SCIENTIFIC PROGRAMME

15th IAMG Conference, Madrid 2-5 September 2013

Spanish Geological Survey main hall
Monday, September 2th

Rey Pastor Room

Plenary Session

OPENING IAMG Madrid 2013

8:30 – 9:00 OPENING ACT

Dr. Jorge Civis Llovera (Director of the Spanish Geological Survey)

Dr. Francisco Javier Montero de Juan (Dean of the Faculty of Mathematics, UCM)

Dr. Quiming Cheng (President IAMG)

Dr. Eulogio Pardo Igúzquiza (IAMG Madrid 2013 chairman)

CHAYES PRIZE

9:00 – 10:00 KEYNOTE SPEECH

COMPOSITIONAL DATA ANALYSIS, CHEMICAL EQUILIBRIA AND THERMODYNAMICS

Raimon Tolosana Delgado (Helmholtz Institute Freiberg for Resource Technology Helmholtz-Zentrum Dresden Rossendorf, Germany)
Monday, September 2th

Rey Pastor Room               Parallel Session

SESSION 14: HYDROGEOLOGY: FROM PROCESS UNDERSTANDING TO IMPROVED PREDICTIONS
Convener: Harrie-Jan Hendricks Franssen

10:00 – 11:15

CHALLENGES AND ADVANCES IN OPTIMIZING FIELD CAMPAIGNS: BAYESIAN CONCEPTS, DECISION PROBLEMS AND REAL-TIME INTERACTION (invited)
Wolfgang Nowak, Andreas Geiges, Felipe de Barros and Yoram Rubin

WHEN STEADY-STATE IS NOT ENOUGH
J. Jaime Gómez-Hernández, Teng Xu, Haiyan Zhou and Liangping Li

MULTIPOINT FLUX DOMAIN DECOMPOSITION METHODS FOR TRANSIENT FLOW MODELING IN HETEROGENEOUS POROUS MEDIA
Andrés Arrarás, Laura Portero and Ivan Yotov

ENSEMBLE KALMAN FILTER ASSIMILATION OF TRANSIENT GROUNDWATER FLOW DATA: STOCHASTIC MOMENT SOLUTION VERSUS TRADITIONAL MONTE CARLO APPROACH
Marco Panzeri, Monica Riva, Alberto Guadagnini and Shlomo P. Neuman

11:15 – 12:00 Coffee Break

12:00 – 13:00

HOW TO QUANTIFY THE UNCERTAINTY RELATED TO KARST AQUIFERS? 3D MODELING OF A KARST AQUIFER INCLUDING REALISTIC CONDUITS, FLOW AND TRANSPORT SIMULATION
Andrea Borghi and Philippe Renard

COUPLED HYDROGEOPHYSICAL SIMULATION OF WATER EXTRACTION IN AN UNCONFINED AQUIFER AND ITS ASSOCIATED GRAVIMETRIC ANOMALY
Andrés González Quirós and José Paulino Fernández Álvarez

BUILDING CONFIDENCE IN CONTAMINANT TRANSPORT MODELLING THROUGH THE INTEGRATION OF MULTIPLE DATA SOURCES AND EXPLICIT REPRESENTATION OF GEOLOGICAL HETEROGENEITY
Bart Rogiers, Matej Gedeon, Dirk Mallants, Okke Batelaan, Marijke Huysmans and Alain Dassargues

EFFECT OF ENTRAPPED GAS BELOW THE PHREATIC SURFACE ON PRESSURE PROPAGATION AND SOIL DEFORMATION
Héctor Montenegro, Oliver Stelzer and Bernhard Odenwald
13:15 – 15:00 Lunch Break

15:00 – 16:00

STOCHASTIC AQUIFER MODELING USING PATTERNS AND LOCAL FLOW SOLUTIONS
Laureline Josset, Ivan Lunati, Julien Straubhaar and Philippe Renard

