maritime subjects and issues are different between groups of people and depends on the information available to either party. The communication of scientific results is thus crucial to increase literacy and allow informed decision-making. From this perspective, our paper presents a Free and Open-Source Web-GIS application developed within TEAM4SEAS project and the advantages of this tool. The platform is based on Geographic Information Systems (GIS) which consists in some essential steps: collection, storage, processing, analyses and display of geospatial data (e.g. output maps and graphs). Results illustrate how a web-GIS tool can be applied as a sound basis for practically incorporating the participatory approach within maritime spatial planning process in Romania. It enables stakeholders and the public easy access to spatial and temporal distribution of human activities in marine areas. The web-GIS application also allows searching, viewing, and downloading Romanian Black Sea GIS data and metadata and users can create or edit layers for their own maps in a user-friendly way. Key-benefits include effective data management, increased spatial understanding and the definition of conflicts across the Romanian Black Sea region.

Temporal dynamics and spatial disparities in public water supply in Romania

Liliana Zaharia[1], Gabriela Ioana-Toroimac[1], Gabriela Adina Morosanu[2]
[1]Faculty of Geography, University of Bucharest
[2]Institute of Geography, Romanian Academy
zaharialili@hotmail.com

Access to fresh water, in sufficient quantity and good quality, is crucial for human health and socio-economic development. Public water supply systems are key elements for properly functioning societies. Ensuring availability and sustainable management of safe water for all people is one of the important Millennium Goals (Goal no. 6).

In this context, the present study aims to investigate the temporal and spatial dynamics of two relevant indicators related to the public water provision in Romania, namely the length of the drinking-water supply network and the volume of drinking water delivered to consumers. The study is based on statistical and spatial analysis in GIS environment of data provided by the National Institute of Statistics. The results show a clear progress in the development of the drinking water supply network, whose total length in Romania has increased by about 3 times nowadays compared to the 90s. The highest growth in was found in Ilfov county, while the lowest progress was noticed in the city of Bucharest and in the

Botoșani and Maramureș counties. Regarding the drinking-water volumes delivered to consumers, they decreased by almost 50% at both country and county levels since 2000 to the present day. Only Ilfov county has experienced an increase of over 1.5 times due to the large urbanization expansion in the last three decades of the peri-urban area of Bucharest. This study showed that nationwide, the most disadvantaged counties in terms of drinking water supply are those located in the NE of Romania. They need particular attention and priority for investments in developing the facilities and services related to drinking water supply.

The analysis of the loan indebtfulness degree of Romania's population during the years 2002- 2019

Camelia Teodorescu[1], Alexandra Cioclu[1], Maria Ciobanu[2], Cristina Ciocoiu[3]
[1]Faculty of Geography, University of Bucharest
[2]Specialized inspector – Geography, Craiova, Dolj School Inspectorate
[3]Middle School "Mihai Viteazul", Craiova, Dolj
camelia.teodorescu@geo.unibuc.ro

The financial system is a set of arrangements and conventions that facilitate the transfer of money from its holders to those who need it. Our study performs an analysis of loans offered by banks to individuals. The loans have been granted, following the requests, both in lei (the national currency of Romania) or in the international currency as well. The analysis is performed based on data provided by the National Bank of Romania and the National Bank Deposit Guarantee Fund of Romania (FGDB) and presents the situation in each county and development region in Romania. Methodologically, in this study there have been rendered as for the period 2002-2019, two aspects: firstly the ratio between loans in national currency compared to loans in international currencies and, secondly, the relationship between accessing and the evolution of loans for houses/ flats in relation to the access and evolution of loans for personal needs, both in the national currency or in the international currency as well. A special analysis showed a clear representation of the way the situation has been treated, for both mentioned aspects, as well as the distribution of the results on the geographical regions of Romania. In this way, the results highlight the differentiated behavior of the population in each geographical region. The present study is only a part of a much more detailed analysis that follows the analysis of the indebtedness of the Romanian population, in which other indicators are also present.

