



First International Conference
Danube - Black Sea
3E - Energy, Environment & Efficiency
18-21 September 2013, Galati, Romania



Dunarea de Jos
University of Galati



Romanian Academy

First International Conference

Danube - Black Sea

3E - Energy, Environment & Efficiency

Programme

18 -21 September 2013

Galati, ROMANIA



First International Conference
Danube - Black Sea
3E - Energy, Environment & Efficiency
18-21 September 2013, Galati, Romania



ADVISORY COMMITTEE

Acad. Cristian **HERA** - co-chairman

Prof. **Lucian GEORGESCU** - co-chairman

Dunarea de Jos University of Galati

Acad. **Dan BALTEANU**, Romania

Prof. **Maria GAVRILESCU**, Romania

ORGANIZING COMMITTEE

Prof. Silviu **MĂCUȚĂ**

Prof. Eugen **RUSU**

Prof. Nicolae **BADEA**

Prof. Dan **SCARPETE**

Assoc. Prof. Sorin **DOBROVICI**

Lecturer Constantin **GEORGESCU**

Lecturer Carmen **GASPAROTTI**

Assist. Valentin **MEREUȚĂ**

Assist. Liviu **ȘOLEA**

Researcher Elena-Ana **POPOVICI**



INTERNATIONAL SCIENTIFIC COMMITTEE

- | | |
|--|--|
| Prof. Ernst von Lavante , Germany | Prof. Eugen Rusu , Romania |
| Prof. Udo Ttraussnigg , Austria | Prof. Polidor Bratu , Romania |
| Prof. Predrag Dašić , Serbia | Prof. Nicolae Buzbuchi , Romania |
| Prof. Edmunds Teirumnieks , Latvia | Prof. Daniel Condurache , Romania |
| Prof. Kostas Belibassakis , Greece | Prof. Nicolae Burnete , Romania |
| Prof. Mohamed Mosaad , Egypt | Prof. Ion Visa , Romania |
| Prof. António M. Gonçalves Coelho ,
Portugal | Prof. Silviu Măcuță , Romania |
| Prof. Yordan Garbatov , Portugal | Prof. Elena Mereuță , Romania |
| Prof. Selma Ergin , Turkey | Prof. Iuliu Negrean , Romania |
| Prof. Raycho Ilarionov , Bulgaria | Dr. Tania Zaharia , Romania |
| Prof. Kartunov Stefan , Bulgaria | Prof. Cătălin Fetecău , Romania |
| Prof. Ivan Balashev , Bulgaria | Prof. Leonard Domnișoru , Romania |
| Assoc. Prof. Desislava Petrova , Bulgaria | Prof. Marian Bordei , Romania |
| | Prof. Lorena Deleanu , Romania |
| | Prof. Antoaneta Ene , Romania |



TECHNICAL PROGRAM

Wednesday, September 18, 2013

15:00 – 20:00 - Receiving guests.

Great hall of the University, No. 47 Domneasca Street (across from city hall).

20:00 – 22:00 - Cocktail Galati Hotel, Panoramic room.

Thursday, September 19, 2013

8:45 – 9,00 - Taking participants from the hotel (Galați and Vega) and transfer to the Aula Magna of University“Dunărea de Jos”Galați, 111-Domneasca Street

9:00 – 10:00 – Registration of the participants

10:00 – 11:00 - Opening ceremony

11:00 – 13:30 – Plenary session

13: 30 – 14,45 – Lunch at the Cafeteria “Notre Dame”, Campus

15:00 – 18:00 – Oral presentations on sections (building D of the “Dunarea de Jos” University of Galati, 111 - Domneasca Street)

18:00 – 19:30 – Poster session (Hall building D)

20:30 – 23:00 – Dinner, Andy's Club (Dunarea Hotel)