HYDRAULIC CONDUCTIVITY IDENTIFICATION BY ENKF AND TRAVEL TIME MODELING OF TRANSPORT
Elena Crestani, Matteo Camporese and Paolo Salandin

FLOW DIVERSION INDUCED BY BIOMASS AND EXTRA POLYMERIC SUBSTANCES (EPS) IN INFILTRATION
A. Carles Brangari, Daniel Fernàndez-Garcia, Xavier Sánchez-Vila and Anna Freixa, Anna M. Romaní and Simonetta Rubol

OPTIMAL RECONSTRUCTION OF 3D FRACTURE NETWORKS (FEBEX FIELD TEST, GRIMSEL SITE, SWISS ALPS)
Israel Cañamón, F. Javier Elorza and Rachid Ababou

16:15 – 16:45 Coffee Break
SESSION 1: ADVANCES IN CLASSICAL STATISTICS RELEVANT TO THE GEOSCIENCES
Conveners: Jack Schuenemeyer and Ricardo A. Olea

10:00 – 11:15

EVALUATING PREDICTIVE PERFORMANCE
Michael Scheuerer and Tilmann Gneiting

SPATIAL TEMPORAL MODELLING OF COMPLEX WIND FIELD SURFACES IN SPAIN
Joe Guinness and Montserrat Fuentes

MAXIMUM LIKELIHOOD INFERENCE FOR LARGE SPATIAL DATA SETS IN
GEOSCIENCES
Kanti V. Mardia and Eulogio Pardo-Igúzquiza

PERFORMANCE EVALUATION OF SWANSON’S RULE FOR LOG-NORMAL
DISTRIBUTIONS
Maryam Moghadasi and Jerry L. Jensen

ESTIMATING THE NUMBER AND LOCATIONS OF EULER POLES
Florian Bachmann, Peter E. Jupp and Helmut Schaeben

11:15 – 12:00 Coffee Break

12:00 – 13:00

AT THE INTERFACE BETWEEN MATHEMATICAL GEOSCIENCES AND CLASSICAL
STATISTICS
Frits Agterberg

STATISTICAL MODELING OF A FORMER ARCTIC OCEAN ICE SHELF COMPLEX
USING ANTARCTIC ANALOGIES
Reinhard Furrer, Nina Kirchner, Martin Jakobsson, H. Jay Zwally and John W.
Robbins

MODELLING ORE BODIES OF HIGH-NUGGET GOLD USING CONDITIONAL
PROBABILITY
June Hill, Nick Oliver, James Cleverley and Michael Nugus

TESTING FOR MICROHOMOGENEITY IN REFERENCE MATERIALS FOR
MICROANALYTICAL METHODS
Raimon Tolosana-Delgado, Axel D. Renno, Przemlaw P. Michalak and K. Gerald
van den Boogaart
13:15 – 15:00 Lunch Break

15:00 – 15:45

TOWARDS A STATISTICAL TREATMENT OF MINERAL LIBERATION ANALYSIS IMAGE
Sandra Birtel, Raimon Tolosana-Delgado, Stephan Matos-Camacho, Jens Gützmer and K.Gerald van den Boogaart

DISTRIBUTIONAL ASSUMPTIONS AND PARAMETRIC UNCERTAINTIES IN THE AGGREGATION OF GEOLOGIC RESOURCES
John H. Schuenemeyer and Ricardo A. Olea

MODELING EXTREMAL DEPENDENCE USING COPULAS. APPLICATION TO RAINFALL DATA
Maria I. Ortego, Juan J. Egozcue and Raimon Tolosana-Delgado

SESSION 8: FRACTALS, CHAOS AND COMPLEXITY IN THE EARTH SYSTEM
Convener: Carlos Paredes and Eulogio Pardo Igúzquiza

15:45 – 16:15

EVALUATION OF FRACTAL DIMENSION IN KARST AQUIFERS FROM THE ANALYSIS OF THE DISCHARGE. THE CASE OF SPAIN
Pedro A. Robledo Ardila, Juan J. Durán Valsero and Eulogio Pardo Igúzquiza