The Biodiversity Conservation in the Lower Danube Valley

Daniela Strat[1], Iuliana-Florentina Gheorghe[2], Simona Mihăilescu[3]
[1] Faculty of Geography, University of Bucharest
[2] Ecological University of Bucharest
[3] Institute of Biology, Romanian Academy
danielastrat@gmail.com

The rivers and their floodplains are integrated systems. The biodiversity of the Lower Danube River (LDR), in terms of species and habitats, is strongly linked with its hydro-geomorphic-diversity and the natural regions that it passes. During the 20th century, particularly after World War II, the LDR has undergone alteration of physical habitat, significant landscape changes, and ecological loss as a result of hydro-power damming works and their associated water reservoirs, floodplain embankment, wetlands drainage, chemical pollution and eutrophication, and invasion of exotic species. Few areas, including reed marshes, meadows, floodplain forests, large shallow lakes, fluvial islands, and the braided section of the river named "Insula Mică a Brăilei", have been preserved in natural regime in order to preserve valuable samples of biodiversity, hydro-morph dynamic processes, and particular fluvial land-forms. After the 1990s, due to the change of the political system in Romania and following integrated programs of the Danube Riparian States, some areas of the engineered floodplain are subject to ecological restoration and management in order to provide convenient ways of reconciliation between nature and human society for a sustainable development. The currently Ramsar and Natura 2000 sites network that were designed along the LDR provides the national and international legal framework of protection and conservation of wildlife and its habitats.

The economic impact of the LEADER program in the Romanian rural territory

Ana-Maria Opria[1], Lucian Roșu[1], Corneliu Iațu[1]
Department of Geography, Faculty of Geography and Geology, Alexandru Ioan Cuza University of Iasi
opriaanamaria@yahoo.com

The sustainable development of rural areas is one of the objectives pursued at European level. The LEADER program of the EU contributes to its fulfillment by offering a financial support to the disadvantaged rural areas. An important component of sustainable development is economic development insofar as it ensures the material well-being of communities. Thus, the purpose of this paper is to assess the economic impact of the LEADER program in the Romanian rural communities. For this, econometric methods of impact assessment were used to comparatively analyze the evolution of economic indicators in the communes included in LAGs and in those not included. The results indicate an overall positive evolution of the economic indicators in both the beneficiary and non-beneficiary territories. However, the contribution brought by the LEADER funds to the beneficiary communities is proving to be not significant and without a strong impact on their economic development. Thus, the

study highlights the potential of the LEADER program to stimulate the economic development of rural areas, but without being able to ensure a much higher level of development compared to non-beneficiary territories.

The evolution of planning and urbanism in the peri-urban space of Bucharest. Comparative analysis of the cities Otopeni, Bragadiru and Snagov village

Claudiu Bîță[1]
[1]Faculty of Geography, University of Bucharest
bitaclaudiu@gmail.com

The main purpose of this study is to make a comparative analysis of the evolution of the peri-urban space of Bucharest in three areas located differently from it. Thus, the analysis has as samples cities located both in the immediate area of the city such as the South (Bragadiru) North (Otopeni), but also of the distant northern peri-urban space as the Snagov village.

This analysis aims to highlight the quality of planning and urban evolution of these settlements by studying the plot plans, the main urban documentation adopted, compliance with the regulations of the General Urban Plan and the number of derogations from it, but at the same time the study will address other important issues related to these settlements such as economy, urban endowments, educational units and their accessibility, accessibility to public transport, etc. to be able to identify the main problems in order to recommend solutions to combat them.

To obtain comparable final results, a standardization of the indicators used will be made for these settlements to receive a final grade that presents the level of development and endowment of the territory of the respective administrative unit and at the same time the quality of life in each settlement.

The evolution of the tourist circulation in the urban settlements from Mehedinți county

Ana-Maria Roangheș-Mureanu, Amalia Mihaela Oglindoiu
Faculty of Geography, University of Bucharest
ana_mureanu@yahoo.com

The position of Mehedinți County in the southwestern part of Romania, on the left bank of the Danube, together with the anthropic structure contributed to the evolution of the regional territorial system. Demographic change, together with other types of structures, highlights the human potential of the region. The natural factor has a special role through its function of support for the anthropic element, through the role of barrier both for the climatic factors, but also for the historical, economic and social ones. On the other hand, the area of influence of cities does not coincide with their administrative boundaries, it being wider, as in the area of Drobeta-Turnu Severin, or narroer depending on the size and importance of urban settlement at the regional level. The peripheral position of the existing urban settlements in the studied region, offers the possibility of polarizing the entire territory, but feeling the

stronger influence of the urban center of regional development, Drobeta-Turnu Severin. Regarding the tourist activity, it focuses on the capitalization of some resources, through actions and tourist products, which is achieved through the infrastructure created by man for this purpose, namely accommodation infrastructure, public catering, transport and leisure, the purpose being attracting tourists.