Friday, September 20, 2013

8:00 – Taking the participants and starting the trip to Tulcea

10:30 – Transfer bus – ship and starting the navigation to the Danube Delta

10:30 – 12:30 – Plenary session during the navigation to the Danube Delta

12:30 – 14:30 – Lunch

14:30 : 19:00 – Presentations on sections

19:00 – 19:30 – Transfer ship – bus

19:30 – 21:30 – Tulcea – Galati travel by bus

Saturday, September 21, 2013

Conclusions, closing of the Conference



Plenary session –Invited speakers

Thursday, September 19, 2013		Natural Sciences Museum Complex
10:00 -11:00	Opening Ceremony	
11:00 - 11:15	<i>The EU Strategy for the Danube region in a global environmental change context</i> – acad. Dan Bălțeanu , Academia Română, București	
11:15 -11:30	<i>Compressed Natural Gas Powered Inland Navigation Ships</i> , Prof. Mohamed A. Mosaad , Port Said University, Egypt	
11:30 -11:45	<i>Current State of the Romanian Black Sea Environment</i> , Dr. Tania Zaharia , NIRDEP “Grigore Antipa”, Constanta, Romania	
11:45-12:00	<i>Evaluation of Coastal Hazards Risk in the Black Sea, at the Entrance of Sulina Channel</i> , Prof. Eugen Rusu , “Dunarea de Jos” University of Galati, Romania	
12:00 – 12:30	Coffee break	
12:30 -12:45	<i>Agriculture in the Context of Adopting of the EU Strategy for Danube Delta</i> , Assoc. Prof. Cristiana Sârbu , University of Agricultural Sciences and Veterinary Medicine, Bucharest, Romania	
12:45 -13:00	<i>Thermal Energy Mixes for Nearly Zero Energy Buildings. Case Study : the R&D Institute of the Transilvania University of Brasov</i> , Prof. Visa Ion “Transilvania” University of Brasov, Romania	
13:00 –13:15	Perspectives of Quality Assurance in Romanian Educational System, within the EU 2020 Strategy Context. Part I, Prof. Nicolae Drăgulănescu , “Politehnica” University, Bucharest.	
13:15 – 13:30	<i>University-Industry Partnerships. Learning to Live Together in Sectoral Harmony</i> , Dr. Anne Murphy , Directorate of Academic Affairs, Dublin Institute of Technology, Ireland	



Lecture Room D01

Section I

Energy, perspectives and policies in the Danube and Black Sea areas

Chair: Prof. Ion Visa, “Transilvania” University of Brasov, Romania

Co-chair: Prof. Nicolae Badea, “Dunarea de Jos” University of Galati, Romania

Secretary: Lecturer Carmen Gasparotti

15:00 - 15:15	<i>Tailored Solutions to Reach the Nearly Zero Energy Building Status</i> , Visa Ion, Moldovan Macedon-Dumitru, Duta Adrian , “Transilvania” University of Brasov, Romania
15:15 – 15:30	Thermal Energy Mixes for Nearly Zero Energy Buildings. Case Study : the R&D Institute of the Transilvania University of Brasov, Prof. Visa Ion , “Transilvania” University of Brasov, Romania
15:30 – 15:45	<i>Novel Tracking Systems for Increasing the Overall Efficiency of Solar Energy Conversion</i> , Mircea Neagoe, Ion Visa, Bogdan Burduhos, Mihai Comsit, Macedon Moldovan “Transilvania” University of Brasov, Romania
15:45 – 16:00	<i>Energy Autonomous Wastewater Treatment Plant Based on Photocatalysis and Adsorption</i> , Anca Duta, Maria Visa, Mircea Neagoe, Dana Perniu, Luminita Andronic , “Transilvania” University of Brasov, Romania
16:00 - 16:30	<i>Coffee break</i>
16:30 - 16:45	<i>Numerical Analysis of Ship Speed Loss in Irregular Waves Influence on Long Term Fatigue Strength Prediction, for a 1100 TEU Container Ship</i> , Ionica Rubnenco, Leonard Domnisoru , “Dunarea de Jos” University of Galati, Romania



16:45 – 17:00	<i>Influence of a Hybrid Wave-Wind Farm on the Romanian Coastal Area, Florin Onea, Liliana Rusu, “Dunarea de Jos” University of Galati, Romania</i>
17:00 – 17:15	<i>The European and Romanian Legal Frameworks for Microgeneration Systems in the Deployment of Smart Grids, G. V. Badea, N. Badea, “Dunarea de Jos” University of Galati, Romania</i>
17:15 – 17:30	<i>Micro and Mini Hydropower in the Danube Basin for Supplying the Danubian Cliff Cities, Nicolae Badea, Ion Voncila, “Dunarea de Jos” University of Galati, Romania</i>

Lecture Room D02

Section II

Environmental issues in the Danube and Black Sea areas, multiple dimensions of water security and environmental risks

