

**D-nei/D-lui**

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Avem deosebita plăcere să vă adresăm invitația de a participa la  
manifestările prilejuite de

**Lucrările Seminarului Geografic Internațional**

*„Dimitrie Cantemir”*

**Ediția a XXXIX-a**

**18 -20 octombrie 2019**

**Universitatea “Alexandru Ioan Cuza” din Iași  
Facultatea de Geografie și Geologie  
Departamentul de Geografie**

**Iași, 2019**

***PARTENERI:***



PRIMĂRIA  
MUNICIPIULUI  
IAȘI



**DOMENIILE  
AVEREȘTI**

**Parteneri:**

**Primăria Municipiului Iași**

**Grădina Botanică a Universității "Alexandru Ioan Cuza" din Iași**

**Mobexpert**

**Domeniile Averești**

## COMITETUL DE ORGANIZARE

**Președinte de onoare al Seminarului Geografic Internațional  
„Dimitrie Cantemir”:**

**Prof. univ.dr. emeritus Alexandru Ungureanu**, membru corespondent al Academiei  
Române

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**Corneliu Iașu – Prorector al Universității „Alexandru Ioan Cuza”  
din Iași**

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**Adrian Grozavu – Decanul Facultății de Geografie și Geologie,  
Doru-Toader Juravle - Directorul Departamentului de Geografie,  
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**Membri:**

Jean-Paul Carrière - Școala Politehnică a Universității din Tours, Franța

Ionel Muntele – Universitatea „Alexandru Ioan Cuza” din Iași

Octavian Groza - Universitatea „Alexandru Ioan Cuza” din Iași

Dan Lesenciuc – Universitatea „Alexandru Ioan Cuza” din Iași

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Alexandra Sandu

Oana-Elena Chelariu

Marina Iosub

**Responsabil informatic:**

Adrian Chiorescu

**Administrator financiar:**

Ec. Cristian Pricop

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## CONSILIUL ȘTIINȚIFIC:

### Președinți:

Corneliu Iașu - Universitatea „Alexandru Ioan Cuza” din Iași  
Jean-Paul Carrière – Școala Politehnică a Universității din Tours

### Membri:

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Michel Dimou - Universitatea din Sud Toulon-Var  
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Adrian Grozavu – Universitatea „Alexandru Ioan Cuza” din Iași  
Ioan Ianoș – Universitatea din București  
Alexandru Iliș – Universitatea din Oradea  
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Abdelillah Hamdouch - Universitatea din Tours  
François Legouy - Universitatea din Orleans  
Ionel Muntele – Universitatea „Alexandru Ioan Cuza” din Iași  
Silviu Neagu - ASE București  
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Nicolae Popa - Universitatea de Vest din Timișoara  
Constantin Rusu – Universitatea „Alexandru Ioan Cuza” din Iași  
Dănuț Petrea - Universitatea Babeș-Bolyai Cluj-Napoca  
Alexandru Ungureanu - Universitatea „Alexandru Ioan Cuza” din Iași  
Vitalie Sochircă - Universitatea de Stat din Moldova  
Ionuț Minea - Universitatea „Alexandru Ioan Cuza” din Iași

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**Programul manifestărilor  
Lucrărilor Seminarului Geografic Internațional  
„Dimitrie Cantemir”  
Ediția a XXXIX-a  
18-20 octombrie 2019  
Universitatea “Alexandru Ioan Cuza” din Iași  
Facultatea de Geografie și Geologie  
Departamentul de Geografie și Fundația Alumni**

**A) Manifestări științifice – vineri 18 octombrie 2019**

08<sup>30</sup> – 09<sup>30</sup>: **Înregistrarea participanților – Sala Pașilor Pierduți, Corp A, Universitatea “Alexandru Ioan Cuza” din Iași**

09<sup>30</sup> – 10<sup>00</sup>: **Alocuțiuni de deschidere (Aula Magna ”Mihai Eminescu”, Corp A)  
Comunicări în plen :**

10<sup>00</sup> – 10<sup>25</sup>: Corneliu Iașu : *115 ani de geografie sistematică și 135 de ani de la primul Curs de Geografie predat la universitatea din Iași*

10<sup>25</sup> – 11<sup>15</sup>: Jean-Paul Carrière (Université François Rabelais de Tours):  
*La métropolisation en France à l'épreuve des faits : portée et limites d'un processus d'institutionnalisation*

11<sup>15</sup> – 11<sup>45</sup>: Pauză de cafea

**Comunicări în plen :**

11<sup>45</sup> – 12<sup>45</sup>: Zhang Jinhe (University of Nanjing): *Telecoupling of Tourism impacts on ecological environment*

12<sup>45</sup> – 13<sup>00</sup>: **Lansare de carte**

13<sup>00</sup> - 15<sup>00</sup>: *Pauza de prânz - Restaurant ”Titu Maiorescu”*

15<sup>00</sup> - 17<sup>00</sup>: **Comunicări pe secțiuni** (Corp B, aripa dreaptă etaj 3, vedeți sălile de pe pagina următoare)

17<sup>00</sup> - 17<sup>30</sup>: *Pauză de cafea – prezentări postere*

17<sup>30</sup> - 19<sup>30</sup>: **Comunicări pe secțiuni** (Corp B, aripa dreaptă etaj 3, vedeți sălile de pe pagina următoare)

20<sup>00</sup> - 23<sup>00</sup>: *Serată festivă - Restaurant ”Titu Maiorescu”*

**B) Aplicație practică de teren – Sâmbătă 19 octombrie 2019 (orele 07<sup>00</sup>-22<sup>00</sup>) :**

**Traseul Aplicației:** Iași-Cricova (Republica Moldova)-Brănești-Orheiul Vechi (Butuceni)-Palanca (Republica Moldova)-Iași

**Teme propuse spre analiză :** dezvoltarea rurală, ecoturismul, patrimoniul cultural și natural, regiunile transfrontaliere, eno-gastronomia moldovenească

**C) Tur ghidat în aria centrală a Municipiului Iași - Duminică 20 octombrie 2019 (orele 10<sup>00</sup>-13<sup>00</sup>).** Tematică: Evoluția țesutului urban al Municipiului Iași în ultimele două secole

## Programul conferinței

<b>Secțiunea</b>	<b>Ziua</b>	<b>Sala</b>	<b>Ora desfășurării</b>	<b>Pag.</b>
Deschiderea conferinței	18 octombrie 2019	Aula Mihai Eminescu	9 <sup>30</sup> -10 <sup>00</sup>	7
Lucrări în plen	18 octombrie 2019	Aula Mihai Eminescu	10 <sup>00</sup> -11 <sup>15</sup> 11 <sup>45</sup> -12 <sup>45</sup>	7
Lansare de carte	18 octombrie 2019	Aula Mihai Eminescu	12 <sup>45</sup> -13 <sup>00</sup>	7
Secțiunea: Geomorfologie-Pedologie	18 octombrie 2019	B627	15 <sup>00</sup> -17 <sup>00</sup> 17 <sup>30</sup> -19 <sup>00</sup>	8
Secțiunea: Schimbări Climatice	18 octombrie 2019	B657	15 <sup>00</sup> -17 <sup>00</sup>	10
Secțiunea: Gestionarea Resurselor de Apă	18 octombrie 2019	B660	15 <sup>00</sup> -17 <sup>00</sup>	11
Secțiunea: Un deceniu de integrare europeană – consecințe teritoriale	18 octombrie 2019	B658	15 <sup>00</sup> -17 <sup>00</sup>	12
Secțiunea: Teritorii și identități în lumea contemporană	18 octombrie 2019	B662	15 <sup>00</sup> -17 <sup>00</sup>	13
Secțiunea: Geografia Populației	18 octombrie 2019	B655	15 <sup>00</sup> -17 <sup>00</sup>	14
Secțiunea: Geografia Așezărilor	18 octombrie 2019	B656	15 <sup>00</sup> -17 <sup>00</sup>	14
Secțiunea: Turism, Patrimoniu și Biodiversitate	18 octombrie 2019	B629	15 <sup>00</sup> -17 <sup>00</sup>	15
Workshop Geografia din România, încotro?	18 octombrie 2019	B656	17 <sup>30</sup> -19 <sup>00</sup>	16
Workshop pentru tineri cercetători	18 octombrie 2019	B8	17 <sup>30</sup> -19 <sup>00</sup>	17
Masă rotundă Evaluarea performanței în geografia românească	18 octombrie 2019	B657	17 <sup>30</sup> -19 <sup>00</sup>	17
Secțiunea: Didactica Geografiei	18 octombrie 2019	B664	15 <sup>00</sup> -17 <sup>00</sup> 17 <sup>30</sup> -19 <sup>00</sup>	18
Prezentări Postere	18 octombrie 2019	Holul Mare Corp B, etaj III	13 <sup>00</sup> -15 <sup>00</sup> 17 <sup>00</sup> -17 <sup>30</sup> 19 <sup>00</sup> -19 <sup>30</sup>	

**Vineri 18 octombrie 2019**  
**Orele 9<sup>30</sup> – 13<sup>00</sup>, Aula Magna “Mihai Eminescu”**

9<sup>30</sup> -10<sup>00</sup>: **Alocuțiuni de deschidere:**

**Prof.univ.dr. Corneliu Iațu**, Președintele comitetului de organizare și  
Prorectorul Universității “Alexandru Ioan Cuza” din Iași

**Prof.uiv.dr. Tudorel Toader**, Rectorul Universității “Alexandru Ioan  
Cuza” din Iași

**Prof.univ.dr. Adrian Grozavu**, Decanul Facultății de Geografie și  
Geologie

**Prof.univ.dr. Doru-Toader Juravle**, Directorul Departamentului de  
Geografie

**Comunicări în plen:**

10<sup>00</sup>-10<sup>25</sup>: Prof.univ.dr. Corneliu Iațu: *115 ani de geografie sistematică și 135  
de ani de la primul Curs de Geografie predat la universitatea din Iași*

10<sup>25</sup> -11<sup>15</sup>: Prof.univ.dr. Jean-Paul Carrière (Université François Rabelais de  
Tours, Franța): *La métropolisation en France à l'épreuve des faits:  
portée et limites d'un processus d'institutionnalisation*

11<sup>15</sup> -11<sup>45</sup>: Pauză de cafea

**Comunicări în plen:**

11<sup>45</sup> -12<sup>45</sup>: Prof.univ.dr. Zhang Jinhe (University of Nanjing, China):  
*Telecoupling of Tourism impacts on ecological environment*

12<sup>45</sup> -13<sup>00</sup>: **Lansare de carte:**

Prof. univ. dr. Corneliu Iațu: *Geografie istorică*, autor Ionel Boamfă

Conf. univ. dr. Ioan Milică: *Antroponomastică geografică*, autor Ionel Boamfă

## Secțiunea: Geomorfologie și Pedologie

Orele 15<sup>00</sup> – 17<sup>00</sup>, Vineri 18 octombrie 2019

**Moderatori: Prof.univ.dr. Petre Urdea, Prof. univ.dr. Adrian Grozavu**

**Sala: B 627**

1. Gheorghe Jigău, Cristian Jigău, Boris Turchin, Nina Plăcintă, Angela Stadnic, Natalia Borș (Moldova State University, Chișinău, Republic of Moldova), Marina Lungu (Institute of Pedology, Agrochemistry and Soil Protection "Nicolae Dimo", Chișinău, Republic of Moldova): *Soil aggregates distribution qualitative analysis of the arable chernozems agrogenic layer in the area between Prut and Dniester rivers*
2. Petre Urdea (West University of Timișoara, Romania): *Vulcanism and morphology*
3. Dan Dumitriu ("Alexandru Ioan Cuza" University of Iași, Romania): *Classification of flood events based on hydrogeomorphological characteristics. Case study: Trotuș River*
4. Vasile Mara, Attila Peteley, Ștefan Dombay, Daniela Mara, Adrian Niță, Bogdan Tofan ("Babeș-Bolyai" University of Cluj-Napoca, Romania – Gheorgheni Extension): *The main morphological indicators in the Giurgeu-Ciuc regional system and geomorphological risk phenomena*

Orele 17<sup>30</sup> – 19<sup>00</sup>, Vineri 18 octombrie 2019

**Moderatori: Prof.univ.dr. Gheorghe Jigău, Prof. univ.dr. Dan Dumitriu**

**Sala: B 627**

5. Vitalie Sochircă, Tatiana Nagacevschi (Universitatea de Stat din Moldova, Chișinău, Republic of Moldova): *Cercetări pedologice la situl arheologic Saharna Mare/ „Dealul Mănăstirii” din Raionul Rezina*
6. Gheorghe Jigău, Cristian Jigău, Mihai Leșanu, Ana Bîrsan, Boris Turchin, Nina Plăcintă (Moldova State University, Chișinău, Republic of Moldova): *The conceptual-theoretical framework of sustainable management of biogeocenotic functions of agroecosystems*
7. Lilian Niacșu, Ionuț Vasiliniuc ("Alexandru Ioan Cuza" University of Iași, Romania): *Sugar Beet Harvesting and Soil Loss in Eastern Romania*
8. Doru-Toader Juravle, Adrian Ursu, Ciprian Chelariu ("Alexandru Ioan Cuza" University of Iași, Romania), Valentin Juravle (S.C. DAFLOG, Medias, Romania): *Bazinul montan al râului Suceava. Date paleogeografice*



## Postere:

1. Alexandrina Manea, Nicoleta Vrînceanu, Alina Eftene, Daniela Raducu (National Research and Development Institute for Soil Science, Agro-Chemistry and Environment – ICPA Bucharest, Romania): *The heavy metals status of some agricultural soils*
2. Daniela Raducu, Anca-Rovena Lacatusu, Horia Domnariu, Alina Eftene, Alexandrina Manea (National Research and Development Institute for Soil Science, Agrochemistry and Environment - ICPA Bucharest, Romania): *Intelligent tools for studying soil biodiversity activity as AN ecosystem service provider*
3. Cristian Secu, Dan Lesenciuc ("Alexandru Ioan Cuza" University of Iași, Romania): *Spatial-temporal dynamics of the use of sandy lands in Oltenia (Romania) based on Landsat images*
4. Angela Canțir (Institute of Ecology and Geography, Chișinău, Republic of Moldova): *Impactul precipitațiilor asupra stabilității erozionale a teritoriului Câmpiei Bâcului inferior, Republica Moldova*
5. Angela Canțir (Institute of Ecology and Geography, Chișinău, Republic of Moldova): *The landslides within the Lower Bic Plain (Republic of Moldova) - typology and spatial distribution*
6. Elena-Diana Bobric, Eugen Rusu, Nicoleta Melniciuc-Puica, Iuliana-Gabriela Breabăn ("Alexandru Ioan Cuza" University of Iași, Romania): *Spectral characterization of organic matter in the Neamtu river basin by FTIR*
7. Valeriu Stoilov-Linu, Mihai Niculiță, Dan Dumitriu ("Alexandru Ioan Cuza" University of Iași, Romania): *The sediment load and liquid discharge correlation in the Bistricioara catchment (1974-2018)*
8. Radu Gabriel Pîrnău (Romanian Academy, Iași Branch), Ionuț Vasiliniuc, Constantin Rusu ("Alexandru Ioan Cuza" University of Iași, Romania, Romanian Academy, Iași Branch), George Rusu (ICAM, USAMV Iași), Bogdan Roșca (Romanian Academy, Iași Branch): *Warfare effects on soils*
9. Silvia Vacula (căș. Boboc), Lilian Niacșu ("Alexandru Ioan Cuza" University of Iași, Romania): *Soil and water conservation practices within Sarata catchment (Republic of Moldova) during the Soviet period*
10. Ana-Maria Anastasiei, Lilian Niacșu ("Alexandru Ioan Cuza" University of Iași, Romania): *Urban geotourism in Iași City. Case study: building materials and rocks*
11. Vasile Jitariu, Andrei Enea, Marina Iosub, Oana-Elena Chelariu, Adrian Ursu ("Alexandru Ioan Cuza" University of Iași, Romania): *Zoning apple orchards using gis techniques. (A multi-criterial approach)*

## Secțiunea: Schimbări climatice

Orele 15<sup>00</sup> – 17<sup>00</sup>, Vineri 18 octombrie 2019

**Moderatori: CS I dr. Marius Victor Bîrsan, Conf. univ. dr. Lucian Sfică,  
Sala: B 657**

1. Marius-Victor Bîrsan, Ion-Andrei Niță, Alexandra Crăciun (National Meteorological Administration), Lucian Sfică ("Alexandru Ioan Cuza" University of Iași, Romania), Crina Radu (National Meteorological Administration): *Changes in monthly wind speed over Romania from observational data (1961-2018)*
2. Ion-Andrei Niță, Liviu Apostol, Lucian Sfică („Alexandru Ioan Cuza” University of Iași, Romania): *Changes in lifetime, distance traveled and intensity for extratropical cyclones over Romania*
3. Adina-Eliza Croitoru, Titus Cristian Man, Sorin Vatca, Manuela-Elena Birsanuc, Bela Kobulniczky, Vlad Stoian ("Babeș-Bolyai" University of Cluj-Napoca): *Changes detected in corn crop favourable conditions in Central Romania under climate change conditions. Case study: Cluj County*
4. Simona Țâmpu, Lucian Sfică, Radu-Vlad Dobri („Alexandru Ioan Cuza” University of Iași, Romania): *Brief climatology of dust concentration in the air over Romania*
5. Vlad Alexandru Amihăesei, Lucian Sfică, Liviu Apostol ("Alexandru Ioan Cuza" University of Iași, Romania), Alexandru Dumitrescu (Meteorological National Administration): *Detecting the climate differences within the Romania's territory using cluster analysis*
6. Claudiu Crețu, Pavel Ichim ("Alexandru Ioan Cuza" University of Iași, Romania): *Urban heat island in the summer season. Case study: Galati City*
7. Pavel Ichim, Robert Hrițac, Lucian Sfică ("Alexandru Ioan Cuza" University of Iași, Romania): *The intensity of the thermal inversion phenomena*

### Postere:

1. Alexandru Dumitrescu, Sorin Cheval (Research Institute of the University of Bucharest-ICUB, Bucharest, Romania, National Meteorological Administration, Bucharest, Romania), José A. Guijarro (State Meteorological Agency-AEMET, Balearic Islands Office, Spain): *Homogenization of a combined hourly air temperature dataset over Romania*
2. Alexandru Dumitrescu, Anișoara Irimescu, Oana Oprea, Vlad Amihăesei (National Meteorological Administration, Bucharest, Romania), Sorin Cheval (Research Institute of the University of Bucharest-ICUB, Bucharest, Romania) and "Henri Coandă" Air Force Academy-AFAHC, Brașov, Romania), Ionică