Although the existing values at the level of the Mehedinţi urban centers are characterized by ascending curves, a detailed analysis of the existing tourist market is required based on the most important tourist indicators.

The Future of the Post-socialist Peri-urban Areas

Oliver-Valentin Dinter, Lucian Roșu, Adrian Mihai Cimpu
Faculty of Geography and Geology, Alexandru Ioan Cuza University
oliverdinter7@gmail.com

The uncontrolled urban sprawl in the post-communist era represents a phenomenon that caught the interest of Urban Geography researchers (more precisely specialists in Urban Planning and Real Estate Geography) as well as architects and sociologists. The transition to the capitalist economy in Central and Eastern Europe determined a chaotic spatial distribution of new residential developments (in greenfield areas of the suburbs), which recorded also an unprecedented accelerated pace, due to the fast-growing demand of the citizens.

The built area of Iasi Municipality is extending over its administrative limit, forming extended and heterogeneous areas that in most cases connect the urban area with the surrounding villages (e.g. Păcurari - Valea Lupului, Galata – Miroslava, C.U.G.- Valea Adâncă etc.).

In order to elaborate the adequate solutions to the issues caused by the suburbanisation, it is necessary to study the spatial patterns of this process. Using Deep Learning techniques, it will be possible to detect the areas that recorded the most severe land use transformation in the post-socialist decades. Therefore, prediction tools provided by ArcGis Pro will reveal the patterns of suburbanisation in the following years, highlighting the areas that should receieve a more dedicated focus from the authorities, in order to prevent a disorganized evolution of the city and also provide a sustainable development of the suburbs.

The green walk – An analysis for improving the accessibility of urban green spaces

Mihai-Răzvan Niță, Nicoleta Larissa Stoia, Diana-Andreea Onose, Athanasios-Alexandru Gavrilidis, Ana-Maria Popa, Cristian Iojă
Centre for Environmental Research and Impact Studies, Faculty of Geography, University of Bucharest
larissa.stoia@gmail.com

The importance of urban green spaces in providing ecosystem services to the population is increasingly being recognised by scientists, policy makers and the general public. Across cities, urban planners are seeking to reconcile the location of urban green spaces and the accessibility of the public. The main aim

of our paper is to assess the accessibility of urban green spaces and to identify perceived benefits along the travel route to urban green spaces, starting from a selected case study in Romania. We started from a spatial analysis of a service area based on the case study for an urban park in Bucharest (Tineretului). With the help of network analyst in ArcGis Pro we established the boundaries of the service area (using urban park boundaries, street network, traffic restrictions) and applied two methods of travel to the park (walking and cycling). We applied a survey to 202 respondents, collecting information on the routes and methods of reaching the park, as well as the perceived benefits of selecting the preferred method and route. The main results revealed different patterns delimited by a number of criteria: age (elder population preferred public transport and shaded routes), income (people with higher incomes selected travelling by car and accessing elements with parking facilities), group structure (people with children selected routes perceived as safe). In conclusion, such an analysis is a useful tool for urban planners in developing and managing urban green spaces in close relation with neighbouring spaces and facilities.

The impact of deindustrialization and the dynamics of services on industrial heritage. The municipality of Timişoara as a case study

Florentina-Cristina Merciu, George Merciu
Faculty of Geography, University of Bucharest
cristina.merciu@geo.unibuc.ro

The radical changes that have taken place in recent years generated by the process of industrial restructuring, have brought the industrial heritage to the center of attention, attributing to it an innovative role in the contemporary transition. This study is focused on the analysis of the impact generated on the industrial heritage by the accelerated urban development of the Municipality of Timişoara, the third largest city in Romania. Against the background of rapid deindustrialization and accelerated dynamics of services, various abandoned industrial heritage buildings were identified (Slaughterhouse, cigarette factory, Water Towers in Iosefin and Fabric neighborhoods), as well as a number of forms of destruction of industrial heritage buildings (Kandia chocolate factory, hat factory, ISLA wool factory). These actions with a negative impact on the elements of industrial heritage were manifested as a result of a more flexible territorial planning process compared to the existing situation during the communist regime. As part of the extensive process of preparing the European Capital of Culture Program (which will take place in 2023), several industrial heritage buildings have been included in the urban regeneration process that has generated their adaptive reuse (eg the former tram depot was arranged as a Museum of Public Transport, part of the Azur factory was transformed into the "Faber" Cultural Center).