Chair: Dr. Tania Zharia, NIRDEP - National Institute for Marine Research and Development “Grigore Antipa”, Constanta, Romania

Co-chair: Prof. Antoaneta Ene, “Dunarea de Jos” University of Galati, Romania

Secretary: Drd. Robert Toderascu

15:00 – 15:15	<i>Environmetrics as a Tool to Evaluate Soil Organic Pollutants Analysis Data, Antoaneta Ene, Thomas Spanos, “Dunarea de Jos” University of Galati, Romania, Technological Educational Institute of Kavala, Greece</i>
15:15 – 15:30	<i>Fabrication of Ni-TiC Hard Nanocomposite Layers by Electro-co-deposition Process and Study of Its Characteristics, Andrei Mihai Chiriac, Lidia Benea, Nadege Caron, Olivier Raquet, Pierre Ponthiaux, Jean-Pierre Celis “Dunarea de Jos” University of Galati, Romania, Lasers and Surfaces Engineering Laboratory,</i>



	Saclay, France, Ecole Centrale Paris, Laboratoire Génie des Procédés Matériaux (LGPM), Châtenay- Malabry, France, Department of Metallurgy and Materials Engineering (MTM), KU Leuven, Belgium
15:30 - 15:45	<i>Coffee break</i>
15:45 – 16:00	<i>Electroplating of Ni-WC Nanocomposite Coatings for Improving Corrosion and Wear Resistance of Steel Surfaces, Sorin Bogdan Bata, Lidia Benea, Nadege Caron, Olivier Raquet, Pierre Ponthiaux, Jean-Pierre Celis, “Dunarea de Jos” University of Galati, Romania, Lasers and Surfaces Engineering Laboratory, Saclay, France, Ecole Centrale Paris, Laboratoire Génie des Procédés Matériaux (LGPM), Châtenay- Malabry, France, Department of Metallurgy and Materials Engineering (MTM), KU Leuven, Belgium</i>
16:00 – 16:15	<i>Temporal Variation of Water Quality of Danube River in Galati City, Romania, Paula Popa, Mihaela Timofti, Gabriel Murariu, Lucian P. Georgescu, “Dunarea de Jos” University of Galati, Romania</i>
16:15 – 16:30	<i>Ecological Treatment Method of the Danube Water for Improving Drinking Water Quality, Anca Serban. Mariana Carmen Burtea. Luxita Risnoveanu, “Dunarea de Jos” University of Galati, Romania</i>
16:30 – 16:45	<i>Numerical Simulations of the Current Field in the North-Western Area of the Black Sea, Robert Toderascu, Eugen Rusu, “Dunarea de Jos” University of Galati, Romania</i>
16:45 – 17:00	<i>Evaluation of Efficiency and Coastal Impact of a Pelamis Wave Farm Operating in the Romanian Nearshore, Sorin Diaconu, Eugen Rusu, “Dunarea de Jos” University of Galati, Romania</i>
17:00 – 17:15	<i>A general Perspective of the Wave Conditions from the</i>



	<i>Black Sea Basin, Reflected by Satellite and in Situ Measurements, Florin Onea, Eugen Rusu, "Dunarea de Jos" University of Galati, Romania</i>
--	--

Lecture Room D03

Section III

Efficiency and innovation, following the 2020 EU strategy

Chair: Prof. Cristiana Sarbu, University of Agricultural Sciences and Veterinary Medicine, Bucharest, Romania

Co-chair: Prof. Bratu Polidor, "Dunarea de Jos" University of Galati, Romania

Secretary: Lecturer Constantin Georgescu

15:00 - 15:15	<i>Micromechanisms, Drive and Safety Systems in Micro- and Nano-Mechatronics, Stefan Kirilov Kartunov, University of Gabrovo, Bulgaria</i>
15:15 - 15:30	<i>System for Automation of Engineers Work "Protech", Rosen Simeonov Ivanov, Stefan, Kirilov Kartunov, University of Gabrovo, Bulgaria</i>
15:30 - 15:45	<i>Compressed Natural Gas Powered Inland Navigation Ships, Mohamed A. Mosaad, Department of Naval Architecture & Marine Engineering, Faculty of Engineering, Port Said University, Egypt</i>
15:45 - 16:00	<i>A Point of View on Efficiency and Innovation in Refrigeration, Feiza Memet, Daniela Mitu, Constanta Maritime University, Constanta, Romania</i>
16:00 - 16:30	<i>Coffee break</i>
16:30 - 16:45	<i>Considerations on Efficiency and Innovations in Studying Local Vibrations of Marine Constructions, Daniela Mitu, Feiza Memet, Constanta Maritime University, Constanta, Romania</i>