Cîrciu, Vasile Prisăcariu ("Henri Coandă" Air Force Academy-AFAHC, Braşov, Romania): *Developing resilience and tolerance of crop resource use efficiency to climate change and air pollution (Suscap project)*

3. Valentina-Mariana Mănoiu, Alexandru-Ioan Crăciun, Stefania Gheorghie (University of Bucharest, Romania): *Veganism a peaceful solution for animal welfare, good health and fighting climate change*

4. Georgiana Văculeţeanu ("Alexandru Ioan Cuza" University of Iaşi, Romania), Jianshuang Wu (Freie Universität Berlin, Institute of Biology, Biodiversity/Theoretical Ecology and Chinese Academy of Agricultural Science), Mihai Ciprian Mărgărint, Mihai Niculiţă ("Alexandru Ioan Cuza" University of Iaşi, Romania), Paolo Tarolli (University of Padova, Italy): *Assessing grassland degradation in Moldavian Plateau (NE Romania) Using Sentinel-2 Images*

5. Radu-Vlad Dobri, Liviu Apostol, Lucian Sfică ("Alexandru Ioan Cuza" University of Iaşi, Romania), Serghei Eremeico: *The use of Radar datasets for the analysis of convective phenomena in Eastern Romania and the Republic of Moldova*

6. Raluca Pomaga, Marius-Victor Bîrsan (Meteo Romania (National Meteorological Administration), Bucharest, Romania Ghennadii Roşca, Tatiana Dabija (State Hydrometeorological Service, Chisinau, Republic of Moldova): *A user-friendly automated meteo forecast verification software for the State Hydrometeorological Service, Republic of Moldova*

## **Secţiunea: Gestionarea resurselor hidrologice**

**Orele 15<sup>00</sup> – 17<sup>00</sup>, Vineri 18 octombrie 2019**

**Moderatori: Prof. univ. Dr. Liliana Zaharia, Conf.univ.dr. Ionuţ Minea**

**Sala: B 660**

1. Liliana Zaharia, Gabriela Ioana-Toroimac, Gabriela Adina Moroşanu (University of Bucharest, Romania): *Développer la mémoire du risque inondation: exemples de bonnes pratiques*

2. Petru Bacal, Daniela Burduja, Veronica Răilean (Institute of Ecology and Geography, Chişinău, Republic of Moldova): *Comparative analysis of public waste water disposal and treatment systems in urban and rural localities in the Central Development Region of the Republic of Moldova*

3. Daniela Burduja (Institute of Ecology and Geography, Chişinău, Republic of Moldova): *Concentration of quality indicators in wastewater discharged into water bodies in the Central Development Region of the Republic of Moldova*

4. Ionuț Minea, Daniel Boicu, Oana-Elena Chelariu ("Alexandru Ioan Cuza" University of Iași, Romania): *Groundwater level trends in north-eastern part of Romania*

5. Gabriela Adina Moroșanu (Universitatea din București, Universitatea Grenoble Alpes, Institutul de Geografie al Academiei Romane), Liliana Zaharia (Universitatea din București), Eugen Traistă (Universitatea din Petrosani, Facultatea de Mine) Mihaela Sima, Irena Mocanu, Bianca Mitrică (Institutul de Geografie al Academiei Romane) Philippe Belleudy (Universitatea Grenoble Alpes, Franța): *L'exploitation du charbon dans le bassin de la rivière Jiu (Roumanie). Quel impact sur les flux hydro-sédimentaires?*

### **Postere:**

1. Alexandra Petronela Stoleriu, Andreea Florina Stoleriu, Iuliana Gabriela Breabăn, Ionuț Minea ("Alexandru Ioan Cuza" University of Iași, Romania): *Assessment of crops water deficit using spectral indices*

## **Secțiunea: Un deceniu de integrare europeană – consecințe teritoriale**

**Orele 15<sup>00</sup> – 17<sup>00</sup>, Vineri 18 octombrie 2019**

**Moderatori: Prof.univ.dr. Corneliu Iațu, Prof.univ.dr. Gabriela Pascariu  
Sala: B658**

1. Octavian Groza, Florentina Cristea ("Alexandru Ioan Cuza" University of Iași, Romania): *La dynamique spatiale de l'économie agricole en Roumanie, 1990-2018*

2. Adrian Covășnianu, Liliana-Elena Covășnianu, Flaviu Manea ("Moldova Vrea Autostradă" NGO): *Les autoroutes de la Moldavie : entre décision politique et réalité territorial*

3. Ana-Maria Oprea, Lucian Roșu, Corneliu Iațu ("Alexandru Ioan Cuza" University of Iași, Romania): *Local Action Groups as a potential instrument for stimulating the resilience of rural communities. Case Study: "Colinele Iașilor,, LAG*

4. Alexandra Apopei (căș. Lazăr), Mihail Eva, Corneliu Iațu ("Alexandru Ioan Cuza" University of Iași, Romania): *Evolution des disparités économiques en profil territorial en Roumanie et Bulgarie: modèles spatiaux et facteurs explicatifs*

5. Olimpia Copăcenaru (University of Bucharest, Romania): *Land Use Land Cover (LULC) Trends Assessment in Romania for Monitoring the Achievement of Related United Nations Sustainable Development Goals (UN SDGs)*

#### **Postere:**

1. Marinela Istrate, Alexandru Bănică, Ionel Muntele ("Alexandru Ioan Cuza" University of Iași, Romania): *Air Quality in Central and Eastern European countries: status and public perception*

2. Marinela Istrate, Raluca Horea-Șerban, Alexandru Bănică ("Alexandru Ioan Cuza" University of Iași, Romania): *Measuring the Progress in Eco-Innovation in EU28*

3. Nicolaie Hodor ("Babeș-Bolyai" University of Cluj-Napoca, Romania): *Geografia și geografia clujeni în vremuri grele*

## **Teritorii și identități în lumea contemporană**

**Orele 15<sup>00</sup> – 17<sup>00</sup>, Vineri 18 octombrie 2019**

**Moderatori: Prof.univ.dr. Ioan-Cristian Iojă, Prof.univ.dr. Octavian Groza  
Sala B 662**

1. Ioan-Cristian Iojă, Jurgen Breuste, Gabriel Vanau, Constantina-Alina Hossu, Mihai-Răzvan Nita, Ana-Maria Popa, Andreea-Raluca Slave (University of Bucharest, Romania): *Bridging the people-nature divide using the participatory planning of urban protected areas*

2. Octavian Groza („Alexandru Ioan Cuza” University of Iași, Romania), Sorina Voiculescu (West University of Timisoara, Romania): *La fin des affinités électorales ? Une analyse des comportements électoraux en Roumanie*

3. Alexandru Rusu ("Alexandru Ioan Cuza" University of Iași, Romania): *The military "added value" of Crimea - a geographical approach*

4. Cosmin-Adrian Miron, Octavian Groza ("Alexandru Ioan Cuza" University of Iași, Romania): *International trade in weapons - revealing the military structure of the world*

5. Simona Cuciureanu (BRCT Iași): *Analyse structurelle des exploitations agricoles dans la Moldavie de l'Ouest. Une perspective pour le développement de l'agriculture*

6. Cosmin-Gabriel Porumb-Ghiurco ("Babeș-Bolyai" University of Cluj-Napoca, Romania): *Imaginea turistică a Transilvaniei la Centenarul Facultății de Geografie și al Universității "Babeș-Bolyai" din Cluj-Napoca*

## **Secțiunea: Geografia Populației**

**Orele 15<sup>00</sup> – 17<sup>00</sup>, Vineri 18 octombrie 2019**

**Moderatori: Lect.dr. Radu Dimitriu, Lect.dr. George Țurcănașu**

**Sala: B 655**

1. Radu Dimitriu („Alexandru Ioan Cuza” University of Iași, Romania), Petru Bunduc (Institutul de Ecologie și Geografie, Universitatea de Stat “Dimitrie Cantemir” Ministerul Educației, Culturii și Cercetării, Republica Moldova): *Foreigners in Romania. Refugees, employees.*
2. Iulia Hărănguș (“Babeș-Bolyai” University of Cluj-Napoca, Romania): *Commuting in Romania. Case study Development Region Centru*
3. Costel–Cosmin Sârbu („Alexandru Ioan Cuza” University of Iași, Romania): *Ethnic representativity of Sfatul Țării in 1918 on Bessarabia and its vote regarding the unification with the Kingdom of Romania*
4. George Țurcănașu („Alexandru Ioan Cuza” University of Iași, Romania): *Morphological Urban Areas and the Dynamics of Local Territorial Structures Generated by Medium and Large Cities of Romania (2002 - 2019)*
5. Vicențiu-Robert Gabor, Octavian Groza (“Alexandru Ioan Cuza” University of Iași, Romania): *Spatial Dimensions of Suicide in post-communist Romania*
6. Rodica-Andreea Birta, Octavian Groza (“Alexandru Ioan Cuza” University of Iași, Romania): *Divorce as a territorial phenomenon - cliches and realities*
7. Andreea Mădălina Cozma (“Alexandru Ioan Cuza” University of Iași, Romania): *Demographic vulnerability in the North-East Region of Romania*

## **Secțiunea: Geografia Așezărilor**

**Orele 15<sup>00</sup> – 17<sup>00</sup>, Vineri 18 octombrie 2019**

**Moderatori: Prof.univ.dr. Ionel Muntele, Lect.univ.dr. Alexandru Bănică**

**Sala: B 656**

1. Ionel Muntele (“Alexandru Ioan Cuza” University of Iași, Romania): *Oiconomia Moldovei istorice-considerații geografice*
2. Constantin-Alexandru Stoian, Alexandra Sandu (“Alexandru Ioan Cuza” University of Iași, Romania): *Understanding the elements of urban mobility in Iași’s metropolitan area*
3. Andra-Cosmina Albulescu, Daniela Larion, Adrian Grozavu (“Alexandru Ioan Cuza” University of Iași, Romania): *Seismic risk perception and seismic adjustments in Vaslui city, Romania*

4. Adrian-Mihai Cimpu, Lucian Roșu, Corneliu Iațu ("Alexandru Ioan Cuza" University of Iași, Romania): Shrinkage and urban attractiveness of Romania's small and medium-sized cities. A GIS approach.

#### **Postere:**

1. Simona-Andreea Ursache (Căs. Dumitriu) ("Alexandru Ioan Cuza" University of Iași, Romania): „Old” Medical Geography, „New” Geography of Health *paradigm shift, conceptualization and perspectives*

2. Florin-Constantin Mihai ("Alexandru Ioan Cuza" University of Iasi, Romania), Maria-Grazie Gnoni (Department of Innovation Engineering, University of Salento, Campus Ecotekne, Lecce, Italy), Christia Meidiana (Department of Regional and Urban Planning, Faculty of Engineering, Brawijaya University, Malang, Indonesia), Chukwunonye Ezeah (Department of Civil Engineering, Alex Ekwueme Federal University, Ndufu-Alike, Ikwo, Nigeria), Valerio Elia (Department of Regional and Urban Planning, Faculty of Engineering, Brawijaya University, Malang, Indonesia): *E-waste flows and global disparities: new geographies*

3. Alexandra Sandu, Constantin-Alexandru Stoian ("Alexandru Ioan Cuza" University of Iași, Romania): *The resilience capacity of cities from Central and Eastern Europe - an exploratory study*

4. Anamaria-Ioana Stoleru, Oana-Elena Chelariu, Corneliu Iațu ("Alexandru Ioan Cuza" University of Iași, Romania): *Land use changes and urban sprawl. A case study on the North East development region OF Romania*

## **Secțiunea: Turism, Patrimoniul și Biodiversitate**

**Orele 15<sup>00</sup> – 17<sup>00</sup>, Vineri 18 octombrie 2019**

**Moderatori: Lect.univ.dr. Mihai Bulai, Lect.dr. Oana Mihaela Stoleriu**

**Sala: B 629**

1. Cristina Merciu, Ioan Ianoș, Loreta Cercleux, George Secăreanu, George Merciu (Interdisciplinary Center of Advanced Research on Territorial Dynamics, University of Bucharest, Romania): *Evaluation of the impact of cultural tourism on the valorisation of heritage buildings in the historical center of Bucharest municipality*

2. Ionel Boamfă ("Alexandru Ioan Cuza" University of Iași, Romania): *The chrono-spatial distribution of touristic activities in the Romanian space*

3. Mihai Bulai, Ana Maria Opria, Lucian Roșu, Constantin Ion ("Alexandru Ioan Cuza" University of Iași, Romania): *Percepția locuitorilor din nordul Jud.*

*Iași asupra importanței siturilor Natura 2000 din apropierea localităților de reședință*

4. Alexandra Cehan, Mihai Bulai, Corneliu Iațu ("Alexandru Ioan Cuza" University of Iași, Romania): *A multi-scalar approach to tourism collaboration. Case study on Vatra Dornei, Romania*

5. Bogdan-Constantin Ibănescu, Gabriela Carmen Pascariu, Alexandra Gheorghiu, Mihail Eva ("Alexandru Ioan Cuza" University of Iași, Romania): *The role of urban areas in generating rural tourism resilience*

6. Maria Catrinel Drăgan, Gabriel Camară ("Alexandru Ioan Cuza" University of Iași, Romania): *L'oenotourisme dans l'ancienne région Languedoc-Roussillon, France*

### **Postere:**

1. Mihaela Ungureanu, Ovidiu Gaceu, Anamaria Liana Lăzuran (University of Oradea, Romania): *The western Romanian vineyards - proposals for capitalization of the wine tourism potential*

2. Marina Caciulă, Oana Mihaela Stoleriu ("Alexandru Ioan Cuza,, University of Iași, Romania): *A profile of music festival-goers in Romania. Case study: UNTOLD*

3. Cristina Lupu, Marina Căciulă, Oana Mihaela Stoleriu ("Alexandru Ioan Cuza" University of Iași, Romania): *The use of Internet resources in the analysis of tourists' preferences in Iasi. Focus on Instasights*

4. Cezara-Ionela Dulce („Alexandru Ioan Cuza" University of Iași, Romania): *International student exchanges in the public universities of the City of Iași. Offer and evolution analysis. Study case: Alexandru Ioan Cuza University*

## **Workshop: Geografia din România, încotro?**

**Orele 17<sup>30</sup> – 19<sup>00</sup>, Vineri 18 octombrie 2019**

**Moderator: Prof.univ.dr. Corneliu Iațu**

**Sala: B 656**

La acest workshop vor participa principalii factori de decizie (decani, directori de departamente, profesori universitari) din domeniul geografie pentru a stabili o strategie comună de susținere a geografiei la nivel național. Concluziile acestei întâlniri vor fi sintetizate și transmise factorilor decizionali.



## **Workshop (pentru tineri cercetători):**

**Workshop leader: Asist. univ. dr. Lucian Roșu**

**Orele 17<sup>30</sup> – 19<sup>30</sup>, Vineri 18 octombrie 2019**

**Sala: B 8**

### **Memorat. Parcurs virtual prin geografii urbane recuperate**

Asist.univ.drd. Tiberiu Teodor Stanciu

(Facultatea de Arhitectură, Universitatea Tehnică "Gheorghe Asachi" din Iași)

Asist.univ.drd. Ramona Costea

(Facultatea de Arhitectură, Universitatea Tehnică "Gheorghe Asachi" din Iași)

Cosmin Ceucă

(absolvent Facultatea de Geografie și Geologie,

Universitatea "Alexandru Ioan Cuza" din Iași, membru fondator Iasi.travel)

Reconstrucția peisajelor geografice este un subiect cu un interes științific și comercial ridicat. Nu este nici o surpriză că acest domeniu a primit o atenție sporită în ultimii ani, odată cu dezvoltarea tehnologiilor de creare și reconstituire de peisaje 3D. De aici a plecat și ideea proiectului Memorat, aceea de a reconstitui scene urbane de altădată, ale orașului Iași, bazate pe fotografii, planuri sau descrieri detaliate.

Inițiatorii proiectului Memorat vă invită, astfel, la un workshop prin care vă sunt prezentate modalitățile de reconstrucție a unui peisaj geografic și vă vor ghida printr-o călătorie bazată pe realitatea virtuală a Iașului de altădată.

## **Masă rotundă**

**Evaluarea performanței în geografia românească**

**Moderatori: Prof.univ.dr. Ioan-Cristian Ioja, Conf.univ.dr. Lucian Sfică**

**Orele 17<sup>30</sup> – 19<sup>00</sup>, Vineri 18 octombrie 2019**

**Sala: B 657**

Masa rotundă își propune o dezbateră pe tema evaluării performanței în geografia românească. Participanții sunt invitați să își exprime opiniile referitoare la teme actuale în comunitatea geografică. Cum putem defini performanța științifică în geografie? Ce înseamnă astăzi, să fii racordat la fluxul științific principal ca o condiție a performanței în geografie? Care sunt cele mai potrivite instrumente pentru aprecierea performanței științifice? Pot fi imaginate criterii de promovare ideale? Concluziile discuției vor fi sintetizate și transmise factorilor decizionali.