The mind mapping. An efficient method of teaching and learning geography

Dorina Micu
Department of Geography, West University Of Timișoara
Secondary School no. 3, Lugoj
micu_dorina89@yahoo.com

The aim of this study is to streamline the process of teaching and learning Geography by applying of the Mind Mapping. The Mind Mapping is a tool used for the graphically organization of the informations which are presented around a subject. The working method consists in the framing of the subject in the middle of the work surface. From the subject, the main ideas branch out. The complex sentences are replaced with keywords. Then, from the main ideas, the secondary ideas branch out. These are rendered with keywords, also. These steps are repeated as many times is necessary. The Mind Mapping is a technique for visually storing of information by establishing connections between these. This technique promotes long-term learning in a short time.

The potential geographical accessibility to public hospitals for the population in Bucharest' proximity

Alexandra Cioclu[1]
[1]University of Bucharest, Faculty of Geography
alexandracioclu2@gmail.com

Access to health services is essential for ensuring a fundamental human right: the right to health care. Traditional accessibility methods do not consider traffic changes and possible infrastructure works and do not always reflect the actual travel time to the nearest hospital. This study tries to measure the potential access to hospitals of the population from the proximity of Bucharest, an area overlapping Ilfov County, using API (Application Program Interface). Two scenarios were considered. The first represents accessibility in the morning, an interval with heavy traffic, and the second represents accessibility in the evening, an interval without heavy traffic. The results confirm that Ilfov County has good accessibility to public hospitals, with over 60% of the population travelling less than 30 minutes to the nearest hospital. The proximity of Bucharest makes it possible for residents to access hospitals in that area quickly. The findings provide a scientific basis for local authorities to optimize access to hospitals and planning resources.

The role of large floods in suspended sediment delivery. Case study: Jiu River Basin

Moroșanu Gabriela Adina[1], Liliana Zaharia[2], Vlad Petre Țăranu[2], Theodora Drăgan[2], Gabriela Ioana-Toroimac[2]
[1]Institute of Geography, Romanian Academy
[2]Faculty of Geography, University of Bucharest
gabriela.morosanu@unibuc.ro

This study investigates the behavior of the suspended sediment discharge within Jiu River Basin during the most important flood events in the 2000 – 2010 period. Extended on over 10080 km2, with a large diversity of factors controlling the sediment production, Jiu River Basin is a major contributor of fine sediments to the Danube River in Romania. The floods were selected by applying statistical criteria, i.e. the return period, and by thresholding the maximum water stage and liquid discharge to be reached at the main gauging station (g.s.), located in the lower sector of the Jiu River, at Podari . For the first 10 major floods corresponding to the applied criteria, the potential impact of the fine sediments transfer was estimated, by calculating the event efficiency index (EEI in g·l/s2) as a ratio between the suspended sediment concentration (SSC, g/l) and the liquid discharge (Q, m3/s). The EEI values were related to the potential sources of suspended sediments. During numerous flood events, the suspended sediment concentration and so, the EEI values, were found to be higher for the events occurring in the upstream g.s. (on Jiu River's tributaries) than further downstream, at the main g.s. on the Jiu River, possibly due to the influence of local sources of suspended sediment, as well as to the intermediate storage of fine sediments in the middle sector. To account for the anthropic impact (coal industry, reservoirs), the gauging stations located on the Jiu River (Iscroni, Sadu, Rovinari, Filiași, Podari), with both measured (affected by human activities) and natural (reconstructed) liquid discharge, as well as the suspended concentration available data, were a particular case of the analysis. From a spatial perspective, the most contributing sub-basins and main river sectors were identified, while from a temporal point of view, the results highlighted the most efficient flood events in terms of fine sediment delivery.