	Romania
16:45 – 17:00	<i>Efficiency of Grinding Process Evaluated by Texture Parameters</i> , Catalin Pirvu, Constantin Georgescu, Lorena Deleanu , “Dunarea de Jos” University of Galati, Romania
17:00 – 17:15	<i>Compared Study on Containers Impact Analysis</i> , Manuela Nechita, Florin Teodor , “Dunarea de Jos” University of Galati, Romania
17:15 – 17:30	<i>Impact Analysis of Interaction between a Barge and a Rigid Wall</i> , Manuela Nechita, Costel Iulian Mocanu , “Dunarea de Jos” University of Galati, Romania
17:30 – 17:45	<i>Designing, Manufacturing, Mounting and Commissioning for a Heating and Lacquering Pipes Installation inside 20” Mill Plant</i> , Mirel Istratescu , “Dunarea de Jos” University of Galati, Romania

Lecture Room D11

Section IV

Regional development and connectivity, EU policy of good neighborhood, education, culture and tourism

Chair: Prof. Nicolae Drăgulănescu, “Politehnica” University, Bucharest, Romania

Co-chair: Prof. Nicolae Buzbuchi, Constanta Maritime University, Constanta, Romania

Secretary: Assistant Liviu Solea

15:00 - 15:15	<i>Introduction to the Analysis of Business Processes - Definitions and Scope</i> , Desislava Petrova , Faculty of Economics, Department „Management”, Technical University of Gabrovo, Bulgaria.
---------------	--



15:15 – 15:30	<i>Analysis of Trends and Opportunities for Technological Development of Bulgarian Enterprises, Desislava Petrova, Faculty of Economics, Department „Management”, Technical University of Gabrovo, Bulgaria.</i>
15:30 – 15:45	<i>Regional Potential and its Possibilities of Growth, Florin Buhociu, “Dunarea de Jos” University of Galati, Romania</i>
15:45 – 16:00	<i>Managing a Responsible Business – Time for a Common Understanding, Daniela-Tatiana Agheorghiesei (Corodeanu), “Al. Ioan Cuza” University, Iasi, Romania</i>
16:00 - 16:30	<i>Coffee break</i>
16:30 – 16:45	<i>Perspectives of Quality Assurance in Romanian Educational System, within the EU 2020 Strategy Context. Part II, Remus Chină, Nicolae Drăgulănescu “Politehnica” University, Bucharest, Romania</i>
16:45 – 17:00	<i>Processes of Industrialization and Deindustrialization in World Economy, Vasyl H. Gerasymchuk, Kyiv National Economic University, Ukraine</i>
17:00 – 17:15	<i>Strategic Aspects of Credit and Investment Activities of Commercial Banks. Status and Prospects, Svitlana Andros, University of Banking of National Bank of Ukraine</i>
17:15 – 17:30	<i>Paradigm Changing of Acoustic Comfort. Case Study: Noise Pollution in Two Extremely Populated Areas in Brăila, Picu Mihaela, “Dunarea de Jos” University of Galati, Romania</i>



First International Conference
Danube - Black Sea
3E - Energy, Environment & Efficiency
18-21 September 2013, Galati, Romania



Poster session

Hall building D (18:00 – 19:30)

Section I

Energy, perspectives and policies in the Danube and Black Sea areas

1. *New Topologies for Photovoltaic Systems Design on Danube Cliff, Used for Medium Power Supply*, **Ion Voncilă, Nicolae Badea**, “Dunarea de Jos” University of Galati, Romania
2. *The Influence of Pollution Reduction on Thermo-economic Performance of a Combined Cycle Cogeneration Power Plant*, **Daniela Pană, Dan Scarpete, Silviu Macuță, Ion V. Ion**, “Dunarea de Jos” University of Galati, Romania
3. *Characterization of lithium nitride powder materials by combined analytical and imaging techniques*, **Oleg Ignatenko, Antoaneta Ene, Marina Frontasyeva**, Scientific and Practical Materials Research Centre of National Academy of Sciences of Belarus, “Dunarea de Jos” University of Galati, Romania, Joint Institute for Nuclear Research, Dubna, Russia