## Secțiunea: Didactica Geografiei

Orele 15<sup>00</sup> – 17<sup>00</sup>, Vineri 18 octombrie 2019

Moderatori: Lect.dr. Marinela Istrate, Prof. dr. Mihaela Lesenciuc

Sala: B 664

1. Dan Lesenciuc, Marinela Istrate, Gabriela Brassat ("Alexandru Ioan Cuza" University of Iași, Romania): *From high school to college. Analysis of the 1<sup>st</sup> year of the Summer School (ROSE) - "We discover the Earth towards the peaks of knowledge!*
2. Daniela Larion, Cosmina Andra Albulescu ("Alexandru Ioan Cuza" University of Iași, Romania): *Rolul integrității profesionale în educație/The Role of Professional Integrity in Education*
3. Alexandru Bănică, Marinela Istrate, Haralambie Athes ("Alexandru Ioan Cuza" University of Iași, Romania): *First Year Students Academic Performance. Reflection of their Involvement in the ROSE GeoDA Project*
4. Viorel-Alin Marin (Colegiul Național „Nicolae Iorga” Vălenii de Munte): *Rolul proiectului realizat de elevi în studierea lacurilor sărate din Slănic Prahova*
5. Dorin Fiscutean, Mihaela Fiscutean, (Colegiul Național Iași), Ciprian Mihai (Liceul Tehnologic "V.M. Craiu", Belcești): *Proiectarea modulară-avantaje și limite*
6. Cecilia Chifu (Școala Gimnazială "Ștefan Bârsănescu" Iași): *Aplicațiile practice geografice. Exemple de bună practică*
7. Viorel Paraschiv (Liceul Tehnologic Economic de Turism, Iași) Nicolae Aurelian Roman (Universitatea "Alexandru Ioan Cuza" din Iași) Gheorghiu Constantin (Colegiul Tehnic de Electronică și Telecomunicații "Gh. Mârzescu" Iași): *Eswatini - oameni, locuri și statistici*
8. Daniel Răduianu (Colegiul Pedagogic "Vasile Lupu", Iași): *Elemente ale reliefului reprezentate pe bancnotele lumii*
9. Florentina Grozavu (Colegiul Național "Mihai Eminescu" Iași): *The current school geography - realities and perspectives*
10. Nicolae Aurelian Roman (Universitatea "Alexandru Ioan Cuza" din Iași), *Practicing geography and the smartphone: between one of the best and the worst tools available*

**Orele 17<sup>30</sup> – 19<sup>30</sup>, Vineri 18 octombrie 2019**

**Moderatori: Prof.dr. Daniel Răduianu, Prof. Gheorghiiță Constantin**

**Sala: B 664**

11. Crina Elefteriu Crina (Colegiul Tehnic de C.F. “Unirea“, Pașcani): *Experiente cosmice în sala de clasă*

12. Vasile Papaghiuc (Școala Gimnazială “Ion Ghica”), Lidia Papaghiuc (Liceul Teoretic “Al. I. Cuza” Iași): *Auxiliare didactice la disciplina geografie disponibile în Republica Moldova*

13. Vasilica Botezatu (Colegiul Pedagogic ”Vasile Lupu” Iași): *Abordări integrate și transdisciplinare în predarea-învățarea geografiei*

14. Elena Ivan (Școala Gimnazială Vânători, Iași): *Gândirea critică-abilitate necesară societății contemporane*

15. Georghiiță Constantin (Colegiul Tehnic de Electronică și Telecomunicații “Gh. Mârzescu” Iași): *Coreea de Sud și promovarea intereselor sale geopolitice*

16. Valentina Catalina Holic (Școala Gimnazială “Otilia Cazimir” Iași), Irina Lupu (Școala Gimnazială “Aron Vodă” Aroneanu): *Eficientizarea învățării prin abordare STEAM*

17. Dana Elena Coman (Colegiul Pedagogic ”Vasile Lupu” Iași), Bogdan Coman (Școala Profesională ”I. Teodoreanu” Victoria): *Educația de calitate - inovație și diversitate în predarea - învățarea geografiei*

18. Mihaela Lesenciuc (ISJ Iași): *Programa școlară pentru clasa a VII-a – abordări privind racordarea la dezvoltările curriculare actuale, orientate prioritar spre rezultatele explicite și evaluabile ale învățării*

19. Valerica Beatrice Nica (Colegiul Tehnic „Ioan C. Ștefănescu” Iași), Mărioara Gârlescu (Palatul Copiilor, Iași): *Parteneriatul - oportunitate pentru învățământul formal și nonformal*

20. Octavian Mândruț – titlul rezervat

**Traseul Aplicației Practice  
în cadrul Seminarului  
”Dimitrie Cantemir”**

**Teme : dezvoltarea rurală,  
ecoturismul, patrimoniul cultural și  
natural,  
regiunile transfrontaliere,  
eno-gastronomia moldovenească**

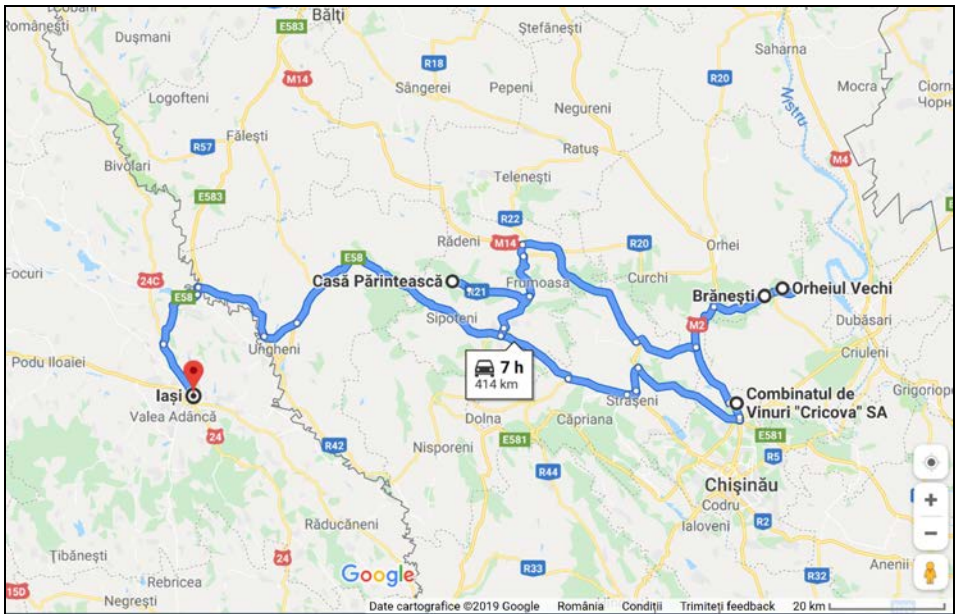
**Itinéraire de la visite de territoire  
dans le cadre du Colloque  
”Dimitrie Cantemir”**

**Thèmes : développement rural,  
écotourisme patrimoine culturel et  
naturel,  
régions transfrontalières,  
oeno-gastronomie moldave**

**Sâmbătă 19 octombrie 2019 / Samedi 19 octobre 2019**

Plecarea din fața <b>Corpului A</b> al Universității ”Alexandru Ioan Cuza”, Bd Carol nr 20A („la cei doi lei”).	<b>07:00</b>	Départ devant le <b>Bâtiment A</b> de l’Université Alexandru Ioan Cuza, Bd. Carol I, 20A („deux lions”).
<b>Vinăria Cricova</b> - „cea mai mare colecție de vinuri din lume 1.5 milioane sticle Guinness Book” - Vizită cu Degustare de vinuri.	<b>10:00</b>	<b>Le Domaine Cricova</b> – „la plus grande collection de vins du monde, 1.5 millions de bouteilles – Guinness Book”. Visite avec dégustation de vins.
<i>Prânzul la restaurant troglodit „Epoca de Piatră”/ Kamennii Vek din Brănești.</i>	<b>13:00</b>	<i>Déjeuner au restaurant troglodyte „Epoca de Piatră”/ Kamennii Vek („époque de pierre”) à Brănești.</i>
Vizitarea Complexului Muzeal natural-cultural în aer liber „ <b>Orheiul Vechi</b> ”, nominalizat pentru lista UNESCO. Plimbare prin satul ecoturistic Butuceni.	<b>15:00</b>	Visite du Complexe muséal naturel et culturel (en plein air) „ <b>Orheiul Vechi</b> ”, nominé à la liste UNESCO. Promenade dans le village écotouristique Butuceni.
Vizitarea muzeului sătesc „ <b>Casa Părintească</b> ” din satul Palanca (Hârjauca).	<b>18:30</b>	Visite dans le musée villageois „ <b>Casa Părintească</b> ” (Demeure Paternelle) du village Palanca (Hârjauca).
<i>Cină în aer liber în complexul muzeal Casa Părintească.</i>	<b>19:00</b>	<i>Dîner en plein air dans le cadre du musée Casa Părintească.</i>
Sosirea la <b>Iași</b> .	<b>22:30</b>	Arrivée à <b>Iași</b> .

## Harta Aplicației de Teren / Carte de la Visite de Territoire



# REZUMATE/ABSTRACTS/RÉSUMÉ

## Secțiunea: Geomorfologie și Pedologie

### **Soil aggregates distribution qualitative analysis of the arable chernozems agrogenic layer in the area between Prut and Dniester rivers**

Gheorghe Jigău<sup>1</sup>, Cristian Jigău<sup>1</sup>, Boris Turchin<sup>1</sup>, Nina Plăcintă<sup>1</sup>, Angela Stadnic<sup>1</sup>,  
Natalia Borș<sup>1</sup>, Marina Lungu<sup>2</sup>

<sup>1</sup>Moldova State University, Chișinău, Republic of Moldova, marinalungu7@gmail.com

<sup>2</sup>Institute of Pedology, Agrochemistry and Soil Protection "Nicolae Dimo", Chișinău,  
Republic of Moldova

The complex and accurate study of the soil structure in the arable chernozems agrogenic layer, within 12 pedogeographic areas between Prut and Dniester rivers has revealed a series of pedogeographic pattern:

- the agronomically valuable aggregates (10-0.25 mm) content in these soils usually are classified in the "very good" (> 80%) and "good" (60-80%) categories;
- the origin of the agronomically valuable aggregates from the arable layer is determined, mainly, by the mechanical and physical-mechanical processes and only partially by the root's activity and physical-chemical mechanisms. Basically, the structural aggregates units due to the earthworm's activity are absent. This implies the conclusion that in these chernozems arable layer the functional-processual changes take place so thorough, to soil biota can't ensure anymore the high level of the organic matter humification processes and the biophilic elements stabilization in the soil (the last one determines the intensity of the soil aggregates forming by roots activity).

Therefore, we consider that in natural chain of the soil substance transformation, modeling-organization composition of the agrogenic layer the intensity of some processes, for which certain species of living organisms are responsible, is reduced. This get reflected to the soil aggregates hydrostability;

- soil aggregates with diameter > 5 mm is characterized by low stability; 5-3 mm aggregates have poor hydrostability; 3-1 mm aggregates are characterized by moderate hydrostability; with maximal hydrostability are characterized the 1-0.25 mm aggregates;
- as the diameter of the soil aggregates is reduced, the soil aggregates density increases and their porosity is reduced, but when the soil aggregates diameter increases, the content of physical clay, fine silt, fine clay and humus content in their composition increases; there is a positive dependence between the soil aggregates diameters and their hydrostability.

## **Santorini – Vulcanism and morphology**

Petre Urdea

West University of Timișoara, Romania, petru.urdea@e-uvv.ro

The paper brings in to attention some elements of the geological history of Santorini Island, marked by the unfolding of more than 10 episodes of volcanic manifestations, and the morphology associated with them. Santorini, one of the most famous islands of the Cyclades Archipelago, has a geomorphological landscape that bears the imprint of how volcanic eruptions of different types, some produced even in the last hundred years, erosion processes, gravitational and aeolian processes and those associated with marine modeling imprint on both the general elements of the relief and the morphological details. In order to understand the geological and geomorphological evolution of the island, an incursion is made in the tectonic and geological specificity of this part of the Mediterranean Sea basin, as well as in the archaeological specificity of the island.

### **Classification of flood events based on hydrogeomorphological characteristics. Case study: Trotuș River**

Dan Dumitriu

Alexandru Ioan Cuza University of Iași, Romania, dndumitriu@yahoo.com

Sediment transport is highly sensitive to flow conditions, showing significant increase during flood events. Based on this principle, this study set out to rank flood events occurring along river Trotuș (Romania) based on the amount of transported sediment and event duration. The 77 flood events recorded from 2000 to 2017 were ranked into 4 classes: type A (4%); type B (16%), type C (14%) and type D (66%). The sediment transport specific for the 4 types of flood events was related to the flow discharge (sediment rating curve and hysteresis effect), the specific stream power and the energy expenditure of these events. More than 60% of the hysteresis loops typical for flood events were clockwise, thus singling out the channel as the main sediment source. Ca. 74% of the total sediment yield was transported at stream power values higher than the  $300 \text{ Wm}^{-2}$  thresholds, which was exceeded in less than 1% of the investigated timeframe. The changes occurring in the sediment transport rates after major floods show that these events are significant thresholds in the hydrogeomorphic evolution of river channels.

## **The main morphological indicators in the Giurgeu-Ciuc regional system and geomorphological risk phenomena**

Vasile Mara, Attila Peteley, Ștefan Dombay, Daniela Mara, Adrian Niță, Bogdan Tofan  
Babeș-Bolyai University of Cluj-Napoca, Romania – Gheorgheni Extension,  
maravasile@yahoo.com

The Giurgeu-Ciuc depression corridors are situated in the central part of the country and in the central-western part of the Eastern Carpathians. They withhold the intra-mountainous depressions of Giurgeu and Ciuc. The energy of the relief, the density of its fragmentation, the slope and face orientation are very important morphological indicators in the study of the surface of the regional system Giurgeu-Ciuc. The main risks nowadays appear due to the amplification of the slope processes, especially within the torrential hydrographic basins. These processes manifest on horizontal profile and vertical profiles, affecting the hole system in which they appear. These can be of natural origin, of anthropic origin or combined. The later one is the most complex, unpredictable and hard to forecast. According to their main characteristics these geomorphologic processes can transform into systemic dysfunctions, which can be grouped accordingly: ecological-functional dysfunctions, landscape dysfunctions and social-economic dysfunctions. These processes raise a serious amount of problems of geographic, ecologic, economic and social order within the studied area.

## **Cercetări pedologice la situl arheologic Saharna Mare/ „Dealul Mănăstirii” din Raionul Rezina**

Vitalie Sochircă, Tatiana Nagacevschi  
Universitatea de Stat din Moldova, Chișinău, Republic of Moldova,  
sochirca1970@gmail.com

Situl Saharna Mare / „Dealul Mănăstirii” este amplasat în comuna Saharna Nouă, raionul Rezina, în partea central-estică a Podișului Nistrului, pe un promontoriu ce face parte dintr-o terasă superioară a versantului drept al fluviului Nistru, format de două defileuri cu pantele abrupte, ce se unesc în partea de est într-o singură vale, numită de localnici „Valea Crac”. Promontoriul are suprafața de cca 15 ha și altitudinea de cca 130 m față de nivelul Nistrului. Soclul promontoriului este constituit din depozite groase de calcar de vârsta Sarmațianului mediu (Bessarabian), peste care sunt așezate depozite de terase fluviale. La baza de nord a promontoriului curge râulețul Saharna, laturile de nord, est și sud ale promontoriului fiind marcate de versanții abrupti ai defileurilor, vulnerabil rămânând numai segmentul de vest. Astfel, prezența unor posibilități de apărare naturală, precum și a diverselor resurse naturale în preajmă (în primul rând a surselor de apă potabilă), au facilitat popularea acestui spațiu încă din perioada preistorică și, mai ales, în epoca fierului (Zanoci et al. 2018). În perimetrul sitului arheologic s-a format un strat cultural (sol antropizat) cu grosimea de circa 0,8-1,5 m, ca rezultat al locuirii îndelungate (cca 900 de ani), mai ales în partea



de sud-vest a promontoriului Saharna Mare. Pentru a studia solul stratului cultural au fost prelevate probe din secțiunile trasate, cu scopul cercetării unei anomalii ce prezenta indicii ale existenței unor complexe arheologice: din peretele de vest al secțiunii 29/2017, din profilul gropii 4/2018 și dintr-un vas-urnă, descoperit în careul 9 al secțiunii din 2018. Pentru comparație, în afara sitului arheologic, la o distanță de circa 100 m N-W, pe un teren arabil a fost realizat un alt profil. Analizele probelor s-au realizat în laboratoarele „Fizica solului” și „Chimia solului” din cadrul Universității de Stat din Moldova și în laboratoarele Institutului de Pedologie, Agrochimie și Protecție a Solului „Nicolae Dimo” și ale Institutului de Ecologie și Geografie din Chișinău. Au fost utilizate metodele clasice de determinare a parametrilor chimici și fizici ai solului: humusul –metoda I.V. Tiurin, cu modificarea de V.N. Simakov; Ntotal – metoda Chieldal; CaCO<sub>3</sub> – metoda gazovolumetrică; P<sub>2</sub>O<sub>5</sub> – metoda B.P. Macighin; K<sub>2</sub>O – metoda fotometrică (Арифушкина 1970); componența granulometrică – metoda pipetei după N.A. Kacinskii; densitatea fazei solide – metoda Petinov.

Concluzii: 1. Subtipul de sol din ambele profiluri de sol din arealul Saharna Mare / „Dealul Mănăstirii” este cernoziomul carbonatic, cu deosebirea că cel din perimetrul sitului arheologic este înțelenit, iar cel situat în afara sitului – arabil. 2. Rezultatele testelor de laborator demonstrează că profilul de sol arabil (din afara sitului arheologic) are trăsături tipice pentru un profil de sol genetic nemodificat, cu o așezare normală a orizonturilor, neantropizate, cu parametri fizici și chimici conform normativelor cunoscute. Pe când profilurile din cele două secțiuni din situl arheologic au urme evidente de modificări antropice, de la adâncimea de 50 cm în jos, atât morfologice, cât și analitice, după parametrii fizici și chimici: o densitate a fazei solide a solului perturbată; un conținut înalt de humus la adâncime și în roca de solificare; un conținut mai înalt de praf, de carbonați (CaCO<sub>3</sub>), de fosfor (P<sub>2</sub>O<sub>5</sub>) și de potasiu (K<sub>2</sub>O) în orizonturile subiacente. Aceste abateri reflectă prezența materiei organice la adâncimi mari, precum și a cenușii rămase de la arderea resturilor vegetale și a altor materii, ceea ce se observă vizual și pe profilul solului. Prin urmare, putem afirma că profilurile de sol din situl arheologic prezintă urme ale activității antropice consistente într-o perioadă îndepărtată de timp – de la sfârșitul sec. XII până în sec. III a. Chr., conform estimărilor arheologice.

### **The conceptual-theoretical framework of sustainable management of biogeocenotic functions of agroecosystems**

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The intensification of the productive processes of the agroecosystems by the progressive increase of the mechanical and chemical imputations on the soils involved the accelerated degradation of their structural-functional organization and biogeocenotic functions.

Multiple researches have shown that mechanical and chemical imputations on soils lead to degradation of soil micro- and mesostructure, degradation of the soil porous space, intensification of the crustification and soil cover processes, mobilization of mineral-clay and consolidation of the lower segment of the agrogenic layer.

The driving force of the specified processes is the unidirectional reduction of the priority role of the humus formation and accumulation process in the natural - anthropic evolution of the chernozems and the reproduction of their potential fertility. Based on the systemic approach of the synchronized evolution of the structural-functional organization and of the soil ecosystem function the principles of management of biogeocenotic functions of agroecosystems have been elaborated, based on the law of priority of the role of the process of formation and accumulation of humus.

According to it the management of the biogeocenotic functions of agroecosystems in any agroecological conditions is accomplished by supporting the flows of fresh organic matter in the soil and the rotation of the root system of plants in close interaction with other components of the biota, the air and the water exchange between the biotic and the abiotic soil.

The law of the priority role of the humus formation and accumulation process is based on ecological and evolutionary genetic principles and implies the unidirectional increase and enlarged reproduction of the natural fertility of the chernozem and the increase of the bioproductivity of agroecosystems.