The role of water in improving the quality of human life and the environment

Camelia Bostan
Faculty of Geography, University of Bucharest
bostancamelia@gmail.com

Within the planetary ecological system, the presence of water is the indispensable condition of life, and for human society it represents that natural resource on which any field of economic activity depends.

The tourist phenomenon in Bușteni resort

Alexandra Cioclu[1], Bogdan Petre[1], Alin Florian Butoi[2], Camelia Teodorescu[3]
[1]Simion Mehedinți "Nature and Sustainable Development" Doctoral School, Faculty of Geography, University of Bucharest
"Tudor Vladimirescu" Middle School, Călărași
Departament of Human and Economic Geography, Faculty of Geography, University of Bucharest
alexandracioclu2@gmail.com

Given the social and economic changes of recent years, tourism in mountain resorts has grown. The purpose of the study is to analyze the tourist phenomenon in Busteni, a tourist resort of national interest. The working methodology was based on the evaluation of tourism indicators, but also the analysis of geographical accessibility. The data were processed using Microsoft Excel 2019 programs respectively, ArcMap v10.3.1 The results show a strong development of the tourism infrastructure, but also of the local community in recent years. The good geographical accessibility of the resort with a well-distributed infrastructure despite the difficulties imposed by the natural environment favored the construction of tourist structures even at hard to reach altitudes. Also, the degree of access facilitated the interconnection with the other resorts in Prahova County, which allowed considerable tourist flows that still support the local economy. Future studies will also analyze the indicators of sustainable development, and the results obtained can be starting points in developing tourism development strategies.

The use of photographs in geography lessons. Case study: Southern Carpathians - Geography of Romania, 8th grade

Iulian Săndulache[1], Cătălina Săndulache[2], Mihaela Rașcu[3]
[1]Faculty of Geography, University of Bucharest
[2]"Mihai I" Railway Technical College, Bucharest
[3]"Pamfil Șeicaru" Secondary School, Orșova, Mehedinți
iulian.sandulache@geo.unibuc.ro

Photos are often used in teaching activities for observing different environmental components, for illustrating or explaining natural phenomena or process. Using these during lessons helps pupils to develop the competence to analyse and interpret an image. There can be used just a few photos in different moments of the lesson or they can be organised in slideshows together with some short explanatory texts.

The efficiency of the learning situation organised on the bases of images depends on some of the photos' characteristics: they must be realized in a big format, to be clear and colored, to be projected on a screen, so that they are visible form any angle of the classroom, to represent a single essential aspect of the reality and not to have other insignificant details and to contain an element for dimension perception (a human or an instrument) in order to correctly perceive the size of the subject.

Transdisciplinary approaches in Open School type programs with a focus on geography in local communities from Bucharest (RO) and Giresun (TR)

Mioara Clius[1], Laura Cristea[2], Özlem Dede[3], Banu Tepe[3]
[1]Faculty of Geography, University of Bucharest
[2]Children´s University Association, Romania
[3]Giresun University, Turkey
mioara.clius@geo.unibuc.ro

Local educational resources, used intelligently, can enhance the formation of STEAM (science, technology, engineering, arts and mathematics) skills for pre-university students to allow the full development of children. Transnational educational mentoring partnerships (TEMP) within the PHERECLOS project contribute to the optimization of the educational initiatives for pre-university education to structure STEAM skills. Thus, a project that brings together two universities (which offers academic expertise) from two countries (Romania and Turkey), a high school and a primary school, lays the foundations of an educational hub in which the exchange of needs and solutions has served as models of engagement to an increased coherence of STEAM training of pre-university students. University expertise offered to the pre-university environment a sum of contents delivered in the form of lectures, workshops, and activities with an original educational design of which benefited over 2000 students from the two countries. This materialized into two „Virtual Amphitheaters" (one for the Faculty of Geography - University of Bucharest, Romania, the other for Giresun University, Turkey) in which university teachers delivered geographical content to students from the pre-university environment, but also in 4 examples of lessons with a design based on Inquiry-Based Science Education (IBSE), a format that can help increase students' interest in science through practical activities. The results of this collaboration are emphasized by the university-pre-university educational microsystem that brought outstanding learning experiences and skills training.