Section II

Environmental issues in the Danube and Black Sea areas, multiple dimensions of water security and environmental risks

1. *Diversity and Phytoplankton Functioning in Prut River*, **Laurenția Ungureanu, Toderas Ion, Daria Tumanova, Grigore Ungureanu, Cristina Melniciuc**, Institute of Zoology Academy of Sciences of Moldova, Chisinau, Moldova



2. *Monitoring of Trace Metals in Prut River*, **Elena Zubcov, Natalia Zubcov, Nina Bagrin, Lucia Biletschi**, Institute of Zoology Academy of Sciences of Moldova, Chisinau, Moldova
3. *Evaluation of Wave Actions from Vibration Movements and Seismic Shocks on the Built Environment*, **Polidor Bratu, Carmen Alexandru**, ICECON SA, Research Institute for Construction Equipment and Technology, Bucharest, Romania, “Dunarea de Jos” University of Galati, Romania
4. *Evaluation of Effects on Resistance and Stability of Buildings in Urban Dynamic Actions and Earthquakes*, **Carmen Alexandru**, “Dunarea de Jos” University of Galati, Romania
5. *Coastal Protection Measures for Mamaia Beach*, **Silica Petrisoiaia, Danut Diaconeasa, Gheorghe Munteanu**, National Institute for Marine Research and Development “Grigore Antipa” Constanta, Romania
6. *Simulation of Air Pollution Due to Marine Engines*, **Nicolae Buzbuchi, Liviu Constantin Stan, Adrian Sabău**, Constanta Maritime University, Constanta, Romania
7. *Ballast Water Treating by Advanced Oxidation Technology*, **Liviu Constantin Stan, Adrian Sabău, Nicolae Buzbuchi**, Constanta Maritime University, Constanta, Romania
8. *Evaluation of Soot Emissions*, **Adrian Sabău, Nicolae Buzbuchi, Liviu Constantin Stan**, Constanta Maritime University, Constanta, Romania
9. *Numerical Modeling of Interactions between Waves and Structures Operating in Marine Environment*, **Sorin Diaconu**, “Dunarea de Jos” University of Galati, Romania



10. *Evaluation of Circulation Patterns in Two Enclosed Seas*, **Robert Toderascu, Eugen Rusu**, “Dunarea de Jos” University of Galati, Romania
11. *Monitoring of Annual Average Concentrations of Major Air Pollutants in Galati Area through National Network for Air Quality Monitoring System*, **Iulian Filimon, Mirela Praisler, Dumitru Dima**, “Dunarea de Jos” University of Galati, Romania
12. *Water Quality Evolution along the Romanian - Bulgarian Border Area*, **Trifu M. C., Luca E., Dumitrache R., Moldoveanu C.**, National Institute of Hydrology and Water Management, Bucharest, Romania
13. *Research Concerning the Evaluation of Some Water Quality Indicators from Galati*, **Romică Crețu, Liviu Șolea, Silviu-Dănuți Măcuță**, “Dunarea de Jos” University of Galati, Romania
14. *Aspects of Coastal Hydro-Geomorphological Processes at the Danube River Mouths*, **Razvan Mateescu, Angela Ivan, Ichinur Omer, Dorin Butunoiu, Dragos Niculescu**, National Institute for Marine Research and Development “Grigore Antipa” Constanta, Romania, Free Zone-Galati-Romania, “Dunarea de Jos” University of Galati, Romania
15. *Modeling of Marine Hydrological Processes in the Proximity of Mangalia Harbour, Romania*, **Ichinur Omer, Dorin Butunoiu, Razvan Mateescu, Angela Ivan**, IN National Institute for Marine Research and Development “Grigore Antipa” Constanta, Romania, Free Zone-Galati-Romania, “Dunarea de Jos” University of Galati
16. *Study of Seasonal Variations of Toxic Elements Content in Sewage Sludge from Wastewater Treatment Plants*, **Thomas Spanos, Antoaneta Ene**, Technological Educational Institute of Eastern Macedonia and Thrace, Department of Applied Sciences, Kavala, Greece, “Dunarea de Jos” University of Galati, Romania