## **Sugar Beet Harvesting and Soil Loss in Eastern Romania**

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The eastern part of Romania has traditionally been an important area for root crops. Total harvested area for sugar beet for 2000-2016 has been around 30,000 ha, but in 1984 it was over 60,000 ha only in our study area. Based on field data, this research tried to evaluate for the first time in our country soil loss due to crop harvesting (SLCH).

The methodology implied sampling from different areas for manual and mechanized harvesting of sugar beet. Number, weight, mean diameter of roots and the quantity of soil adhering were determined. Soil samples have been collected for determining bulk density, soil water content (SWC), soil texture, organic matter (OM), NPK contents.

In the conditions of a very dry year, SLCH values determined had a mean value of 1.01 t/ha, varying between 0.13 and 2.41 t/ha, being smaller than those reported in literature. Statistical methods indicated best correlations of SLCH values with soil texture (0.43 with silt, 0.48 with fine silt, 0.44 with coarse sand content), and smaller ones with OM (-0.26) and SWC (-0.21).

The soils sampled are clay loams and loams, SLCH values having very small variations according to soil texture. Smaller correlations might be explained by the harvesting season conditions. The values of SWC during harvesting have been of 6.8-

14%, compared to a mean Permanent Wilting Point of 9-18% for this textures. Another explanation for the smaller SLCH rates is the good state of the sugar beet crops, with most plants lacking side branches and a medium crop cover of 85%.

Mean SLCH values were of 0.37 t/ha for mechanized harvesting and 1.27 t/ha for manual harvesting.

### **The heavy metals status of some agricultural soils**

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In order to evaluation the soil loading with heavy metals were made field studies across the Iasi county. The soil samples were taken from agricultural sites, according to a regular network, part of the Romanian soil quality monitoring system (16x16 km).

The pseudo-total concentrations of Cd, Cu, Pb, Cd, Co, Ni and Zn were determined in the soil samples using atomic absorption spectrometry after extraction by the *aqua regia* (HCl:HNO<sub>3</sub> – 3:1) – microwave digestion method.

The data obtained showed that in whole county, the concentration values range were as follows: 15.4-36 mg/kg (Cu), 49-115 mg/kg (Zn), 7.4-20.4 mg/kg (Pb), 0.13-0.43 mg/kg (Cd), 6.9-13.15 mg/kg (Co), 25-100 mg/kg (Ni), and, respectively 463-798 mg/kg (Mn). The mean concentration of the heavy metals decreased in the following order: Mn > Zn > Ni > Cu > Pb > Co > Cd. The normal values, according to the Romanian legislation, are exceeding in 73% of the sites for Cu; 93% for Ni, 13% Zn. In one site the value of Ni exceeding the alert threshold (75 mg/kg). Except Ni and Mn, the mean values of these elements are lower compared to the heavy metals means of the national agricultural sites.

### **Intelligent tools for studying soil biodiversity activity as AN ecosystem service provider**

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Two important intelligent tools were used in the present paper: low temperature ashing (LTA) and SEM-EDAX to investigate the soil biodiversity activity as an important provider of ecosystem services.

The LTA was applied on uncovered soil thin sections to ashing, *in situ*, organic components, in order to identify and distinguish the organic components from the mineral ones, as well as their spatial distribution into the dark amorphous redoximorphic features resulted from the biological activity.

While the SEM-EDAX was used to quantify (also *in situ* in soil thin sections) the constituents of the dark amorphous redoximorphic features, before and after LTA treatment.

The soil is a drained Gleysol with mollic epipedon, formed in the alluvial stratified deposits.

Oriented uncovered soil thin sections were analyzed and treated following the sequence: micromorphological analysis → Low temperature ashing treatment → SEM-EDAX micro-analysis.

The results of the micromorphological analysis emphasize the presence of many types of redoximorphic features, which appear in plain polarized light as black amorphous coatings, hypo-coatings and quasi-coatings; as well as irregular concentrations, nodules and concretions. While in oblique light, the Fe features clearly distinguish by their reddish color, whereas the Mn and the organic matter showed black colors.

During the LTA treatment, the organic matter was oxidized (with the minimum disturbance of the thin section), making possible the observation of the amorphous features formed in the soil affected by hydromorphy.

In contrast to the micromorphological observation and despite of the very spread blackish features (which could suggest high quantities of Mn), the SEM-EDAX analysis had been detected only few percent of Mn.

In this respect the combined use of the intelligent tools (LTA and SEM-EDAX) proved to be a valuable technique for *in-situ* investigation (on thin sections) of the amorphous pedofeatures generated under hydromorphic conditions, by the biodiversity as an ecosystem services provider.

## **Spatial-temporal dynamics of the use of sandy lands in Oltenia (Romania) based on Landsat images**

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The analysis of the land-use dynamics is concentrated on the sandy ecosystem, strongly anthropically modified, especially in the southern part of the studied territory.

Firstly, the dunes in the Dăbuleni area were leveled (1959) and subsequently the Sadova-Corabia irrigation system (1969-1972) was built, which was operational until 2009. The objective of the paper consists of the spatiotemporal analysis of the dynamics of land use in 1988-2019, based on Landsat images. Landsat TM5, 7 ETM and 8 OLI data was used for remote sensing of surface soil attributes, row 29/path 184, downloaded from USGS. To get the least vegetation cover, the satellite images were acquired for the end of a growing season, when is not needed anymore by irrigated water (26.09.1988, 06.09.2002 and 13.09.2019). In the other hand, the second set of scenes was acquired in winter when the soil wasn't covered by snow (27.01.1988, 07.02.2001 and 17.02.2019).

The Landsat scenes were pre-processed and subsequently spectrally analysed and processed. Before the classification, the identification of the limits corresponding to the eastward expansion of the sands and the location of the points for soil sampling was achieved by applying a synthetic color image for all scenes (Envi 5.2).

A spectral curve for each pixel was directly determined by the software ENVI 5.2. This allows the user to retrieve the general spectral patterns of sand and soils. By comparison, the spectral curve could be used to indicate spatial cover of sands and the another land components (e.g. forest). After preprocessing scenes were transformed using forward independent component analysis (ICA) new statistics and rotate that in some situations is more suitable for analysis than other transformation types (e.g. PCA). Transformed images were classified as applied workflow classification for each time sequence.

Some geographical preliminary conclusion:

- In the north (Rojiște-Apele Vii) of the studied territory two aspects were observed: a) the increase of the forest area in 2019 to the west (Rojiște) and the decrease in the east, on the alignment of the localities Apele Vii, Ghizdăvești, Marotinu de Sus and b ) the lakes between dunes in the wooded area occupied smaller areas in 1988 (January), 1989 (September), 2001 (February) and 2002 (September) compared to 2019.

- In the SE part of the territory, between Stăvaru (N) and Ianca Nouă (S), the sandy lands, mainly used in agriculture before 1989 were bordered by forest curtains or irrigation channels. In 2019, the area of forest plantations increased, probably due to the low productivity of the soils in the absence of the use of the irrigation system.

- In SE of Stefan cel Mare, the sands are less active due to the extension of the forest protection curtains. On the other hand, the change of the form of ownership (1989) led to the shrinking of the surface of the plots and their arrangement perpendicular to the wind direction, ensuring superior protection from the wind erosion.

- In N and NV from Grojdibodu the construction of the irrigation system (Sadova-Corabia) contributed to the sectioning of the dunes, favoring deflation, in an initial stage of land use. At present, the increased parceling on the edge of the dune and the rotation of the crops could contribute to the good protection of the lands by mixing the sandy material with the humiferous one, coming from the nearby soils.

The current anthropic intervention in the area of the sands consists of the chaotic storage of household waste and grazing on the unused agricultural lands and the burning of the vegetal remains, on the agricultural ones.

In the first case, we notice the spread of weeds, which contribute to the proper fixing of the sands. The deliberate burning of vegetation on agricultural land is a common practice that allows the rapid incorporation of nutrients into the soil, but on the other hand, the values of the spectral reflectance are modified, causing errors of interpretation.

## **Impactul precipitațiilor asupra stabilității erozionale a teritoriului Câmpiei Băcului inferior, Republica Moldova**

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The climatic factor is of particular interest in the evaluation of the geomorphological processes and their conditions of occurrence and development. For a more complex and detailed assessment of the causes, namely the direct impact of these factors on the provocation, appearance and development of the geomorphological processes, the climatic components have been taken into account, which have a catalytic role in the development of the geomorphological processes. In this study, increased precipitation has been taken into account, namely their impact on the development of erosion processes. Due to the use of some indices that allow us to calculate this impact with a minimal risk of erroneously presenting the data, the data for pluvial aggression for the plain was calculated, and it was possible to analyze and highlight the importance of the climatic factor and its components.

## **The landslides within the Lower Bic Plain (Republic of Moldova) - typology and spatial distribution**

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Among processes prevailing on the territory of The Lower Bic are landslides, affecting about 2138,03 ha of the total area of the investigated territory. Typology analysis and spatial distribution of the landslides on the territory of the plain was conducted under a geomorphologic inventory of the affected areas by this process. Mapping, inventory of the landslides process constitutes basic elements in the analysis of spatial land temporal patterns of mass movements and the negative consequences of this process in the area.

## **Spectral characterization of organic matter in the Neamtu river basin by FTIR**

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Soil is fundamental to life on our planet providing among other functions the carbon sequestration. Fourier – transform infrared spectroscopy (FTIR) is the popular analytical tool for mid-IR spectroscopy of organic matter in soil studies due to its sensitivity procedure to obtain accurate quantitative data. Non-destructive Fourier

Transform Infrared (FTIR) spectroscopy was used for the diagnosis and characterization of the basic classes of the chemical groups (hydrophilic and hydrophobic components) from which the organic matter in the soils is formed. The need to develop more cost-effective and time-consuming methodologies for soil analysis is increasing. Currently, there is a high demand for fast and predictive soil data for fixation in environmental monitoring, soil quality assessment, as well as precision agriculture or forestry. One way of evaluating soil quality or some of the soil quality parameters is a representation of non-destructive FTIR spectroscopes. FTIR spectroscopy has been used successfully for several decades on the soil profile for a description of the state of decomposition in different horizons. Soil hydrophobicity is a parameter for qualitative care describing the amplification of the interaction between water and soil particles. Different absorption bands were noticed along the frequency range 3000-2800  $\text{cm}^{-1}$  being directly related to the type of functional groups and chemical bonds from the substrate, while are influenced by the specific site conditions (layer thickness, soil type, texture, forest type, vegetation composition) and aliphatic dominating band. The spectrum of the soil with high content organic carbon sample is significantly induce by the SOC spectral data. The peaks occur at range: 3000–2800 and 1740–1600  $\text{cm}^{-1}$  is proportionate with organic carbon due to the vibration of different functional groups such as stretching and bending of O–H bonds in water or from OH groups of phenols and alcohols or NH deformation, C=N stretching and aromatic C=C stretching, aromatic and carboxylic groups. On the other hand, characteristic peaks at 2950–2850  $\text{cm}^{-1}$  can be related to the aliphatic C-H vibration, carboxyl C, hydroxylic C-O-H or aromatic C-H, and C = C vibrations probably form the spectral peaks at wavenumbers less than 1500  $\text{cm}^{-1}$ . From the specific spectral bands measured that indicate the intensity of the hydrophobic (water repellent) and hydrophilic (watering) components of the organic matter are selected. FTIR spectra were analyzed in two absorption bands, which indicate hydrophobic functional groups (CH groups) and hydrophilic functional groups (CO groups), the absorption bands of the hydrophobic and hydrophilic groups were integrated and defined as intensities.

### **The sediment load and liquid discharge correlation in the Bistricioara catchment (1974-2018)**

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The estimation of sediment fluxes is an important tool in fluvial geomorphology. This is true both in terms of the estimation of the process rate, but also in terms of the control of sediment fluxes in river bed and floodplain morphology. Bistricioara river is also a direct factor of Izvorul Muntelui lake silting, so the sediment fluxes study has practical implications. For our study, suspended sediment concentrations are measured only at Tulgheș and Bistricioara hydrometric stations, for the 1974-2018 period. The correlation of sediment load with the liquid discharge is statistically significant but the

power is low, showing that the sediment load is influenced by multiple factors. Generally, the sediment load is increasing faster than water discharge, the statistical model showing a limited sediment supply at low discharge, which increase only at higher discharge and downstream of Tulgheș.

### **Warfare effects on soils**

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Along history, mankind witnessed numerous conflicts, with dramatic human and material consequences. Human effects on soils have been approached from different perspectives, reflected by terms such as metapedogenesis, Anthropocene, zoomorphic disturbance, Anthrosols and Technosols. This study approaches a quite recent subject - the effects of warfare on soilscapes.

Three sites in the Eastern Carpathians have been studied, where some of the toughest battles of the Romanian Army took place in World War I. Soil samples have been collected from the sides, medium parts and centers of trenches and impact holes. Basic soil (texture, OM, pH, NPK) and XRF analyses have been conducted.

Observations indicated the presence of numerous war artifacts at the surface and in the soil profiles. Frequently, soil morphology was so disturbed, including very weak differentiation of soil horizons, and clear differences compared to unaffected areas, that an attempt for soil classification was difficult.

Measured data indicated significant variations of the clay, CaCO<sub>3</sub>, OM contents. In some cases, higher concentrations of iron, nickel, OM or potassium have been determined at the lower part of the soil profiles.

Besides the variations in soil physical or chemical characteristics, an important element is the disturbance of the soilscape. Mappable areas are characterized by an alternation of excavated, trenched, cut and fills, bombturbation, clearly recognizable after a century. In some cases, gullies have developed on the direction of war trenches.

Following the examples of Verdun or Ypres Salient, and having in view the historical importance of these areas, we consider that the degraded soilscapes need further research related to the archeology of the Great War, and conservation and management for an archeological and even touristic use.



## **Secțiunea: Schimbări Climatice**

### **Changes in monthly wind speed over Romania from observational data (1961-2018)**

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Monthly time series of mean and maximum wind speed over the period 1961-2018 from 104 weather stations evenly distributed over Romania (spatially and elevation-wise) were tested for trends with the Mann-Kendall nonparametric test. The monthly mean wind speed is decreasing at about half of the stations, while increasing trends are between 5% (November) and 28% (September). The maximum wind speed presents decreasing trends in all months at the vast majority of stations – between 75% and 88.5%. Statistically-significant negative correlations ( $p$ -value $<0.05$ ) between monthly wind speed and the East Atlantic Pattern (EA) were found at 52% of the weather stations, indicating an increase of high pressure conditions over the continent, which is a marker of EA's positive phase. Scandinavian Pattern (SCA), which is another mode of low-frequency variability with an important impact on climate in the Northern Hemisphere, is positively correlated with wind speed in Romania. This indicates that the positive phase of this pattern – characterized by the development of high pressure centers over Scandinavia – contributes to the occurrence of low wind speed values in Romania. In fact, both correlations with EA and SCA indicate the same large-scale circulation mechanism – consisting in an increase of high pressure conditions over Europe, which leads toward the observed terrestrial stilling.

### **Changes in lifetime, distance traveled and intensity for extratropical cyclones over Romania**

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For this study we examine the trends in extratropical cyclones over Romania upon speed, distance, lifetime and intensity. We selected twelve objective methods of cyclones criteria identification (CCI) upon the spatial territory of Romania using ERA-Interim reanalysis. Eight methods are using mean-sea level pressure while the other four are based on vorticity on 850 hPa or 1000 hPa geopotential height. The trend tests are carried using non-parametric Mann-Kendall test applied on annual 5th, 10th, 50th, 90th and 95th percentiles. Additionally, we grouped the trajectories based on their cyclogenesis place, using a cluster analysis in order to check if there are changes in these characteristics. The results are showing a considerable inhomogeneity between the CCI methods where those using MSLP as input are showing a general decrease in intensity

while the others using vorticity are actually indicating an increase in vorticity over the 1979-2010 period. On significant trends, less than 50% from the variables examined are significant at the p-value threshold of 0.1. Still, some methods are indicating a general decrease in the distance traveled, lifetime and speed of extratropical cyclones over Romania. On the other hand, we didn't find any changes for any cluster group of cyclones in terms of annual frequencies.

### **Changes detected in corn crop favourable conditions in Central Romania under climate change conditions. Case study: Cluj County**

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In the general context of climate changes, agriculture sector seems to be one of the most severely affected. This paper focused on detection the changes in temperature requirements for the corn crops in Central Romania (Cluj County). The requirements were defined by the growing degree days considering a base temperature of 10 °C (GDD<sub>grow10</sub> index) and in re-defining the favourability zones in Cluj County for corn crops. The annual values of GDD<sub>grow10</sub> index was calculated by employing the ClimPACT2 application developed based on the recommendations of the World Meteorological Organization. The analysis performed by using the two time-steps confirmed that agro-ecological conditions for corn crops considerably improved from thermal point of view in Cluj County over the period 1961-2013. Also, to meet the stakeholders need, an analysis over the next decades (2021-2050) performed based on regional climate models output data should be considered.

### **Brief climatology of dust concentration in the air over Romania**

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The aim of this presentation is to assess the presence of dust transport and concentration over Mediterranean region and over Romania. There were two parameters analyzed: dust load and optical depth using dust datasets from BSC-DREAM8b dust forecast model (2015-2019). The distribution of the above-mentioned parameters were associated with certain atmospheric patterns, such as the presence of a well developed trough over the Atlantic extended until the maroccan coast of Africa. Annual, seasonal and monthly characteristics of dust concentration next to regional differences in its distribution are also investigated.

## **Detecting the climate differences within the Romania's territory using cluster analysis**

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Climate zones of Romania are detected by using the mathematical methodology of cluster analysis. Grid data from E-OBS (Europe) for temperatures (mean, maximum and minimum) and total precipitation from 1951 to 2018 and from ROCADA (Romania) for temperatures (mean, maximum and minimum) solar radiation, pressure, cloud cover and total precipitation from 1961-2013 are used after standardizing with zero mean and unit variance, to confirm that all variables are weighted equally in the cluster analysis. The similarity index is used for the autocorrelation at European scale and hierarchical cluster analysis is chosen to perform the climatic difference zones of Romania. PCA technique was applied initially to decide the most suitable method. It is decided that Ward's method is the most likely to yield acceptable results in this particular case, as is often the case in climatological research. Eight different climate zones are found, as in conventional climate zones, but with considerable differences at the boundaries.