Transport infrastructure planning and geomorphological implications. Case study - Cozia Gorge (Brezoi - Călimănești sector of the Olt Valley)

Adriana Bianca Ovreiu[1], Iulian Andrei Bărsoianu[+], Constantin Nistor[1], Alexandru Nedelea[1], Laura Comănescu[1]
Department of Geomorphology, Pedology, Geomatics, Faculty of Geography, University of Bucharest
ovreiuadrianabianca@yahoo.com

The construction of transport infrastructure causes a variety of effects at the level of all components of the environment, especially the relief. The present study deals with the intensity of manifestations of rockfalls within the anthropically sectioned slopes in order to build and arrange roads and railways. Thus, the paper aims to determine the degree of stability of the slopes in relation to a number of variables (resistance of intact rock; weathering degree; characteristics of fissures - density, width, orientation, continuity; lithological and tectonic conditions - rock characteristics and distance in relation to faults, angle and exposure of the slope, vegetation cover, size of blocks identified near the road and the volume of material

accumulated in the protection mesh), assessment of susceptibility to rockfalls and calculation of vulnerability on road sections for axis E 81 and Călimănești ring road. In this sense, mapping and field measurements were performed using specific instruments (GPS, Schmidt mechanical hammer, feeler gauge, surveryour's tape) and multi-criteria analyzes were performed using GIS techniques.

For our research, the most important transcarpathian corridor was chosen - Valea Oltului in the Cozia Gorge sector, transited also by heavy vehicles. The need for the study is justified by the existence of the European road E81 which crosses this corridor and is affected annually by rockfalls, some of which lead to traffic stops.

The results of the study showed that the anthropic pressure exerted within the analyzed gorge sector, created imbalances especially at the level of the sectioned slopes. Thus, almost half of the Cozia Gorge (44.09%) has high values of susceptibility to rockfalls, and 56.5% of the European road E 81 is very vulnerable. In this context, extensive geotechnical arrangements were made to stabilize the slopes and to stop the materials (133 various structural works carried out on a length of 28,773 km).

Urban geomorphology of a future city. Case study: Florești Commune, Cluj County

Roxana Cuculici[1], Constantin-Răzvan Oprea[1], Iuliana Vijulie[1],
Marian Ene[1], Monica-Adriana Oprea[2]
[1]Faculty of Geography, University of Bucharest, Romania
[2]Marin Preda High School, Bucharest, Romania
roxana.cuculici@geo.unibuc.ro

In the context of sustainable development, relief is an essential element of the environment as the main physical-geographical support of the natural and anthropogenic components. In the programs of spatial planning and development knowledge of the relief and geomorphological processes is a basic condition in their realization. The expansion of urban built-up areas generates many environmental problems thus, urban geomorphology has been in recent decades a science with the role of helping specialists from other fields related to geography and geomorphology such as urbanism, spatial planning, landscape planning, etc. This work represents a study of urban geomorphology applied around Florești Commune in Cluj County. The objective of the study is the analysis of the relief dynamics in Florești Commune, lighting the interdependence of natural and anthropogenic factors from the geomorphological point of view and identification of the favoring and restrictive elements from this point of view for urban development in this region. The methodology included geospatial analysis by applying GIS techniques for the years 1990 and 2020, studies of morphometrics and morphography of the relief, comparative statistical analysis, and dynamics analysis of the population in the area. The result revealed changes in morphometrics and morphology of the relief, significant extension of the built areas, diminution of agricultural land, and the emergence of new forms of anthropogenic relief.

Vulnerability of urban space infrastructure in the Orșova depression throught to slope instability, caused to extreme weather events

Gheorghe Sorin Carablaisa[1], Florina Grecu[2], Mihaela Oglindoiu[2], Madalina Teodor[2,3]
[1]Geographical Research Station Center Orsova, Faculty of Geography, University of Bucharest
[2]Faculty of Geography, University of Bucharest
[3]Romanian Young Academy
soringhecarablaisa@gmail.com

The main impact of climate change on urban areas, infrastructure and construction is mainly related to the effects of extreme weather events, such as heat waves or droughts, heavy rainfall or snow, storms, floods, increased slope instability.