Section III

Efficiency and innovation, following the 2020 EU strategy

- 1. A Comparative Seakeeping Analysis in Irregular Waves of Commercial Ships Having the Same Displacement, for Navigation Safety Assessment, **Carmen Gasparotti, Eugen Rusu, Leonard Domnisoru**, “Dunarea de Jos” University of Galati, Romania*
- 2. Experimental Research of Reaction Force Produced by Coanda Nozzle, **Sorin Gabriel Constantinescu, Corneliu Stoica, George Balan**, “Dunarea de Jos” University of Galati, Romania*
- 3. A Model of an Axisymmetrical Coanda Profile with Radial Clearance, **Sorin Gabriel Constantinescu, Mihai Niculescu, Lorena Deleanu**, “Dunarea de Jos” University of Galati, Romania*
- 4. Lubrication Efficiency of Two Vegetal Oils, Evaluated by Four Ball Tests, **Liviu Solea, Minodora Rîpă, Constantin Spânu, Constantin Georgescu**, “Dunarea de Jos” University of Galati, Romania*
- 5. Kinematic Analysis of Human Lower Limb, **Daniel Ganea, Elena Mereuta, Claudiu Mereuta**, “Dunarea de Jos” University of Galati, Romania*
- 6. Properties of Graphenes Reinforced Polymer Composites. A Brief Review, **Marian Bastiurea, Magdalena Silvia Rodeanu, Gabriel Andrei, Dumitru Dima**, “Dunarea de Jos” University of Galati, Romania*
- 7. Overview on Polymer Nanocomposites Enhanced with Nanocellulose, **Magdalena Silvia Rodeanu, Marian Bastiurea, Gabriel Andrei, Dumitru Dima**, “Dunarea de Jos” University of Galati, Romania*



8. *Study of Lifting Mechanism of Chain Electric Hoist with Periodical Variable Angular Velocity of the Chain Wheel*, **Ivan Balashev, Silviu Macuta**, Technical University of Gabrovo, Bulgaria, “Dunarea de Jos” University of Galati, Romania

9. *Kalman Filter Algorithm in Smoothing Noisy Output of a Height Sensor from Metal Rolling Machines*, **George Dan Mitescu, Silviu Macuta**, National College “Vasile Alecsandri”, Galati, Romania, “Dunarea de Jos” University of Galati, Romania

10. *On Calculation of Strains and Stresses for Road Vehicle Structures with the Help of Finite Element Method*, **Mihai Dumitru, Silviu Macuta**, “Dunarea de Jos” University of Galati, Romania

11. *On the Pneumatic Action of a Machine Used for Meat Tenderization and Possibilities for Automation of this Operation*, **Aurel Simion, Mircea Badescu, Silviu Macuta**, University of Craiova, Romania, “Dunarea de Jos” University of Galati, Romania.

12. *On Designing and Constructing a Machine for Meat Tenderization in Order to Obtain Traditionally Products*, **Aurel Simion, Mircea Badescu**, University of Craiova, Romania.

Section IV

Regional development and connectivity, EU policy of good neighbourhood, education, culture and tourism

1. *Mobile DOAS Measurements from Germany to Romania*, **Daniel-Eduard Constantin, Lucian Georgescu**, “Dunarea de Jos” University of Galati, Romania



First International Conference
Danube - Black Sea
3E - Energy, Environment & Efficiency
18-21 September 2013, Galati, Romania



2. *Education-Training-Skills for Regional Sustainable Development of Eco-Tourism in the Small Wetland of Braila Natural Park*, **Doinita Ariton, Alina Raileanu**, “Danubius” University, Galati, Romania
3. *Contribution of the Barlad River Basin to the Nitrates Budget of the Danube Basin*, **M. C. Trifu, Gina Mazilu, V. Daradici**, National Institute of Hydrology and Water Management, Bucharest, Romania
4. *Management decision support system with automatic water quality monitoring in Danube River Galati*, **L. Georgescu, V. Munteanu, Antoaneta Ene**, “Dunarea de Jos” University of Galati, Romania, **D. Georgescu**, Adasa Sistemas, Barcelona, Spain.
5. *Black Dea – Danube System in the EU EnviroGrids projekt*, **Monica Dumitrescu**, Institute of Geography, Bucharest, România.