### **Homogenization of a combined hourly air temperature dataset over Romania**

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This work describes the creation of a homogenized hourly air temperature data set at a country scale by combining data from four independent meteorological networks. The air temperature measurements for the period 2009 and 2017 were obtained from the following networks: Romanian National Meteorological Administration (ANM), National Network for Monitoring Air Quality (RNMCA), Regional Basic Synoptic Network (RBSN), and Meteorological Terminal Aviation Routine Weather Report network (METAR).

The climatological limits, persistence, temporal variation (step test), and spatial consistency were the quality control tests used to isolate the errors due to malfunctioning of the temperature sensors, data coding or transmission.

The *Climatol* homogenization method was successfully applied for identifying and correcting any suspicious values. The missing data were filled by considering the similarities between each station and the reference series. Comparing the output with the original data, it is apparent that the removal of the breakpoints, correction and homogenization resulted in a new data set with statistical properties very similar to the

raw data, but more reliable for climate research due to the increased homogeneity. Eventually, the procedure can be implemented in operational use for collecting more data from other networks.

### **Developing resilience and tolerance of crop resource use efficiency to climate change and air pollution (Suscap project)**

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It is well known that climate change will impact arable crop production across Europe in the coming decades. We also know that air pollution is already having substantial impacts on crop productivity causing yield losses of between 10 and 15% on average across Europe for sensitive staple crops such as wheat. What is unclear is how these stresses will combine to impact crop growth, development and yield through influences on important crop resource use efficiencies such as radiation, water, and nutrient use. Within this project, we will develop a new generation of process-based crop models to better understand the mechanisms, and hence impacts, of these multiple stresses both for the current day and future 2050 climates. This will allow us to identify the magnitude, frequency and geographical distribution of the combined stresses most likely to limit resource use efficiency and hence crop productivity. This will be important since, in spite of international efforts to reduce emissions, poor air quality in Europe is currently set to continue to substantially impact crop yields until at least 2050 and GHG emissions are still on course to see large changes in climate over the coming decades. The project will build on existing initiatives to develop modelling approaches; and will conduct this research in close dialogue with policy and sector stakeholders that are partners of our consortium of eight world-leading expert groups skilled in climate change and air pollution in relation to experimental and crop modelling. Ultimately, this project will target an increase in the sustainability of agriculture across Europe and a reduction in the threats to crop resource use efficiency from both current and future climate change and air pollution stress.

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## **Veganism a peaceful solution for animal welfare, good health and fighting climate change**

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Over 70 billion animals are slaughtered every year in order to cover the meat demand of a 7.7 billion people global market. At present, increasingly more people become aware of the suffering and various types of cruelty to which animals are subjected in factory farms that produce meat and dairy products, and eggs. Intensive animal farming also contributes to climate change, as it accounts for 18% of the global greenhouse gas emissions, which is more than what the transportation sector generates. While necessary for supplying a wide range of food products, it requires high amounts and concentrations of fertilizers and pesticides, immense amounts of water and extensive fertile lands, all while causing high pollution. Meat consumption is associated with a higher risk of serious health issues, such as heart disease, various kidney, liver and lung conditions, strokes, type 2 diabetes, colorectal cancer and other types of cancer, as well as infections, obesity etc. This review aims to assess the impact of a vegan diet on animal welfare, health and climate change. By using the snowball method and tracking reference for papers featured in the Google Scholar database, an initial bank of 85 scientific articles was created. Subsequently, by using keywords, a search protocol and specific search filters on the Web of Science platform, a second bank of 76 relevant studies was obtained out of the 242 open access articles that were initially available. These papers were closely reviewed. One of the reviews conclusions is that veganism is an ethical and moral solution against the violence and exploitation that farm animals (sentient beings) endure in factory farms; in fact, the Treaty of Lisbon (2009) recognizes animals as "sentient beings" and authorizes EU States to give "full regard to the welfare requirements of animals". Veganism objects to all kind of exploitation (of animals, women, children etc) and is based on the premise that all sentient beings are equal. Plant-based foods have the lowest GHG emissions/kilocalorie of food produced, which makes veganism an efficient strategy for opposing climate change and biodiversity loss on a planetary scale. A vegan diet could decrease food production-related emissions by 55% per capita compared to other diets by 2050. The vegan diet provides health benefits for the prevention and treatment of many diseases (vascular diseases, rheumatoid arthritis, type 2 diabetes, cataract, different types of cancers, hypo- and hyperthyroid diseases etc.) and is associated with a lower mortality than a meat-based diet. Including the human-animal-nature relations based on respect, love, bioethics, animal inherent value and rights into preschool and school education programs could be highly useful educational instruments. Also, university courses on bioethics and veganism could raise awareness about the proper and sustainable behaviour and actions needed to ensure a less negatively impactful lifestyle.

# **Assessing grassland degradation in Moldavian Plateau (NE Romania) using Sentinel-2 Images**

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The Normalized Difference Vegetation Index (NDVI) represents one of the most useful research tools in order to assess grassland degradation. Sentinel-2 images with 10m resolution provides free spatial and temporal data for pasture degradation monitoring. Using NDVI in vegetation cover analysis implies advantages like obtaining valuable spatiotemporal data, and disadvantages like a time-consuming process of data acquisition and data processing.

Climate change, represented by an increased tendency in matter of frequency and intensity of meteorological phenomenon and human pressure (changes in land cover and pasture usage, land abandonment, urban expansion, overgrazing soil deterioration and slash-and-burn agriculture) are the main driver factors for grassland degradation in Moldavian Plateau.

In this research we present some preliminary results from our analysis. Sentinel-2 images confirming the existence of degradation processes and helps to build truthful scenarios for future degradation issues. To validate the results, we have investigated some representative regions regarding each degradation factors.

## **The use of Radar datasets for the analysis of convective phenomena in Eastern Romania and the Republic of Moldova**

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The use of radar data set is an important factor in the analysis of convective phenomena (storms), phenomena specific to periods with accentuated atmospheric instability, manifested mainly in the warm semester of the year, but also in the analysis of their parameters (place of formation, direction of displacement, vertical development, the points where hail falls are reported, but also many other parameters provided by the meteorological radars) to assess their severity, the influence they have in the areas above which they manifest themselves and their influence on human activities. For the analysis of convective cells, numerous parameters are used such as maximum reflectivity, maximum reflectivity height, 45 dBZ reflectivity height above the 0° C level and other parameters, from their calculation resulting a hail kinetic energy map (J/m<sup>2</sup>), map provided by ASU software. From this map were extracted areas where hail falls were reported, taking into account only the points where the kinetic energy had

values over 500 J/m<sup>2</sup>. With the help of these points, cartographic materials were created, representing the distribution of hail falls during the warm semester months of the year. Also, it was realized an analysis of the number of days in which the convective cells were predisposed to produce hail, the classification being made in three categories, based on some classifications taken from the specialized literature: cells with low hail potential or only cells with rain, cells with low hail and cells with large hail.

### **A user-friendly automated meteo forecast verification software for the State Hydrometeorological Service, Republic of Moldova**

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Within the World Bank project «Development of a standardized verification mechanism and QMS for the Moldova SHS», a user-friendly application was developed in order to assessing the quality of the meteorological forecasts issued by the Moldavian State Hydrometeorological Service.

The automated system comprises two visual interfaces, which simplifies the user interaction with the meteorological database. The prognostic data (forecast) and diagnosis (observations) are collected via a web-based interface, and performance scores are computed for each parameter and can be visualised in tabular and graphical formats.

The meteorological variables evaluated by the verification system are: precipitation (appearance, shape, distribution and intensity), air temperature (minimum and maximum), cloud cover, wind speed, fog, glazed frost, hail, rime, frost, as well as of precipitation. Each element of the forecast receives a certain weight with respect to its importance; the weights were established following the WMO recommendations.

The forecast scores are calculated daily for 24, 48, or 72-hour forecast, country-wide and regionally.

### **Secțiunea: Gestionarea resurselor hidrologice**

#### **Développer la mémoire du risque inondation: exemples de bonnes pratiques**

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Les dernières années, la gestion du risque inondation à l'échelle européenne est orientée, de plus en plus, vers la mise en place de mesures non-structurelles, visant la préparation et l'adaptation de la population pour ce risque, conformément à la Directive 2007/60/CE du Parlement Européen et du Conseil, relative à l'évaluation et à la gestion des risques d'inondation. Un de ce type de mesures concerne le développement et l'entretien de la mémoire du risque inondation, une composante majeure de la culture du

risque. L'expérience et les enseignements des événements vécus dans le passé peuvent être valorisés pour que la population prenne conscience de l'existence du risque et de la nécessité qu'elle s'en adapte. Ce travail porte sur des mesures visant le développement de la mémoire du risque inondation à travers des exemples de quelques pays européens (Allemagne, France, Roumanie, Suisse et Tchéquie). Le travail est basé sur la recherche bibliographique et des investigations sur le terrain afin d'identifier des différents moyens mis en œuvre pour développer/entretenir la mémoire du risque inondation : repères/marques de crue, monuments, brochures et actions commémoratives (expositions) etc. Les investigations ont montré une attention particulière portée à l'entretien de la mémoire du risque inondation en France où les repères de crue sont considérés comme éléments de patrimoine et ils sont rigoureusement installés, répertoriés et entretenus. En Roumanie, il n'y a que quelques endroits où des marques rappelant des inondations passées ont été mise en place. Malgré le fait que la Stratégie Nationale de Gestion du Risque Inondation (adoptée en 2010) prévoit, parmi de nombreuses actions, l'inventaire des marques de crues existantes et l'emplacement de repères pour les crues/inondations historiques, jusqu'au présent de telles actions n'ont pas été mis en œuvre, dans les conditions où après 2000 la Roumanie a été fortement touchée par des inondations dommageables, voire historiques en terme de magnitude, dont les traces auraient dû être marquées, pour garder leur mémoire.

## **Comparative analysis of public waste water disposal and treatment systems in urban and rural localities in the Central Development Region of the Republic of Moldova**

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The Central Development Region occupies 31% (10.6 thousand km<sup>2</sup>) of the total area and 36% (1 million) of the total population of the Republic of Moldova. The study region comprises 599 localities, including 14 small and medium-sized cities, and the urban population constitutes only  $\approx 20\%$ . The pronounced rural and agrarian character, the current socio-economic difficulties and the massive depopulation of the rural area have conditioned a reduced access of the population to the public sanitation systems and an increased impact on the aquatic ecosystems and on the population health.

At the present, in the study region are operate only 68 public centralized wastewater disposal systems, of which 16 – in urban areas and only 48 – in rural areas. The length of public sanitation systems is about 750 km, of which 521 km (70%) - in urban localities. Only 11% of the region's population has access to public sewerage systems, including  $\approx 50\%$  in urban area and only 3% in rural area. In the region operate only 30 wastewater treatment plants, including 14 stations – in the urban area, and the total operating capacity of the respective stations does not exceed 10 thousand m<sup>3</sup>/day. The low level of utilization of the treatment plants is conditioned both by the economic



and demographic decline, as well as by the high degree (40%) of wear of the sewage and treatment plants.

The total volume of wastewater discharged through centralized sewerage networks is 4.1 million m<sup>3</sup>, including 3.6 million m<sup>3</sup> ( $\approx 90\%$ ) in the urban centers of the region. Over 60% (2.5 million m<sup>3</sup>) of discharged wastewater is received from households. The enterprises discharged 673 000 m<sup>3</sup> (16%) of wastewater, of which more than 90% (635 000 m<sup>3</sup>) from urban areas, which are concentrated most industrial and service companies. The budgetary organizations are widespread also in the rural area, and their volume of discharged waste water constituted 619 thousand m<sup>3</sup>, including 405 thousand m<sup>3</sup> or 2/3 – in the urban space.

## **Concentration of quality indicators in wastewater discharged into water bodies in the Central Development Region of the Republic of Moldova**

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The Central Development Region (CDR) of the Republic of Moldova includes 13 administrative districts, 14 cities and 340 villages (communes). The largest city in the region is Ungheni, with a population of 38,100 inhabitants, Orhei - 33,500 inhabitants and Straseni - 21,200 inhabitants.

In the Central Development Region, are evacuated about 6 million m<sup>3</sup> of wastewater. The maximum volume of waste water discharged is attested in the districts of Orhei (1.1 million m<sup>3</sup>), Ungheni (800 thousand m<sup>3</sup>) and Ialoveni (566 thousand m<sup>3</sup>). Out of the total volume of waste water, about 37% were discharged without treatment and 3.8 million m<sup>3</sup> (63%) were insufficiently treated.

Both the purified wastewater and the non-treated wastewater once reached the natural environment have a major impact on it, due to the presence of a varied load of pollutants, so it is important to know which categories of pollutants reach the environment once the discharge of these waters, in order to be able to determine later on how they affect the environment. The highest load of pollutants is in the waste water discharged from the urban area of the region, due to the concentration of industrial enterprises in this area but also to better monitoring of these discharges, compared to the rural area due to the lack of sanitation networks in most localities. The main quality indicators analyzed are: biochemical oxygen demand, fixed residue, chlorides, nitrogen compounds, suspended solids, sulfates, fats and detergents, these being present in the wastewater discharged in most districts of the study region

The main problems related to wastewater are associated with: (1) the toxicity of the pollutants, due to the chemical and biological content, (2) the difficulty of finding the right instrument for the characterization and monitoring of the pollutants caused by

the complexity of these waters, and (3) the identification of the appropriate method for effluent detoxification.

## **L'exploitation du charbon dans le bassin de la rivière Jiu (Roumanie). Quel impact sur les flux hydro-sédimentaires ?**

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Actuellement, la problématique des sources alluviales et du mode de production des flux hydro-sédimentaires dans les bassins miniers fait l'objet de nombreuses études et préoccupations expérimentales. Dans le cadre de l'étude du fonctionnement d'un bassin hydrographique dans lequel les activités minières sont greffées dans des zones clés de la production de sédiments, l'objectif général de comptabiliser les flux de matière en fonction des processus naturels et des activités anthropiques qui touchent le plus le territoire devrait devenir une priorité dans les plans de gestion des bassins versant. Dans le contexte actuel de la gestion intégrée des bassin hydrographiques, supposant la prise en compte de l'ensemble des facteurs naturels et anthropiques qui contrôlent les flux liquides et solides, le présent travail a comme but d'investiguer l'impact des exploitations du charbon sur la dynamique sédimentaire dans bassin versant de la rivière Jiu. Étale sur une superficie de 10 080 km<sup>2</sup>, dans la partie sud-ouest de la Roumanie, le bassin de la Jiu s'est fait remarquer par la présence sur son territoire de gisements de charbon exploités en plusieurs aires dans le secteur supérieur (houille dans le Bassin de Petroşani) et celui moyen (lignite, dans le de Bassin Motru - Rovinari) aussi en carrières à ciel ouvert qu'en mines souterraines. La présence du charbon a conduit au développement rapide de l'industrie minière à partir de la seconde moitié du dernier siècle, qui ont impacté la qualité de l'eau des rivières et le régime hydrosédimentaire. En raison de sa forte concentration d'alluvions, le bassin de la rivière Jiu est l'un des principaux fournisseurs de sédiments fins dans le Danube roumain. En partant de l'hypothèse qu'une partie importante des sédiments transitant la rivière Jiu provient des activités d'exploitation du charbon, nous avons essayé d'analyser le contenu en charbon des échantillons de sédiments collectés des dépôts alluviaux de la berge de la Jiu, ainsi que du lit de la Jiu et de ses principaux affluents. Les résultats montrent que l'activité minière, même dans le contexte actuel de sa diminution par la fermeture de nombreuses mines et carrières de charbon, a impacté les flux hydro-sédimentaires et a laissé des traces de charbon dans les alluvions stockées temporairement (dans les lits des rivières) ou de manière permanente (sous forme de dépôts alluviaux sur les berges d'accumulation de la Jiu), en aval des deux bassins carbonifères. Dans le diagramme de synthèse des zones sources alluviales, à part la contribution attendue des principaux affluents de la Jiu, les rivières Motru et Gilort, les quantités de matière transférées proviennent en grande partie des zones d'exploitation du charbon, les plus contributives étant celles de l'exploitation de la houille, suivies par celles du lignite. Ce fait pourrait

être démontré par la concentration élevée de la matière organique des deux espèces de charbon identifiées dans les échantillons de sédiments analysés, par rapport à la composante inorganique, qui ne présente pas des signatures distinctives d'une certaine zone source des sédiments. Nous considérons que l'applicabilité de telles recherches est utile pour les futures étapes dans les plans de gestion des bassins hydrographiques, qui devraient également inclure des évaluations des sources de sédiments fins et éventuellement l'adoption de méthodes géochimiques pour leur identification.

### **Assessment of crops water deficit using spectral indices**

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Vegetation water content is one of the important biophysical features of vegetation health, and its remote estimation can be utilized to real-time monitor vegetation water stress. Remote sensing applications in water resources management are quite essential in watershed characterization; particularly it is more efficiently to know remotely the availability of water, the authorities can establish the level of measures that can be taken. Water quality parameters help in decision making regarding the further use of water based on its quality. The need for water used in industry, agriculture or for domestic use is mainly provided by surface sources supplemented with underground sources, especially with water from groundwater. The study area is located in Iasi county, between 47°13'42"N and 27°06'32"E, characterized by continental climate (hot dry summers and cold winters), rainfall ranges from 500 mm to 700 mm, with 50.39 % chernozems, aluviosols (5%), anthrosols (7 %). The aim of this study is to find out the water deficit of the crops thru spectral indices. For this study was used 4 images from April to September 2019 taking into account the period of planning and maximum growth of the analyzed crops. Several vegetation and water indices were generated: Normalized Difference Vegetation Index (NDVI), Normalized Difference Water Index (NDWI) and Normalized Difference Moisture Index (NDMI) to analyze the necessity of water crops during their phenological period.

## **Secțiunea: Un deceniu de integrare europeană – Consecințe teritoriale**

### **La dynamique spatiale de l'économie agricole en Roumanie, 1990-2018**

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La mondialisation, avec ses réseaux commerciaux, et la croissance explosive de la population mondiale, avec l'augmentation exponentielle des besoins alimentaires, devraient positionner très favorablement sur les marchés du monde les états à fort potentiel agricole. Dans ce contexte, la Roumanie devrait être un pion incontournable sur le marché global des produits alimentaires ou, au moins, devrait être inscrite sur un cours l'emmenant vers ce statut. Pourtant, la réalité infirme ces deux idées. Notre recherche explore cette situation paradoxale, à travers l'analyse de la dynamique spatiale de l'économie agricole roumaine des trois dernières décennies. L'objectif déclaré est celui de la découverte, par l'intermédiaire de l'étude des trajectoires départementales et/ou régionales, des stratégies d'adaptation territoriales devant la double pression de la mondialisation et de l'eupéanisation, sur fond de transition post-communiste.