The study is based on the analysis of meteorological statistical data from Drobeta Turnu Severin Station, but also on statistical data that reflect the direct impact - human losses, affected people and material damage - related to extreme weather conditions. From the results of the study carried out at the meteorological station, it was found that for the entire period of observations and measurements, the tendency is one of increasing of the average annual temperature, and a reduction of precipitation. Moreover, we anticipate that the climate in this region will be characterized by a substantial extension of the warm period of the year. It is expected that these disturbances in the climate system will cause a significant increase in the frequency of extreme weather events, such as heat waves, floods, strong winds, storms, droughts, etc.

The municipality and the affected localities aims to take appropriate measures to address the planning and management practices of long-term urban space and design an appropriate infrastructure that plays an important role in minimizing the impact of climate change and reducing the risk to the human environment. In the face of these threats, given by extreme meteorological phenomena, it also aims to identify and assess the city's vulnerability to the effects of climate change.

Water quality and water pollution in time of COVID-19: positive and negative repercussions

Valentina-Mariana Manoiu[1], Alexandru-Ioan Crăciun[1]
[1]Faculty of Geography, University of Bucharest
valentina.manoiu@geo.unibuc.ro

On March 13, 2020, the World Health Organization declared the new COVID-19 disease a pandemic, as humanity was going through a massive global crisis. Most countries responded with a lockdown to reduce its effects, and economic and other activities were sharply cut down. Lockdowns and lower anthropogenic activity had a positive impact on the environment in many regions of the planet, but the pandemic also raised a series of challenges. This paper aims to assess the positive and negative impacts of the COVID-19 pandemic on water bodies and types on different continents. By using keywords, a search protocol and filters on the Web of Science platform, a scientific bank of 24 relevant studies was obtained out of the 62

open access articles that were initially available. These papers were closely reviewed. The review's main conclusions regard the positive and negative impacts of COVID-19 on water. In terms of the positive ones, SARS-CoV-2 monitoring of wastewaters is an effective tool in the early detection of community infections and, during the pandemic time, many surface and groundwater bodies all over the world had lower pollution levels caused by domestic and industrial water discharge. The negative impacts are as follows: SARS-CoV-2 presence in untreated wastewaters poses a high risk to human health; there is a lack of adequate elimination processes of plastics, drugs and biological pollution in wastewater treatment plants; the amount of municipal and medical waste that may pollute water bodies increased, and waste recycling decreased.

Young mappers: towards a more 'open' Earth

Rosa Colacicco[1], Mariateresa Balzano[2], Alessia Marchionna[1, 2], Paolo Petio[1], Rodolfo Roseto[1], Tatiana Sisto[1], Domenico Capolongo[1]
[1]Department of Earth and Geoenvironmental Sciences, University of Bari, Italy
[2]United Nations Global Service Centre, Brindisi, Italy
rosa.colacicco@uniba.it

Born in April 2021, 'YouthMappers@Uniba' is a group of researchers and students from the Department of Earth and GeoEnvironmental Sciences of the University of Bari (Italy) who are passionate about cartography and volunteering. The group, which is part of the international network 'YouthMappers', aims to present to young students, from both university and high school, the importance of mapping using OpenStreetMap (OSM, www.openstreetmap.org), an openly licensed geospatial database created and edited daily by volunteers worldwide, and used by a multitude of actors and for a variety of applications (Mooney and Minghini, 2017). In this perspective, accordingly with the motto of the organization 'we don't just build map, we build mappers', volunteers train and organise collaborative mapping events, so-called Mapathons. This kind of activities enables students to contribute to important tasks, learning to observe and interpret the environment simply with their own PC and mouse, and encourage greater attention to particularly important issues, in line with the Sustainable Development Goals.

An example is the humanitarian mapping: students improve the coverage of under-developed areas where there are few or no data, in order to facilitate the operations of peace organisations (such as the UN, the Red Cross, Doctors Without Borders, etc.) or to guarantee access to good healthcare, clean water, information and technology, by mapping buildings, roads and waterways. It is also possible to help communities in areas subject to seismic (Haiti, for example), volcanic, hydrogeological risks or particularly exposed to the effects of climate change. In addition to these activities, YouthMappers@Uniba aim to involve students to promote their local area, in particular for the development of sustainable geotourism: they map geo-itineraries and particular sites of geological, natural, cultural and social interest, by integrating various skills and producing data and then maps that can be shared with citizens, tourists and all stakeholders.