

14th International Conference on Geoinformatics – Theoretical and Applied Aspects 2015

**Kiev, Ukraine
11-14 May 2015**

ISBN: 978-1-5108-0667-2

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2015) by the European Association of Geoscientists & Engineers
All rights reserved.

Printed by Curran Associates, Inc. (2015)

For permission requests, please contact by the European Association of Geoscientists & Engineers
at the address below.

EAGE
PO Box 59
3990 DB Houten
The Netherlands

Phone: +31 88 995 5055
Fax: +31 30 634 3524

eage@eage.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

PLENARY SESSION

Specialized Geoinformation System RAPID: Features, Structure, Tasks	1
<i>B. Busygin, S. Nikulin</i>	
Geothermal Conditions and Crustal Structure of the Northwestern Carpathians	6
<i>R. Kutas</i>	
Providing the Information Component of Hydrogeological Processes Using GIS in Kiev	11
<i>O. Koshliakov, O. Dyniak, I. Koshliakova</i>	
Experience of Direct Method Using for Hydrocarbon Accumulations Prospecting Within Areas of Shale Spreading in Poland	16
<i>S. Levashov, N. Yakymchuk, I. Korchagin, D. Bozhezha, V. Prylukov</i>	

MATHEMATICAL METHODS AND COMPUTER TECHNOLOGIES IN GEOPHYSICS AND GEOLOGY

New Method of Modeling and Interpretation Wave Fields Monitoring Data in Hierarchic Medium	22
<i>O.A. Hachay, O.Y. Khachay, A.Y. Khachay</i>	
Analysis of Nonlinear Physico-mechanical Properties of Sedimentary Rocks on the Basis of Borehole Geophysical Data	27
<i>H. H. Guliyev, K.B. Agayev, G.H. Hasanova</i>	
Fractures Versus Layering at Low Frequencies	31
<i>A. Stovas, V. Roganov, Y. Roganov</i>	
Compared Detectable Limitations of Hydrocarbon Exploration by Different Marine CSEM Methods in Shallow Water	36
<i>Z. Guo, H. Dong, A. Kristensen</i>	
Stable Solutions of Inverse Problems of Gravity-magnetometry on Crystalline Shields	41
<i>P. Minenko, R. Minenko, Y. Mechnikov</i>	
3D Finite-difference Migration with Paralleling of Process of Computing	46
<i>O. Verpakhovska, V. Pylypenko, O. Pylypenko, H. Sydorenko</i>	
On the Filtering of Magnetic Targets Within the Deep by the Analytical Continuation in Framework of Equivalent Sources	51
<i>O. Chornaya, Yu. Dubovenko</i>	
Probabilistic-statistical Methods of Data Interpretation of Electrical Prospecting EP and SEP in the Solution of Geological Engineering Problems	57
<i>L. Hristenko, Yu. Stepanov</i>	
On Connection Between Earthquakes with the Provisions of the Moon	62
<i>A. Kazantsev, L. Kazantseva, A. Nazarevych, L. Nazarevych</i>	
Neural Network for Acoustic Data Logging Interpretation	67
<i>M. Lazarenko, O. Herasymenko</i>	
Pleistocene Magnetostratigraphy and the Matuyama-Brunhes Boundary in the Loess-Palaeosol Sequence of Ukraine	73
<i>D. Hlavatskyi</i>	
GIS Mathematical-cartographic Modeling Changes Hydrogeochemical Conditions of Groundwater	77
<i>O. Ostroukh</i>	
A New Multi Purpose Easy and Quick GPR Data Processing and Visualization Software	81
<i>R. Samet, E. Çelik, S. Tural, E. Sengönül</i>	
A New Modified Criterion Function of Information Capability of Spectral Bands	86
<i>S. Alpert</i>	
Assessment of the Corrosion Processes Impact on the Pipeline Natural-technical Systems by the Electrical Methods	92
<i>R. Hloba, S. Vyzhva, O. Ivanik, Y. Hloba</i>	
Indicators Local Heterogeneity Assessment of the Gravity Field in Solution Tectonic Zoning Tasks	97
<i>O. Dziuba, M. Zhukov, M. Rachova</i>	
Model Truncated Distribution Hydrochemical Data in the Presence of Measurements, Which Was Lower Threshold of Measuring Device	103
<i>A. Klypa, M. Zhukov</i>	