### **Les autoroutes de la Moldavie: entre décision politique et réalité territoriale**

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12 ans après l'intégration dans l'Union Européenne, la région moldave (qui comprend également la Région du Nord-Est) n'a aucun mètre d'infrastructure rapide, telles que des autoroutes et des voies express. Une infrastructure moderne représente un atout nécessaire pour qu'une région puisse se développer harmonieusement et pour qu'elle attire des éventuels investisseurs publiques locaux, nationaux et internationaux. La recherche met en évidence chronologiquement la dynamique du trafic examinée entre 2010-2015 (les plus récentes informations) sur les routes nationales qui sont subordonnées à la Direction de Routes et des Ponts Iasi. Les faits spatiaux liés au parking et au mouvement migratoire de la population, soulignent le besoin urgent de moderniser le réseau routier en Moldavie. Bien que la réalité territoriale impose la construction des autoroutes et des voies express de manière IMMEDIATE et de toute URGENCE, une région telle que la Moldavie Occidentale ne réussit pas représenter ses intérêts au niveau central. Les efforts des ONG qui militent pour la construction des autoroutes doivent être doublés par le soutien des agents économiques et perçu correctement et de manière transparente par des décideurs administratifs et gouvernementaux. Le présent travail met en évidence une "radiographie" des projets d'infrastructure de la Moldavie, leur statut ainsi que les mesures prises récemment (grâce aux efforts conjoints des ONG pro-infrastructure).

# **Local Action Groups as a potential instrument for stimulating the resilience of rural communities. Case Study: " Colinele Iasilor,, LAG**

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At present, the issue of appreciating the capacity of certain places to withstand shocks, to recover from unexpected events and to maintain a long-term growth, presents a subject of high interest, this capacity being known in the specialized literature under the concept of resilience ( Di Caro, 2015).

Following the integration into the European Union, in Romania various financial instruments have been introduced in order to stimulate the harmonious economic growth and development and, indirectly, the resilience of the territory to the various shocks it may face. The LEADER axis is such a European program aimed at supporting rural areas, introduced relatively recently in Romania, which results in the financing of local communities projects in order to lead to their sustainable development. The diversity of the financed projects, their spatial distribution, the categories of beneficiaries and implicitly the territorial impact of the LEADER axis, raises the question of assessing the extent to which these local initiatives, supported by European funds, contribute to increasing the resilience of the Romanian rural area, this being the research question of the present study.

In order to evaluate the effect of the LEADER axis upon the resilience capacity of rural communities, the present paper proposes an analysis of the projects financed through the Local Action Groups in terms of their ability to comply with one of the principles of resilience. Thus, the extent to which the LEADER projects, selected at the level of the Romanian LAGs, can be oriented towards respecting the principle of maintained diversity and redundancy, will be evaluated. In this respect, a case study will be carried out on LEADER initiatives selected at the level of "Colinele Iasilor" LAG .

Among the objectives of the present study can be mentioned the determination of the development directions established at the level of "Colinele Iasilor" LAG and the identification of the typology of projects selected in the two financing periods carried out so far. At the same time, the analysis of the spatial distribution of projects, as well as their degree of diversity is considered, in order to appreciate the extent to which the funded initiatives have been oriented towards respecting the principle of maintained diversity and redundancy.

The purpose of the present work is materialized in evaluating the potential of the LEADER axis and implicitly of the projects implemented through it, to constitute an effective tool not only on the sustainable development of the rural communities but also as a factor with an effect on their resilience.

## **Evolution des disparités économiques en profil territorial en Roumanie et Bulgarie: modèles spatiaux et facteurs explicatifs**

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La politique de cohésion est le principal instrument d'investissements de l'Union Européenne qui a le but de réduire les disparités économiques en profil territorial et d'atteindre ainsi l'un des objectifs de la Stratégie Europe 2020. Pour cela, un tiers du budget européen a été alloué pour la politique de cohésion, la priorité étant donnée aux pays en rattrapage économique, avec un PIB moins de 75% de la moyenne européenne. Cette politique de cohésion soutient la création d'emplois, la compétitivité des entreprises, l'amélioration de la qualité de vie, la réduction de la pauvreté et de l'exclusion sociale, les changements climatiques, la croissance du développement économique et le développement durable. Dans ce contexte de cohésion européenne, on se pose ainsi la question: «Comment les disparités économiques régionales ont-elles évoluées en profil territorial en Roumanie et Bulgarie?». Le but de cette recherche est de déterminer l'évolution et les modèles spatiaux des disparités économiques en Roumanie et Bulgarie, au niveau de régions NUTS III, pour la période 2000 – 2017 et d'identifier certains facteurs qui expliquent les disparités économiques. Pour atteindre les objectifs de cette recherche on a utilisé une méthodologie quantitative pour déterminer la convergence sigma (l'indice Gini, le coefficient de variation, l'indice Robin Hood) pour les régions de ces deux pays. En plus, l'indice Moran et l'indicateur LISA ont été utilisés pour déterminer les modèles spatiaux. D'ailleurs, par l'entremise d'une méthode économétrique on a essayé d'identifier les facteurs qui influencent les disparités économiques. Les résultats confirment les études antérieures et montrent que les disparités économiques ont connu un processus de divergence, au niveau des régions roumaines et bulgares. Ainsi, les disparités économiques sont plus élevés en Bulgarie qu'en Roumanie, tant au niveau de régions NUTS II qu'aux régions NUTS III. Par exemple, pour la Bulgarie, l'indice Gini du Produit Intérieur Brut au niveau de régions NUTS III, augmente de 45% en 2001 à 59% en 2016, alors que pour la Roumanie il évolue de 37% à 45% en 2016. Les investissements étrangers directs, la qualité et la quantité de ressource humaine et l'héritage historique sont certains facteurs avancés dans la littérature pour expliquer l'émergence des disparités territoriales.

# **Land Use Land Cover (LULC) Trends Assessment in Romania for Monitoring the Achievement of Related United Nations Sustainable Development Goals (UN SDGs)**

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Land consumption is one of the main drivers of environmental changes, at local, regional and global scale. The monitoring of land consumption is fundamental in assessing the environmental state. It can be effectively addressed through remote sensing, as the availability of time series of high and medium-resolution satellite imagery allows tracking land cover changes in large areas, with high level of details. Nevertheless, socioeconomic indicators and their evolution play a fundamental role in understanding the causes of land consumption and explaining the complexity of the phenomenon. The aim of the present study is to assess land use/land cover changes and their trends, in terms of degradation and improvement, in Romania, for a period of 15 years, through the integration of Earth Observation Big Data workflows and by testing the performance of freely available global models at national and local scale. The results are expressed in terms of possible achievements of the United Nations Sustainable Development Goals indicator 15.3.1: `proportion of land that is degraded over total land area` and its specific sub-indicators: vegetation productivity, land cover and soil organic carbon, as well as indicator 11.3.1: `ratio of land consumption rate to population growth rate`, defined through two main components: population density and urban area change metrics, aggregated from Impervious Surface Index (ISI), Night Time Lights Index (NTL) and Water Frequency (WFR). The final output should be interpreted as showing areas potentially degraded and their spatio-temporal evolution, as well as the relationship between patterns of degradation and the increasing human pressure over the territory of Romania.

## **Air Quality in Central and Eastern European countries: status and public perception**

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Air quality is a highly important environmental topic as it has a major impact on population health and wellness. Although progress has been made in tackling air pollution by controlling emissions of harmful compounds, improving the quality of fossil fuels and implementing the environmental protection requirements in transport and energy sectors, at least in urban areas, the population still confronts with numerous exceedances of air quality limit values. In Central and Eastern part of European Union, these issues continue to be a major threat considering that they face the most annual air pollution deaths in Europe while having still difficulties in restructuring and greening the industrial sector and in managing traffic in urban areas. Present paper investigates

the relation between the actual air quality and its perception, by analyzing both the registered or estimated values of pollution and the results of public inquiries concerning this subject. In order to assess the actual air quality this approach uses the comprehensive database of European Environment Agency i.e. time series on the percentage of population exposed to concentrations above EU standards for selected air pollutants such as PM10, PM2.5, O3, NO2 and for the years 2006-2016, but also the calculation of years of life lost attributable to air pollution (YLL). Public perception is evaluated by taking into account the results of questionnaire-guided interviews conducted for completing the Special Eurobarometer Report, Attitudes of European citizens towards the environment (2017) and Gallup world Poll 2019 database quality of air. The data was analyzed using multivariate statistical technique, in order to highlight certain typologies of the analyzed countries in regarding the population's objectivity and sense of responsibility in identifying the extent and importance of air pollution issue. Comparing the results from the studied area which is also the poorest region of EU with those from Western and Northern Europe, highlights major differences in thinking the actual concerns regarding harmful substances and behaving in order to address issues at individual and community level. The conclusions lead towards the need to increase cohesion in EU not just from the economic point of view, but also in developing social and environmental responsibility by promoting the sense of community and a proactive (and informed) approach on environmental issues such as air pollution.

### **Measuring the Progress in Eco-Innovation in EU28**

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It is known that innovation is a driver of social and economic progress at the national level, as well as a driver of regional success. If countries want to advance towards an environmentally friendly and prosperous society, it is important that they promote eco-innovation which is a way for European countries to become more resilient to environmental problems, such as the reduction of the energy and resource depletion, at the same time promoting sustainable economic activities. The present paper proposes a discussion on eco-innovation, its methods of measurement and drawing a typology of European states according to the dynamics of the Eco-Innovation Index between 2010 and 2017. It is based on an indicator designed by the European Union (the Eco-Innovation Observatory) known under the name of Eco-IS, a tool recently developed to measure the performance of European countries in implementing Common Environmental Policies. The statistical analysis uses 12 individual variables from five thematic areas which were included in AHC (Analytical Hierarchy Clustering) made in XLStat, in order to find typologies of European countries in accordance to the dynamics and profile of their investments in green technologies and activities. A special look will be given to Central and Eastern Europe, while measuring eco-innovation at national



level and making comparisons between countries could allow us to analyse their performance and to encourage the adoption of European policies on the environment and resource management. The results obtained from the analysis of the typology of European countries show which are the European green leaders and how big are the differences within the EU. They also emphasize the difference between the eco-innovative capacity of countries with a longer experience within the EU and the post-socialist countries. Meanwhile the actual trends of the eco-innovation index are being analysed. The conclusions lead towards the idea that the shortcomings in eco-innovation in Central and Eastern European countries are largely related to the lack of an effective innovation system with a clearly defined institutional structure, legislative and fiscal framework and financial mechanisms meant to encourage innovation and the application of new technologies in economy.

## **Geografia și geografii clujeni în vremuri grele**

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Geografia clujeană sărbătorește un secol de existență la universitatea românească. În perioada interbelică, știința geografică s-a dezvoltat neconținut. George Vâlsan și Emmanuel de Martonne i-au trasat direcțiile majore de dezvoltare. În acest interval de timp, s-au publicat importante lucrări de specialitate, s-a înființat revista proprie (Lucrările Institutului de Geografie...), au avut loc cercetări de teren care s-au finalizat cu rezultate remarcabile. Războiul și cedarea către Ungaria a teritoriului în care se afla facultatea și institutul au avut drept urmare refugiul la Sibiu și la Timișoara. Totuși, cercetarea geografică a mers înainte. După război, unitatea științei geografice a fost știrbită prin intermediul ideologiei ocupanților sovietici. Au fost interzise cercetările și publicațiile antropogeografice. Mai mulți geografi au fost arestați sau excluși din universitate. Singurul conducător de doctorat în geografie din țară a rămas Tiberiu Morariu de la Cluj. O ușoară revenire s-a produs după anul 1965, dar disciplinele politice au rămas obligatorii în planurile de învățământ, altele, importante, au fost excluse. În anii '80, presiunile politice s-au înăspriț, mai ales asupra studenților. Personalul didactic s-a redus mult, legăturile internaționale au fost diminuate. După anul 1989, la Cluj, au fost înființate, în premieră pe țară, mai multe specializări. Disciplinele interzise anterior au fost introduse din nou pentru studiul studenților. Cercetările științifice au cunoscut o diversificare fără precedent. Unitatea științei geografice a fost repusă în drepturi. Legăturile internaționale s-au amplificat. În ultimii ani, în învățământul preuniversitar disciplina geografică a fost mereu în pericol de restrângere. În facultăți, abilitările au fost tot mai mult limitate. Geografia clujeană a rezistat în perioade grele. Azi, se impune, mai mult ca oricând, unirea tuturor forțelor geografice progresiste din întreaga țară pentru dezvoltarea geografiei și a cercetării geografice.

## **Secțiunea: Teritorii și identități în lumea contemporană**

### **Bridging the people-nature divide using the participatory planning of urban protected areas**

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Urban protected areas constitute a new challenge for urban planning and management, being an instrument for cities to achieve their liveability, resilience and sustainability targets. Urban protected areas are situated in or at the edge of larger population areas and can contain sites of significant conservation value. These areas need to offer an opportunity to integrate urban areas into nature conservation schemes, in order to increase nature experiences for urban citizens, promote urban regeneration projects (including nature-based solutions), and help cities to mitigate and adapt to different societal challenges (e.g., climate change, water scarcity or food provision). However, multiple disservices could appear because of misunderstanding the relationship between urban natural and society. The aim of the presentation is to demonstrate the utility of participatory planning instruments in obtaining a solid consensus between stakeholders for urban protected area management. We tested different participatory planning methods in Vacaresti Nature Park (VNP), located in Bucharest, Romania, to generate useful data on urban protected area management.

### **La fin des affinités électives? Une analyse des comportements électoraux en Roumanie**

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Dans une interview pour Le Figaro, en 1990, Silviu Brucan disait que les Roumains auront besoin de 20 ans pour dépasser le stade de stupid people sur le chemin de l'apprentissage de la démocratie et de la création de la société civile. L'affirmation, qui a déclenché un véritable scandale à l'époque, semble avoir été confirmée plusieurs fois au fil des années. Où est-ce qu'on est trente ans après cette fameuse phrase ? Analysant les résultats des dernières élections, y compris les referendums à répétition, notre recherche s'efforce de trouver les signes de la modernisation des comportements électoraux et de la mise en place de la société civile roumaine. L'étude interroge les clichés explicatifs des résultats des élections, clichés construits ces dernières années autour de l'opposition entre les deux Roumanies (celle profonde et l'autre... comment ?), autour des clivages entre les générations ou entre les milieux (urbain – rural) ou bien entre des héritages historiques différents (Transylvanie-Vieux Royaume).

## **The military "added value" of Crimea - a geographical approach**

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The annexation of Crimea by the Russian Federation has severely modified the military balance in the extended region of the Black Sea. This research makes an inventory of the different consequences induced by the 2014 events, for a selected set of NATO infrastructures and facilities from the eastern flank. Even if the Russian advance to the West is limited (about 400 km), the pressure on the regional NATO allies is extremely intense. The rehabilitation and rearming of the former URSS airbases from the peninsula is possibly the most dangerous aspect of these potential threats. In order to assess the new regional geo-strategic configuration, we developed a GIS tool that maps the combat radius of the air military bases controlled by the main actors (NATO and Russia), together with a non-exhaustive list of military facilities and infrastructures belonging to the alliance. The output of the cartographic tool emphasizes the role played by Crimea in the Black Sea region, mainly its potential to military disturb critical elements from the AEGIS defense system or to neutralize the NATO's air power on the eastern flank. Moreover, by its geographical position, Crimea is empowering the Russian air offensive system at a scale that was not visible before, not even during the Cold War.

## **International trade in weapons - revealing the military structure of the world**

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The end of the Cold War and the disappearance of the military and ideological blocs increased the instability and insecurity of the states of today's world. The natural consequence is the increase of the potential inter-state conflict. This has led to increased military expenditures by governments and then to the intensification of international arms trade. Our research, initiated during the masters' studies and continued in the doctoral studies, aims to identify the large spatial structures of the international arms trade. Highlighting, on the one side, the spatial and technological discontinuity between the arms manufacturers and their customers, and on the other side the geostrategic structuring of customer-type relationships, the research lays the foundations for a future in-depth study of major geopolitical tensions in the planetary space.

# **Analyse structurelle des exploitations agricoles dans la Moldavie de l'Ouest. Une perspective pour le développement de l'agriculture**

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L'étude a pour objectif d'analyser les exploitations agricoles de la Moldavie de l'ouest au niveau de l'année 2010, selon les données du recensement agricole. Les exploitations agricoles jouent un rôle important car elles exploitent le potentiel agricole de la terre, de l'élevage et des équipements agricoles, contribuant ainsi à la création d'une agriculture moderne qui développe l'économie rurale.

La Moldavie de l'ouest est connue au niveau de la Roumanie avec un potentiel agricole élevé, mais qui n'est pas suffisamment exploité. L'économie de cette région est précaire, en particulier dans les zones rurales, où elle se trouve à un stade précoce de développement en raison du faible développement des exploitations agricoles.

Dans cette étude, des typologies spatiales sont réalisées pour analyser au niveau territorial les zones qui exploitent les terres agricoles par le biais d'exploitations agricoles, le poids des surfaces agricoles utilisées ou le profil des personnes travaillant dans le milieu rural (en agriculture), en fonction de l'âge ou du sexe. En outre, la corrélation des résultats cartographiques avec les données statistiques concernant les fonds européens pour l'agriculture des exercices 2007-2013 et 2014-2020 soulignera les opportunités et les perspectives de développement, mais également les problèmes qui se posent à ce domaine au niveau de la zone d'étude.

## **Imaginea turistică a Transilvaniei la Centenarul Facultății de Geografie și al Universității "Babeș-Bolyai" din Cluj-Napoca**

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Transylvania is, undoubtedly, the supreme tourist brand of Romania. In the research entitled *The Tourist Image of Transylvania at the Centenary of the Faculty of Geography and Babeș-Bolyai University of Cluj-Napoca*, we set forth several clear major objectives, amongst which that of settling, in an argued way, the differentiation between the fictional aspects of Transylvania's fame (literature-driven, mythological) from the real ones. This objective is likely the most important amongst those we have set out to fulfil by the end of the research, "super-objective" of the research. This scientific undertaking seems hardly simple, as in Transylvania's instance, as a tourist brand, the fantasy elements intertwine with those clearly reflected in the geographical reality of the region, both in promotion enterprises, and, especially, in the collective mind-set and tourist imaginary associated with the geography of tourism. Thus, such elements are very difficult to differentiate. Based on results, as a conclusion, we can forward that of a compromise, but under the condition of better defining and legitimising the

fictional/mythological factor inherent to this geographical space in conjunction with an ampler, more rigorously orchestrated, more efficient and more responsible enterprise of promotion and branding strategy and tourist propaganda. This is an essential research topic in the year when Transylvania's most important University, Babeş-Bolyai, celebrates 100 years of existence (1919-2019).

## **Secțiunea: Geografia Populației**

### **Commuting in Romania. Case study Development Region Centru**

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The number of commuters in Romania was high during the communist period, due to the distribution of jobs in another locality than the home town. Nowadays the rates of commuting differ. Very many persons from the majority of county localities, travel to the counties capitals in order to work there. At the same time, inferior-rank urban municipalities have low attractiveness because they are not economically developed, which is why people travel daily over long distances in order to have a proper job. The communes around the big cities have turned into "bedroom" communes, because of the prices. Some small urban municipalities attract a large number of people from nearby localities because there is a developed sector of activity here, with numerous jobs in the industrial or in the tertiary sector. Rural localities attract many commuters because industrial parks were established in their territory or tourism is developed. The investments from the recent years, technological changes and development of the area are the reasons why commuting has increased in recent years. Accessibility is a key indicator of determining the spatial orientation of the commuter flows. This study aims to analyze the intensity and spatial orientation of the commuters, to establish the main attractors and to make the demo-socio-economic profile of the commuters in the Development Region Centru.

### **Ethnic representativity of Sfatul Țării in 1918 on Bessarabia and its vote regarding the unification with the Kingdom of Romania**

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The research aims to analyze the extent to which the legislative body of the Moldavian Democratic Republic, called Sfatul Țării, was representative for a vote of major importance to the future of the territory between Prut and Nistru, the vote of 27th of March 1918, when the decision to unite with the Kingdom of Romania was taken. Sfatul Țării intended to represent as many organizations and institutions as possible and the main minorities in Bessarabia, in order to be a representative body for the entire

population of Bessarabia, hence embodying the necessary legitimacy to lead the Moldavian Democratic Republic, better known as Bessarabia.

The research is a comparative one, starting by outlining a short chronology of the events leading to the appearance of Sfatul Țării, followed by the direction in which it carried out its activity and, finally, pointing out the ethnic structure based on its composition of 27th of March 1918, compared to the ethnic structure of Bessarabia's population in 1918. The above is according to Gheorghe Munteanu-Murgoci calculations, from the 1920 volume published in Paris (*La population de la Bessarabie. Etude demographiques*)

Munteanu-Murgoci's volume was critically analyzed and a series of necessary statistical corrections were made. The data was used, only after its revision, in order to verify to which extent, the Bessarabian ethnicity was truly represented by the vote of Sfatul Țării. Besides the fact that the research revealed some mistakes in the analysis made by Murgoci, it also revealed that the ethnic representativeness of Sfatul Țării had largely respected the ethnic structure of Bessarabia, taking into consideration the conditions imposed by the geopolitical, doctrinal and social conditions of the time. The results of the research showed that Sfatul Țării was a legitimate legislative body that respected the ethnic representation of Bessarabia, which, although not fully coincided, broadly respected the ethnic structure of the population; hence, the statements of some tendentious historians denying the legitimacy of Sfatul Țării and the objection to the validity of its vote, by which it decided the unification of Bessarabia with the Kingdom of Romania, are to be regarded as acts of history falsification.

## **Morphological Urban Areas and the Dynamics of Local Territorial Structures Generated by Medium and Large Cities of Romania (2002 - 2019)**

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Enduring massive morphological changes in the transition, pre-adhesion and EU adhesion period, the Romanian large and some medium cities seem to be involved in extension processes that are difficult to measure and understand. In this paper we furnish an incomplete spatial analysis frame of this extension spree, articulating the concept of density with the notion of build-up area with the spatial trends identified at local scales of observation. The issue of the continuous build-up area is quite new in the landscape of the geographical Romanian literature. By rapid suburbanization and accelerated economic growth, the large cities are now, functionally and morphologically, overlapping the near administrative units (LAU2), introducing in the administrative and planning problematic the question of how to manage properly this new kind of space – the C.B.A (the continuous build-up area).

## **Spatial Dimensions of Suicide in post-communist Romania**

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Part of the doctoral approach on the subject, focusing on the areas of violence in Romania, the conducted research analyzes the spatial types of suicide. Complex psychosocial phenomenon, suicide may sometimes be specific to a particular population (ethnic group, socio-professional category, age groups...), but very rarely this type of violence becomes territorial. Based on geostatistical methods applied at the geographical scale of Romania’s counties, our research explores to which degree the suicide, studied over a period of sixteen years, may or may not be considered a territorial phenomenon.

## **Divorce as a territorial phenomenon - cliches and realities**

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Social geography has major difficulties in studying the spatial dimension of social phenomena, like marriage or divorce, especially because they are the result of strictly individual decisions. Following major events, positive (for example the end of a long military conflict) or negative (for example economic crises), supported by a localized population, this type of phenomenon can take on a mass appearance and appear as spatialized, as specific to the area occupied by that population. Using geostatistical methods, our research, carried out at the county level, aims to analyze the sensitivity of the divorce to the socio-economic and political contexts that post-communist Romania has known.

## **Demographic vulnerability in the North-East Region of Romania**

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The reference thesis, Demographic Vulnerability in the North-East Region of Romania, proposes an analysis of the demographic evolution of the North-East region in the context of the changes in the last two decades and related to the demographic ensemble of Romania. The dynamics of the demographic system in the North-East development region is the result of a cumulative action, with the most significant fingerprints being economic, political and geodemographic.

The Demographic vulnerability in the North-East region of Romania thesis is part of the typology of classical studies of human geography, proposing from the perspective of the approach of a multilateral investigation of the phenomena and processes on which the evolution of the essential demographic indicators is based within the Romanian space, within the North East Development Region. Considering the methods of analysis of the geodemographic parameters used, the study is based on the theoretical method,

but especially on practice, the research being carried out under the dynamic aspect, with the use of cause and effect relations and interdependence. In the elaboration of the present thesis I merged the theoretical concepts defining the study areas, Romania and the North-East Development Region, with practical methodologies based on the cartographic method, quantitative and qualitative data collection and analysis, the descriptive method, the comparative surprise, but also analogous to time and space processes.

The study is based on consulting a relatively large bibliography, including fields complementary to geography, such as economics, education, and sociology in particular. The sources aimed at collecting information on the evolution of various geodemographic indicators in the socio-economic context of the last two decades, the information regarding general data about Romania, as well as the particularities of the North-East region and its localities.

## **Secțiunea: Geografia Așezărilor**

### **Oiconomia Moldovei istorice-considerații geografice**

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Realizarea unei baze de date cuprinzând denumirile tuturor localităților (sate, orașe) care au fost înregistrate începând cu celebra catagrafie rusă din 1772-1774 până în prezent, în spațiul Moldovei istorice, constituie suportul unei analize geografice a distribuției spațiale a oiconimelor. Având la dispoziție lucrări de anvergură precum cele redactate în colecția ”Tezaurul toponimic al Moldovei” de către cercetătorii ieșeni, analiza curentă nu este focalizată spre explicațiile etimologice ale oiconimelor ci pe relevanța lor geografică, pe corelațiile care pot fi stabilite cu elemente ale cadrului natural și uman al regiunii. Informația agregată la nivelul unităților fizico-geografice clasice, scoate în evidență existența unor particularități locale, generate de influențe exercitate fie de mixajul etnic în anumite arii marginale, de ocupația străină sau, mai ales de specificul geografic local. Atenția acordată unor particularități fizico-geografice, în mod deosebit a celor legate de morfologia suportului natural și de cuvertura biogeografică, indică o puternică legătură între comunitățile din acest spațiu și mediul natural. În același timp, o influență semnificativă o are și forma de proprietate care, în zonele dominate de moșiile boierești și mănăstirești, determină o prezență masivă a denumirilor care reflectă identitatea primilor proprietari. Acest demers este o continuare a unei analize deja publicate asupra hidronimiei din același teritoriu.



## **Understanding the elements of urban mobility in Iași's metropolitan area**

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The periurbanization phenomenon has changed the pattern of population displacement causing serious environmental issues in the Iași Metropolitan Area during the last decade. This study attempts to obtain an overview of the efficiency in the metropolitan transportation networks by analyzing public transport policies, convenience, availability, affordability and other supply and demand characteristics of metropolitan mobility in Iași. The results reveal an unequal distribution of accessibility within the metropolitan region due to the fact that residents are, in some cases, confined to car commuting in the absence of reliable public transportation or other private commuting options.

## **Seismic risk perception and seismic adjustments in Vaslui city, Romania**

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Seismic risk perception is of utmost importance for both pre- and post-hazard time periods, as it is linked to the awareness concerning the individual preparedness for the impact of the earthquake and to the adjustments people undertake in order to reduce their vulnerability. Although it provides useful information on the cognitive and emotional approach regarding earthquakes, seismic risk perception is often left out of mitigation strategies. Vaslui City is subject to earthquakes originating from Vrancea Seismic Zone, the specific peak ground acceleration (ag) being 0.30g for a 225-year average recurrence interval and the spectral displacement value (Tc) being of 0.7. The study area distinguishes itself as one where the population has a generally low standard of living, which constitutes a precondition for severe earthquake induced consequences in terms of human loss. Moreover, only 40 buildings in the city were technically expertized, fostering uncertainty regarding the stability of the built patrimony, therefore increased levels of vulnerability.

This paper aims to examine the perception of seismic risk of the inhabitants of Vaslui City. The descriptive, correlative and differential statistical analyses are based on the responses to a questionnaire constructed on socio-demographic, building features, seismic risk perception, past relevant experiences, seismic adjustments, survival skills and recovery process related levels. These aspects are analysed from multiple perspectives in order to identify certain patterns concerning earthquake related attitudes and beliefs. The approach integrates elements of both psychometric paradigm and cultural cognition theory, fitting the emerging trends in the designated research field.

The study serves as an example for further understanding of the seismic risk perception in areas where the scarcity of such information precludes the development of context adapted earthquake mitigation plans. In addition, the information concerning

seismic risk perception may be used in future research concerning the overall seismic vulnerability of the city.

## **Shrinkage and urban attractiveness of Romania's small and medium-sized cities. A GIS approach**

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The present paper proposes to highlight the influence that shrinkage has on the urban attractiveness of small and medium sized cities of Romania. The aim of this paper is to come forward and help to better understand the shrinkage process - the main negative demographic factor that influences the small cities of Romania - more than 270. This phenomenon was little studied in Romania and this paper can come forward with a specific framework to help identify our cities. Moreover, the most important question is to show whether shrinkage has a major impact on urban attractiveness or not, with the main help of the GIS techniques to measure factors such as cities' accessibility, spatial demographic trends or economic performance. Being such a generous number of cities, the results are really different, shrinkage has various impact on the urban attractiveness, depending on the typologies of the cities. In the end, we can draw different lines of approach for further understanding how shrinkage affects the most vulnerable cities of Romania.

## **„Old” Medical Geography, „New” Geography of Health: paradigm shift, conceptualization and perspectives**

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Medical geography is a part of social geography which is distinguished from its other parts by being at the intersection with health care studies. Various disciplines have proposed names such as geographic medicine or geomedicine, the geography of health and disease, and more recently geography of health and health care services. Understanding of human health in relation with the environment, represents the contribution of medical geography, which is individualized by the fact that it opens up the health issues both to the social system and to the environment and the geographical space. From a methodological point of view, after consulting the specialized literature, the goal is to obtain a qualitative analysis, focused on the evolution of the medical geography as a science and on the paradigm shift and the orientation towards the health geography. The purpose of this study is to carry out an evolution of the medical geography, from the appearance of the first researches to the conceptualization of the "new health geography", the changes in the sub-disciplinary framework and the paradigm shift being placed around the key question: "What role does the new geography of health play from a spatial perspective and from the point of view of its

dynamics over time?" Approaching this subject is undoubtedly a challenge for any researcher, especially in the Romanian academic space, where the first methodological and hermeneutical studies of the phenomenon appear rather late. The new vision on the geography of health clearly highlights its social dimension, the subject being in the field of "new geographies" and having an impact in the social and geographical sphere. For the medical services, three concepts stand as basic: the characteristic of the place analyzed and what distinguishes it from the others, the analysis of the spatial relations at different scales as well as the relation between the environment and man, healthy or ill.

### **E-waste flows and global disparities: new geographies**

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This work points out the major disparities in terms of e-waste generation, treatment and disposal practices between high-income and developing countries across each continent. This waste fraction poses serious environmental and public health risks if it is not properly managed due to toxic contaminated materials (eg PAHs; heavy metals) or on the other hand, the e-waste fraction could be regarded as source for precious resources for industry (gold, silver, copper etc) or other recyclable items (plastics, metals). Therefore, e-waste legislation coverage must emerge at global level to improve and support the recovery and recycling practices and to avoid the poorer countries of Africa and Asia becoming e-waste disposal destinations. A sound e-waste management system requires complex activities including technical, legislative, public policy, governance and socioeconomic issues within a multi-level framework (local-regional-national-global). International cooperation is essential to mitigate the illegal traffic of e-waste flow and better e-waste statistics available across all continents are crucial to understanding and monitoring the global E-waste flows and the geography behind it.

## **The resilience capacity of cities from Central and Eastern Europe - an exploratory study**

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In a context where urban morphological and functional transformations are dependent on the political and socio-economic dynamics, the analysis of the urban resilience should not be considered solely in terms of physical (spatial) resilience. It must be viewed in a broader perspective: spatial, environmental and socio-economic, in order to link the urban fabric to the factors that transform it. During their morphological, functional and socio-economic crystallization, the cities of Central and Eastern Europe have undergone many changes and shocks. Among these shocks, the fall of the communism and the transition to a liberal market economy is undoubtedly major events, which had tested their ability to readjust and to continue to coherently evolve, in brief, their urban resilience capacity. Thus, this study wishes to explore the resilience of cities in Central and Eastern Europe on a dual time scale: short-time and long-time. This exploratory approach will follow an analysis of both morphological and functional indicators (spatial resilience and environmental resilience) and socio-economic ones (socio-economic resilience). This dual approach will allow a better understanding of the many facets of the post-socialist city, each playing a role in the urban resilience capacity. The aim of this study is to observe if there are convergent or divergent trajectories of the urban evolution either at the national or regional level. To this end an index of urban resilience capacity will be calculated. Thus, the analysis of the urban resilience of post-socialist cities will be done by observing the recurrence and/or the predominance in space and time of certain types of land use that can raise the adaptability and evolution of a city in terms of physical resources (spatial and environmental). Also, the socio-economic stability of the cities will also be taken into account, because it also plays an important role in the evolution of an urban area, being an important factor in their adaptation, transformation or involution. The results show that cities in Central and Eastern European countries are quite resilient. Their vulnerability derives either from the insufficient integration of the socialist heritage into the contemporary urban dynamics, or from the inefficient use of human, spatial and financial resources, in the absence of a coherent vision of urban development.

### **Land use changes and urban sprawl. A case study on the North East development region OF Romania**

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Spontaneous urban development, specific to East European cities in the post-socialist period, produces permanent land-use changes. The study aims at analyzing this phenomenon at regional level, on the surfaces of the North East Development Region of

Romania. Although as a way of manifestation there are many similarities at regional level, the behavior of urban systems and land-use changes are influenced by many local factors. For this study, were capitalized the updated data provided by Corine Land Cover, the analysis being carried out in temporal stages – 1990 – 2000 – 2006 – 2012 – 2018 using the ArcGis software. In terms of assessing the consequences of urban development, the analysis concentrates on permanent changes that can indicate the penetration of urban space in rural areas. The largest area of land-use category transformed into artificial surfaces belongs to the agricultural sector. The challenge is to analyze the magnitude of this phenomenon, the main consequence being the consumption of productive land, and to see if its perpetuation and intensification contravenes the principles of sustainable development.

## **Secțiunea: Turism, Patrimoniu și Biodiversitate**

### **Evaluation of the impact of cultural tourism on the valorisation of heritage buildings in the historical center of Bucharest municipality**

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In the current period, increasing attention is paid to ways of capitalizing on cultural heritage, an action correlated with preserving the valences it incorporates (historical, cultural, architectural, artistic, social). The economic values related to the historical center of a city are embedded in the urban structure. Historical buildings have an economic significance in connection with the city's past and with its development prospects. In fact, the economic values often allow heritage elements to preserve their cultural significance. There are several studies focused on the role of cultural heritage in promoting welfare and development. Precisely, there are mentioned the economic benefits (e.g. revenue growth from tourism, and service development, increasing the living standard of the inhabitants, new direct and indirect jobs). Cultural tourism is one of the fastest growing segments of the tourism sector. In identifying the economic value of heritage assets, a distinction is made between the values of use and non-use values, that is, between the direct value of the consumers of heritage services as a private good and the return-value of those who benefit from the heritage advantages as a public good such as the availability of public buildings or services directly provided by infrastructure. The study aims to evaluate the way of reusing the heritage buildings in the historical center of Bucharest, under the impact of cultural tourism, which in recent years has experienced an intense development in this area. Non-use values can be identified by monuments, objects, public spaces, or in connection with a historic neighborhood as a whole. The contingent valuation method was used to evaluate the non-used economic value. Use values are identifiable, often measurable with high precision and widely represented in the urban historical centers. The use

values of the heritage buildings in the study area have been assessed in terms of real estate values, measured by rental values. The real estate values are used as market indicators to quantify the use of historical buildings. Other indicators have been selected to describe the rapport between the occupation of heritage buildings and the use values: occupancy versus vacancy of heritage buildings; degrees of conservation; types of use of buildings. The cartographic representation of the results obtained by calculating the indicators was done using the Geographic Information System (GIS) software. The preliminary results show that the reuse of heritage buildings is strongly influenced by the development of the cultural tourism in the historic center of the capital city (trade, tourism and cultural services).

## **The chrono-spatial distribution of touristic activities in the Romanian space**

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The paper highlights the evolution, in time and space, of touristic activities, in the Romanian Space, for the Antiquity to our times. For the Antiquity its remark the existence of the localities in which has used the thermal water – highlighted by names such *Germisara, Aquae, Ad Aquas Herculi Sacras*. In the Middle Age, the places in which the travellers can eat or sleep, in points named *han*, or *rates*, are highlighted by toponyms: *Hanul lui Manuc, Hanul Trei Sarmale, Hanul Conachi, La Hanuri, Rateșul Cuza, Ratoș, Ratuș*. The existence of some touristic flows, with a modest presence, are highlight by anthroponyms such: *Peregrin, Călătoru, Drumetș*, and the patronym *Hagi*, attested first time in the Russian Cathagraphy (1772-1774), at Târgul Ocna, reflect the people that have travelled to the Holy Places (Jerusalem, for Christians, Mecca, for Muslims). For the Modern Epoch, for the second half of XIX Century, we have access to the statistical and encyclopaedic information (censuses, dictionaries, yearbooks), that reveal the apparition of modern stations, in the Mountains – Băile Herculane, Băile Slănic, Băile Govora, Băile Olănești, Sinaia – or at the Sea – Mamaia, Carmen Sylva/Eforie, Techirghiol. From this sources we can follow the development of touristic infrastructure for accommodation (hotels, villas, camping, etc.), and the touristic patrimony (natural, religious, historic, cultural), or of the touristic flows (arrivals and/or touristic nights) for which, after 1989, the data are more detailed, at the level of elementary administrative units (municipalities, cities, communes).