Determination of the Intensity of Seismic Influence on the Construction Site of Apartment Buildings	108
<i>T. Komar</i>	
Abnormal Cases of Winter Invading of Cold Masses on the Territory of Ukraine.....	112
<i>A. Savchenko</i>	
Composition Modeling for Tomography Inversion of Seismic and Gravity Data.....	117
<i>I. Virshylo, K. Troinich, B. Matviichuk</i>	

GEOINFORMATICS - AN INNOVATIVE VIEW OF THE EARTH

Earthquakes of Nadvirna Area (Ukrainian Precarpathians) and Kinematics of the Breaks	122
<i>L. Nazarevych</i>	
On the Relationship Between Seismicity of Carpathian Region of Ukraine to Solar Activity and Geomagnetic Storms.....	127
<i>N. Lozitska, L. Nazarevych</i>	
On the Seismic Activity of Tectonic Structures of Ukrainian Carpathians Lithosphere.....	132
<i>A. Nazarevych, L. Nazarevych</i>	
Vrancea Earthquakes and Seismic Boundaries.....	137
<i>A. Kendzera, A. Ostrovnoy, T. Tsvetkova</i>	
Principles and Methods of the Regional Landslide Hazard Assessment Based on Analysis of the Rock Mass Stress-strain State	142
<i>O. Ivanik</i>	
Notices on the Methodic of the Digital Gravity Databases Foundation in Ukraine	147
<i>Yu. Dubovenko</i>	
Geoinformation Technology of Space Monitoring of Slagheaps Thermal State.....	153
<i>K. Sergieieva, B. Busygin</i>	
Identification of Weakened Zones Waterproof Strata on Verkhnekamsk Potassium Deposit by the Ground-underground Gravimetric Method.....	158
<i>G. Prostolupov</i>	
Creation of a Spatial Database of Prospecting Works.....	163
<i>D. Bozhezha</i>	

GEOINFORMATION RESEARCHES FOR PETROLEUM AND MINERAL EXPLORATION

Expedience of Direct Methods Additionally Using for the Prospecting Wells for Oil and Gas Location.....	164
<i>S. Levashov, N. Yakymchuk, I. Korchagin, D. Bozhezha, V. Prylukov, M. Petranovskaya</i>	
Estimation the Upward Migration of Pollutions During the Shale Gas Production Subject to the Results of Space Images Decoding.....	171
<i>V. Lyalko, O. Azimov, Y. Yakovlev</i>	
Tectonisedimentary Evolution of the Abu Gharadig Basin and Exploration Challenges for the Western Desert Province, Egypt.....	175
<i>A.A. Kitchka, S.L. Arkhipova, O.M. Bezkyzhko, P.M. Kuzmenko, V.V. Makeev, O.A. Shevchenko, G.L. Bashkirov, S.G. Vakarchuk</i>	
Ratification of the Resonant Frequency Method of Remote Sensing Data Processing on a Local Area of the Klondike Gold Fields in the Yukon Territory of Canada	180
<i>S. Levashov, N. Yakymchuk, I. Korchagin, D. Bozhezha, V. Prylukov, R. Hatala</i>	
Magnetic Susceptibility of Environmental Objects in the Hydrocarbon Presence	186
<i>O. Menshov, R. Kuderavets</i>	
Prediction of Fluid Saturation of Rocks Collectors According to the Gamma-ray Log	192
<i>L. Skakal's'ka, A. Nazarevych</i>	
Exploration and Evaluation Criteria to Estimate Prospects of Exploration, Appraisal and Production of Unconventional HC Resources	197
<i>A. Kryshstal</i>	
Possibilities of MT/MV Researches for Prediction of Mineral Deposits in the Ukrainian Shield.....	203
<i>E. Sheremet, T. Burakhovich, I. Nikolaev, B. Shirkov</i>	
Processing of MT/MV Data on the Dovzhanka-Buz'ke Profile	208
<i>B. Shyrkov, A. Kushnir, A. Usenko</i>	
MT / MV Investigation of the Northern Slope of the Dnieper-Donets Depression.....	213
<i>O. Perestyuk, B. Shirkov, A. Kushnir</i>	