## **A multi-scalar approach to tourism collaboration. Case study on Vatra Dornei, Romania**

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Existent research points out geographical distance as an important dimension to be taken into consideration in the study of stakeholder collaboration in tourism. On one hand,

geographical proximity determines a higher probability of relationship creation among tourism stakeholders, as it encourages mutual trust and knowledge exchange. On the other hand, the efficiency of a tourism network is dependent on the existence of both local stakeholders and external ones, as connections with the latter encourage innovation. This study explores the geographical particularities of collaboration in Vatra Dornei, a tourist destination in Romania, through a multi-scalar analysis. The aim of the study is to identify the specificities of tourism collaboration for each level (local, regional, national, international) in terms of nature and intensity of collaboration, purpose of collaboration and categories of stakeholders that interact. A series of 24 semi-structured interviews have been conducted with public and private local tourism stakeholders, an important part of the interview being focused on the geographic origin of the collaborators. The answers were processed through methods of Social Network Analysis. Alongside with a general low level of collaboration at all geographical levels, a series of important results can be highlighted: (1) the degree of formalization of relationships is higher as the geographical distance increases; (2) the regional level, followed by the national one, are the most representative in terms of collaborations based on strategy and policy design or on knowledge exchange; (3) the local public administration creates stronger connections with external stakeholders, than with the local ones. The findings are useful for pointing out certain potential areas of intervention both for the improvement of the collaboration relationships and for the development of the destination. The collaboration particularities identified for each geographical level can represent the basis of a model of tourism collaboration at different scales.

### **The role of urban areas in generating rural tourism resilience**

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During the last decades rural tourism became a focal point in national and regional strategies given the provided benefits of additional income, job creation, and foreign direct investments, slowly evolving into one of the most appealing forms of tourism in Europe. Moreover, while advertising authenticity, local lifestyles, and unique experiences for tourists, it managed to induce an overall economic development, infrastructure improvement, and wellbeing increase for inhabitants. However, despite their attractiveness and popularity, rural destinations prove to be extremely vulnerable to socio-economic crisis.

This research investigates the resilience of tourism sector in Romanian rural area during and after the economic crisis of 2008-2012 and makes an attempt to identify the factors responsible for the quicker and stronger comebacks in terms of tourism arrivals. Our study focused on rural tourism destinations and covered the period 2001-2018. The data used for the study includes tourism arrivals, overnights, lodging capacity, economic diversity, and workforce structure. A standardised indicator of tourism dynamics was calculated for each locality, based on the multi-annually change before, during, and after

the crisis. Additional spatial indicators, such as the indexes of peripherality and accessibility in relation to the main urban centres, were computed by the authors for each rural destination. Results were statistically tested to model the impact of different variables on the tourism recovery after the crisis, as well as the intensity of tourism fall during the crisis.

The findings indicated that generally, the localities from the periurban areas tend to have a similar behaviour in terms of tourism arrivals with the near urban centres. However, rural localities situated in the proximity of small and medium cities displayed a higher resilience of tourism activities by manifesting lower drops in tourism arrivals during the economic crisis and a faster recovery afterwards. Rural destinations situated in the proximity of big cities showed a strong dependency on the neighbouring urban area and a drastically reduced resilience performance. However, regional differences in terms of tourism behaviour and the weights of factors in the model are noticeable. The results put in discussion the allegedly positive role of big cities in supporting sustainable tourism development in rural area. Main features of rural tourism and its current tendencies are also addressed.

## **L'oenotourisme dans l'ancienne région Languedoc-Roussillon, France**

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Le vin et le tourisme forment depuis longtemps un lien privilégié, mais ce n'est que récemment que cette relation ait été explicitement reconnue par les gouvernements, les chercheurs et les industries elles-mêmes. Ce travail scientifique est orienté vers la sphère française, qui a déjà une image emblématique dans le processus de culturalisations à travers l'art du vin. Dans le but d'une analyse beaucoup plus précise, le territoire choisi c'est l'ancienne région Languedoc-Roussillon, qui peut être aussi assimilée à la plus grande région viticole en tant que niveau de production. Ainsi, ce travail de recherche part du décalage entre ce potentiel viticole naturel, mondialement reconnu, et le manque de dynamisme du secteur oenotouristique. Afin de valider cette hypothèse, une analyse est effectuée sur les articles scientifiques d'intérêt à la fois dans l'industrie du tourisme mais aussi du côté de cette niche touristique. Comme son nom l'indique, dans cette région, la quantité était toujours au-dessus de la qualité. Pratiquement, cet effort pour avoir autant que possible sans technique de contrôle de la valeur a conduit au développement et à la promotion du tourisme de masse traditionnel, où l'oenotourisme avec une clientèle particulière et avec des activités qui réveillent le sensible, est introuvable. L'application des notions de base de cette branche du tourisme sur la région ciblée a conduit à une partie pratique visant à émettre des stratégies et des actions de développement possibles dans la même direction. En substance, le présent travail propose en établissant les lacunes et les menaces concurrentielles une série d'actions destinées à orienter ce territoire vers le développement d'un tourisme spécifique à son potentiel naturel.



## **The western Romanian vineyards - proposals for capitalization of the wine tourism potential**

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The western Romanian vineyards hold a valuable wine-growing tourism potential: wines with specific peculiarities, cellars hundreds of years old, cultural events related to the wine-growing tradition from this area, vineyards with a long history of producing wine etc. In addition to the basic product of the wine making process (wine), the wine tourism exploits the entire infrastructure related to the process of obtaining wine (wineries), storage and maturing of wine (wine cellars), marketing and promotion (wine showrooms, souvenir shop, wine salons, exhibitions, wine shops etc.), as well as the cultural and historical features materialized in oenological traditions, museums of vine and wine, celebrations dedicated to wine and grapevine (wine festival). The purpose of this article is to highlight how wine tourism can capitalize the wine tourism resources in the western Romanian vineyards. Regarding this matter, there have been identified, catalogued, mapped and analyzed the components of the wine tourism potential from the analyzed area. At the end of the present paper were proposed solutions for the tourism capitalization of the vineyard heritage in the research area.

## **The use of Internet resources in the analysis of tourists' preferences in Iasi. Focus on Instasights**

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Internet represents an essential tourism information source and increasingly important topic for tourism research. There has been a growing literature using internet data to analyze tourist behaviour, perceptions and satisfaction. This study focuses on the analysis of one internet resource - Instasights, used by tourists as a main source of information. Instasights is a tool that gathers and analyzes billions of user-generated geotagged signals, regularly indexed across 60+ public sources. This tool creates heat maps based on large quantities of voluntary geographic information (VGI) data that are retrieved and analyzed from over 60 different social media sources. The mapping of tourist attractions and facilities uses the number of reviews and photos of locals and travelers (2). In this study we analyzed four Instasights heatmaps that highlight the spatial density of four urban activities: sightseeing, eating, shopping and nightlife, represented by color gradients. Thus, Instasights maps are a tool for illustrating the most popular areas for each category. We compared an Instasights heatmap with a map based only on TripAdvisor visitor reviews and photos. TripAdvisor is one of the most popular online platform used by tourists as information sources and for sharing their experiences. We outlined the main tourist areas of Iasi for sightseeing activities. These are mostly concentrated in the city center and in Copou area. TripAdvisor attractions of

Iasi based on number of reviews and photos indicate almost the same spatial distribution as Instasights. In which regard the popular eating places, those are concentrated by Palas Mall, Tudor Vladimirescu neighborhood (fast-food type, i.e Class) and Copou area. The shopping activities are placed in the two known areas of comercial activities: Palas and Iulius Mall. Nightlife activities are more scarced than the previous more, Cafeneaua Piata Unirii, Pub Underground, Skye Club, Beer pub.

## **International student exchanges in the public universities of the City of Iași. Offer and evolution analysis.**

### **Study case: Alexandru Ioan Cuza University**

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The educational tourism in the city of Iași, regardless in wich way is analysed, in - or out - going, is strongly related to its educational polarization regional centre status.

The main objective of this paper is to identify and to inventory the international student exchanges wich, along with school travels, travels related to seminars, conferences or symposiums and the educational events, shape the educational tourism in Iași, more specific in the public universities of the city. The main attention is given to Alexandru Ioan Cuza University, the most important higher education institution of Iași. The study is based on information provided by the public universities of the city - the international relations offices. I have started with documentation from the literature of speciality, consulting the statistics related to this subject followed by graphic and cartographic materials.

The study area is the city of Iași. The obtained results interpretation identifies a series of transformations in a positive way: increases of the international student exchanges. It is a sign that the educational tourism has a growing interest from students, but also from the adult population.

## **Secțiunea: Didactica Geografiei**

### **From high school to college. Analysis of the first year of the Summer School (ROSE) - "*We discover the Earth towards the peaks of knowledge!*"**

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Proiectul privind Învățământul Secundar (ROSE)

Schema de Granturi: SCHEMA DE GRANTURI PENTRU UNIVERSITĂȚI –

Programe de vară de tip punte (SGCU – PV)

Beneficiar: Universitatea „Alexandru Ioan Cuza” din Iași

Titlul subproiectului: Descoperim Pământul spre culmile cunoașterii! - GEO-GEO

Acord de grant nr. 127/SGU/PV/II din data de 09.05.2019

Scopul subproiectului GEO-GEO este acela de a îmbunătăți procesul de tranziție de la liceu la învățământul universitar pentru 150 de elevi aflați în situații de risc și înscriși în clasele terminale în liceele eligibile ROSE. Prin sub-proiect se oferă elevilor o experiență universitară timpurie, care urmărește să îi familiarizeze cu contextul academic, să le contureze anumite cunoștințe, abilități și deprinderi legate de viitoarea profesie, astfel încât să îi determine să opteze pentru continuarea studiilor în învățământul universitar.

Finalizarea ciclului liceal și accesarea unui program universitar de studii în domeniul științelor pământului (geografie-geologie) se află în strânsă relație cu o serie de factori favorizanți sau restrictivi care pot influența decizia tinerilor. Din categoria factorilor favorizanți menționăm accesibilitatea informației științifice care se bazează pe o serie de trăiri personale ale elevilor legate de realitatea geografică din imediata vecinătate. Asocierea informațiilor geografice cu evenimentele de criză (risc) care afectează societatea umană (cutremure, alunecări de teren, inundații, poluarea mediului, exploatarea resurselor naturale, crize sociale generate de piața forței de muncă etc) determină o mai bună percepție a informației fapt demonstrat și de rezultatele foarte bune înregistrate la examenele de bacalaureat. Este cunoscut faptul că tinerii liceeni care au urmat un profil educațional care permite susținerea unei probe de bacalaureat la disciplina geografie aleg într-o pondere covârșitoare această disciplină. În rândul acestora ponderea absolvenților de liceu care au promovat examenul de bacalaureat la disciplina geografie fiind de 98%, mult superioară altor discipline de concurs. Un alt factor favorizant este dat de relațiile de colaborare existente între elevi și cadrele didactice care predau geografie sau geologie. În cadrul acestor discipline de studiu cadrele didactice au posibilitatea organizării unor excursii tematice, aplicații de teren, concursuri școlare desfășurate în aer liber etc. Astfel de activități determină dezinhibarea relațiilor de interacțiune profesor-elev sau elev-elev cu rezultate remarcabile în formarea competențelor specifice acestei științe, elevii având tendința de a parcurge o etapă de progres în ceea ce privește implicarea în activitățile școlare. În categoria factorilor restrictivi un rol important îl constituie mediul familial caracterizat de o situație financiară precară generată, printre altele, de un nivel profesional scăzut al părinților sau tutorilor. În astfel de familii lipsa unor modele de succes bazat pe o pregătire superioară, generează o atitudine de resemnare care se transmite tinerilor. Prin urmare, oportunitatea continuării studiilor nu este valorificată iar tinerii pornesc în căutarea unui loc de muncă sau a altor activități specifice spațiului extrașcolar. Alți factori restrictivi care contribuie la decizia de a nu continua studiile sunt valorile materialiste ale tânărului, veniturile mici ale familiei și genul (băieții au rezultate mai slabe decât fetele și sunt mai reticenți în ași continua studiile).

La o analiză făcută la nivel național s-a constatat că cei mai mulți dintre elevii de liceu (75%) sunt decizi ca după absolvirea liceului să urmeze cursurile universitare. Restul elevilor (25%) nu doresc sau nu s-au gândit să continue studiile, mulți dintre tinerii indeciși putând însă să-și schimbe opțiunea după susținerea cu succes a examenului de bacalaureat.

Educația (atât cea liceală, cât și cea universitară) stă astăzi, într-o măsură mult mai mare decât acum 30 de ani, sub semnul schimbărilor rapide și al incertitudinilor, ceea ce presupune adaptare, flexibilitate și capacitatea de a (re)acționa și de a găsi cele mai bune soluții la problemele ivite.

Activitatea cadrelor didactice trebuie să se axeze, în afara orelor de specialitate pe care le predau, și pe încurajarea independenței elevilor, pe creșterea încrederii în forțele lor proprii, pe sporirea abilităților care sa-i ajute în viață.

Pentru a cuantifica gradul de mulțumire al participanților la Școala de Vară ROSE am elaborat și aplicat o serie de chestionare care vizează atât cursurile și atelierile efectuate, cât și colaborarea cu mentorii implicați în proiect sau părerea elevilor față de condițiile de masă și cazare oferite în timpul celor 2 săptămâni.

Analiza rezultatelor indică faptul că motivarea liceenilor de a urma studii universitare, de a-și complete educația în conformitate cu atitudinile și interesele proprii, ar trebui abordată ca un proces continuu începând cu primul an de învățământ liceal, în special în zonele cu o incidență ridicată a sărăciei. Profesorii, psihologii, consilierii de carieră ar trebui să încurajeze interesul adolescenților de a investi efort (intelectual, social, financiar) în continuarea studiilor și în pregătirea lor pentru viața de tânăr adult activ. Dublu avantaj: cadrele didactice universitare au ocazia de a intra în legătură direct cu noua generație și de a cunoaște profilul educațional al viitorilor studenți, iar liceenii pot experimenta/se pot familiariza, timp de 2 săptămâni, cu ceea ce înseamnă viața de student, atât din punct de vedere academic, cât și social.

## **First Year Students Academic Performance. Reflection of their Involvement in the ROSE GeoDA Project**

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The sub-project "Become a graduate of the Faculty of Geography and Geology in Iassy" GeoDA, as part of the ROSE secondary education project, aims at providing support to first year students through a variety of activities“ counselling, guidance, workshops, seminars “ in order to facilitate their adjustment to student life and to prevent dropping out of university courses. Based on the impact analysis of these activities with first year students, throughout the first 2 years of the GeoDa project, we were able to notice that students get involved enthusiastically and conscientiously in all the activities (remedial seminars as well as field trips, taking 1 and 3 days), they enhance their level of motivation and also significantly improve their interpersonal skills, strengthening their relationships with their colleagues and teachers and reducing their tendency to drop out of school. Starting from these observations, we tried to analyze the correlation between students academic performance (taking into account their scores at the end of the first year), but also other indicators (the extent to which they get involved in project activities, their high-school programs, whether they come from an urban or a rural environment, their baccalaureate grades and others).

The analysis of the results we obtained shows that academic performance (or the lack thereof) is directly connected to a series of intertwined factors. Students performance during high-school is significant, but there also other aspects that factor in: the support students receive from their family, individual degrees of adaptability, motivation to face field-related competition and to enter the specific responsibilities imposed by school and society on young adults. Our purpose has been that of helping students, providing them with the necessary tools to cope with their university life, at all levels, based on the feedback we get from them about teaching, learning, adapting to novelty, the particularities, strong points and weaknesses of the Romanian education system.

## **Rolul proiectului realizat de elevi în studierea lacurilor sărate din Slănic Prahova**

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Lucrarea de față pune în evidență rolul foarte important al proiectului realizat de elevi, ca o modalitate de instruire și autoinstruire în cadrul procesului de învățământ liceal la disciplina Geografie. Fiind în general cunoscută, metoda proiectelor promovează un demers didactic bazat pe utilizarea unui ansamblu de procese și strategii cognitive, iar învățarea bazată pe proiecte reprezintă, în practica didactică, o alternativă la metodele tradiționale de predare-învățare. Studiarea de către elevii de liceu a lacurilor sărate din orizontul lor local a reprezentat o provocare adecvată posibilităților acestora și, totodată, o oportunitate pentru a-și exercita aptitudinile personale, de a învăța prin acțiune (learning by doing) în contexte noi, de a-și dezvolta spiritul practic și creativ, de a-și cultiva gândirea proiectivă și încrederea în forțele proprii, de a-și dezvolta capacități de a structura materialul informativ, de a-și dezvolta deprinderi de documentare științifică și de a lucra în echipă, precum și de evaluare complexă a cunoștințelor dobândite. De altfel, în această lucrare, se prezintă tipologia sarcinilor de lucru a proiectului realizat de elevi, inclusiv rezultatele obținute și evaluate pe baza unei grile, în abordarea pedagogică a lacurilor sărate din orașul Slănic Prahova. Prin demersurile sale didactice ce au fost spicuite, rolul acestei metode globale, cu caracter de interdisciplinaritate, este acela că facilitează dobândirea abilităților practice la elevii liceeni și reprezintă un mijloc eficient de îmbinare organică a învățământului cu cercetarea și activitatea practică. Deci surprinde, într-o formă sintetică, informații și comportamente, trăiri și atitudini, fiind susceptibilă să stimuleze și să dezvolte pe multiple planuri personalitatea în curs de formare a acestora.

## **The current school geography - realities and perspectives**

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The current school geography shows a decrease in the visibility and perception attributed, on the one hand, to mutations, needs and conditions social and economic and on the other hand, to the outdated educational transfer based on information, on knowledge transfer. In this context, Geography must adapt to the general and structural changes in which the current education system is involved aiming for training to respond to changes in the social paradigm, to provide not necessarily knowledge but skills and levers of action, to provide transposable models, to induce responsible, democratic, ecological and, not least, moral attitudes and behaviors.