GEOLOGICAL MODELING

Correlation Between Subsurface Thermal Pattern and Intensity of Atmospheric Precipitation in Southern Norway	218
<i>Y.P. Maystrenko, O. Olesen, H.K. Elvebakk</i>	
Crust Structure and Features of the Geodynamic Evolution of the South Shetland Trough and Bransfield Strait (West Antarctica) by Geophysical Data	223
<i>V. Soloviev, I. Korchagin, S. Levashov, D. Bozhezha</i>	
Crust Thermobaric Anomalies of Rocks Lowered Density and Enhanceable Porosity	229
<i>V. Korchin</i>	
Characteristics of the Velocity Gradient in the Upper Mantle of the Carpathian-Balkan Region	234
<i>I. Bugaienko, T. Tsvetkova, O. Ostrovnoy, L. Zaiets</i>	
Feedback Velocity Structure of the Mantle Beneath Thailand with Seismicity of the Region	239
<i>L. Zaiets, A. Ostrovnoy, I. Bugaienko</i>	
The Distribution of Electrical Conductivity in the Depths of the Crimean Region	244
<i>T. Burakhovych, A. Kushnir</i>	
Modeling of the Volcanic Structures Neotectonic Evolution of Vyhorlat-Hutyn Ridge (The Ukrainian Carpathians)	249
<i>T. Andriiets, O. Ivanik, S. Muravko</i>	
Quantitative Regional Landslide Hazard Prediction Using GIS Within the Southern Coast of Crimea	254
<i>K.Y. Boiko, O. Koshliakov</i>	
General Characteristics of the Interconnection Regime Variability of Groundwater and Key Factors of Its Formation (Natural Component)	259
<i>M. Tymkiv</i>	

SECTION OF GEOLOGICAL MODELING: STUDENTS PROGRAMME

Spatial Modeling and Prediction of Environmental Situation in the Filling Dombrowski Career	263
<i>N. Hurska, S. Bagriy, L. Davybida, E. Kuzmenko, I. Fitsak</i>	
Methodology of Quantitative Forecasting Risk Assessments of Exogenous Geological Processes Using GIS Technology	268
<i>D. Kasiyanchuk, I. Chepurnyi, T. Chepurna, N. Hurska</i>	
Spatial Prediction of Gas-generating Sequences Based on Evaluation of Vitrinite Reflectivity in Dnieper-Donets Depression	273
<i>Y. Zelenko, O. Karpenko</i>	
Petroleum Potential Study of Spinel Area (Australia)	278
<i>I. Zinchenko, A. Chernov, I. Pap, I. Trehub, V. Khalimendik</i>	
Exploration of the Natural Gamma Background in the System of Caves Atlantda – Malyshka Kiyanka	283
<i>O. Karas`ov, I. Kopyl, A. Pylypiuk, D. Truten</i>	
Methods of Development of Geographic Information Systems and Spatial Databases in Geology	288
<i>A. Karpenko</i>	
Evolution of Profile of Radiohydrogeochemical Anomaly of Tritium Contamination Within Affected Zone of Surface Radioactive Waste Repository	293
<i>V. Dolin, Y. Yakovlev, O. Shcherbak, Y. Kutska</i>	
Effect of Vibration Loads from Subway to Geological Environment	299
<i>O. Dyniak, N. Lavrova</i>	
The Changes of Hydrogeological Conditions of the Territory of the Government House in Kiev Under the Influence of Natural and Anthropogenic Factors Using GIS Technology	304
<i>O. Liubchik</i>	
The Use of Geographic Information Systems and Technologies in Military Affairs	310
<i>O.Y. Pona, L. Davybida</i>	
The Results of Interpretation the Data of Electric and Pulsed Neutron-neutron Logging Methods for the Study of Low-resistivity Reservoirs, Example is Terrigenous Sediments of the Dnieper-Donets Basin	315
<i>K. Ruchko, V.M. Kurgansky</i>	
The First Experience of Creating Petrophysical Database for Research Laboratory of Institute of Geology	320
<i>K. Tkachenko</i>	
The Planning of the GIS-project for the Long-term Hydrogeology Prognostication on the Basis Systems of Automation for Projects' Management	325
<i>Yu. Fediv, L. Davybida</i>	

Results of Pore Space Structure Evaluation and Complex Analysis of Petrophysical Data for Zarichna Area Samples	330
<i>I. Bezrodna, A. Shynkarenko</i>	
Evaluation of Radiation from Solar Activity While Flight Journeys	335
<i>A. Chernov, O. Shabatura</i>	

POSTER PRESENTATIONS

Information Resource "Magellan Mounts (Pacific Ocean)" - Modern Instrument for the Execution of Integrated Geological-geophysical and Geomorphological Researchs	340
<i>E. Zhuleva, A. Metalnikov, E. Chesalova</i>	
Geophysical Complex for Prospecting of Alluvial Gold Deposits in the Magadan Region	345
<i>L. Muravyev, V. Ternovskiy, I. Khasanov</i>	
Results of Geophysical Survey to Identify the Cavities in the Rock Mass on the Aria	350
<i>V. Svistun, P. Pigulevskiy, S. Pakhomov, A. Kyrlyuk</i>	
Application of GIS in Reserves Estimating of Iron Ore Deposits with Complex Structure	359
<i>A. Plotnikov, M. Kurylo, M. Tokar</i>	
Informative Study Electrical Properties of Rocks in an Inert Medium	364
<i>M. Kravchuck, V. Korchin</i>	
Lognormal Kriging for Modeling of Geogenic Radon Potential	369
<i>O. Shabatura, S. Vyzhva, I. Onyshchuk, D. Onyshchuk, V. Onyshchuk</i>	
Spatial Distribution of Hypocentres of Earthquakes of Crimea-Black Sea Region	376
<i>V. Burmin, L. Shumljanska</i>	
The Research of Density Descriptions of Rocks at High Pressures and Temperatures	380
<i>V. Korchin, P. Burtnyi, E. Karnaukhova</i>	
Geomagnetic Field Value Calculation in Gauss-Kruger Projection Associated Coordinate System	385
<i>L. Muravyev, D. Byzov</i>	
The Parallel Algorithm for the Gravity Structural Direct Problem Solution on the GPU	390
<i>A.G. Tsidaev</i>	
3D Density Model Construction For Timan-Pechora Region	395
<i>P.S. Martyshko, I.V. Ladovsky, A.G. Tsydaev, D. Byzov</i>	
The New Technique of Solving the Inverse Magnetic Problem for Denezhkin Kamen Dunite-Gabbro Massif	400
<i>P.S. Martyshko, V.A. Pyankov, A.L. Rublev</i>	
The Investigation of Optimal Regularization Parameter for Potential Field Transformation	405
<i>P.S. Martyshko, V.A. Pyankov, A.L. Rublev, D.V. Gemaidinov</i>	
Quantitative Assessment of Soil Contamination Using Factor Analysis	410
<i>M. Zhukov, I. Kurajeva, Yu. Vojtyuk, I. Stakhiv, O. Matviienko</i>	
Automated System "KERN-DP" of Treatment and Analysis of Rocks Anisotropy Ultrasound Measuring Results	414
<i>Y. Onanko, G. Prodayvoda, A. Onanko, O. Shabatura, R. Homenko</i>	
A Componentwise Newton Type Method for Solving the Structural Inverse Gravity Problem	428
<i>E. Akimova, A. Skurydina</i>	
Information Estimator Using Minimax Criterion for Solutions of Inverse Gravity Problem	433
<i>P. Balk, A. Dolgal</i>	
Global Digital Elevation Models in Regional Geophysical Investigations	438
<i>L. Muravyev</i>	
Computer Technology for Highlighting the Magnetic Anomalies from the Deep Layers of the Earth's Crust	443
<i>N.V. Fedorova, P.S. Martyshko, D.V. Gemaidinov, A.L. Rublev</i>	
Author Index	