FRACTAL MODELING OF KARST CONDUIT
Eulogio Pardo-Igúzquiza, Juan J. Durán, Pedro A. Robledo, Carolina Guardiola-Albert, Juan A. Luque and Sergio Martos

16:15 – 16:45 Coffee Break

16:45 – 17:45

COMPLEX NETWORK APPROACH FOR EARTHQUAKE SCIENCE
Norikazu Suzuki

ANALYZING THE CONDITIONS IN WHICH FRACTAL INTERPOLATION FUNCTION PRESERVE THE CONVEXITY OF INTERPOLATED DATA ON THOSE CONDITIONS
Tahereh Farbiz, Masud Sabaghan and Ahmad Kazemlou Sheikhi

FREQUENCY–AREA DISTRIBUTION OF HISTORICAL LANDSLIDES IN THE SANNIO APENNINE (SOUTHERN ITALY)
Angelo Donnarumma, Paola Revellino and Francesco M. Guadagno
Monday, September 2th

Room 2 (Aula S108)  Parallel Session

SESSION 20: GEOSTATISTICAL PRIORS IN INVERSION OF GEOPHYSICAL AND ENGINEERING DATA
Conveners: Klaus Mosegaard and Thomas Mejer Hansen

10:00 – 11:15

ASSESSING THE PROBABILITY OF TRAINING IMAGE-BASED GEOLOGICAL SCENARIOS USING GEOPHYSICAL DATA
Hermans Thomas, Caers Jef and Nguyen Frédéric

HISTORY MATCHING OF CHANNELIZED RESERVOIR USING ENSEMBLE SMOOTHER WITH CLUSTERED COVARIANCE
Kyungbook Lee and Jonggeun Choe

GEOSTATISTICAL INVERSION OF 3D POST-STACK SEISMIC AND WELL DATA FOR THE CHARACTERIZATION OF ACOUSTIC IMPEDANCE IN OIL FIELDS
Fernando Alves and José A. Almeida

BAYESIAN INVERSION OF TIME-LAPSE SEISMIC DATA FOR CHANGES IN RESERVOIR PROPERTIES
Dario Grana and Tapan Mukerji

MODELING GEOLOGICAL SCENARIO UNCERTAINTY FROM SEISMIC DATA USING PATTERN SIMILARITY
Cheolkyun Jeong, Céline Scheidt, Jef Caers and Tapan Mukerji

11:15 – 12:00 Coffee Break

12:00 – 13:15

THE EFFECT OF THE NOISE AND THE REGULARIZATION IN INVERSE PROBLEMS. GEOPHYSICAL IMPLICATIONS
José L. García Pallero, Juan L. Fernández-Martínez, Zulima Fernández-Muñiz and L. Mariano Pedruelo-González

MARKOV CHAIN PRIORS IN SEISMIC AVO INVERSION
Henning Omre and Kjartan Rimstad

A GENERALIZED LOCAL GRADUAL DEFORMATION METHOD FOR HISTORY MATCHING
Benjamin Marteau, Didier Y. Ding and Laurent Dumas
CONSTRAINING STOCHASTIC GEOPHYSICAL INVERSIONS WITH SUMMARY STATISTICS FROM TRAINING DATA
Tobias Lochbühler, Jasper A. Vrugt and Niklas Linde

RESERVOIR MODELING COMBINING GEOSTATISTICS WITH MARKOV CHAIN MONTE CARLO INVERSION
Andrea Zunino, Katrine Lange, Yulia Melnikova, Thomas M. Hansen and Klaus Mosegaard

13:15 – 15:00 Lunch Break

15:00 – 15:45

QUANTIFYING MODELIZATION ERROR USING GEOSTATISTICAL PRIORS
Thomas Mejer Hansen, Knud Skou Cordua, Bo Holm Jacobsen and Klaus Mosegaard

HISTORY MATCHING WITH GEOSTATISTICAL PRIOR: A SMOOTH FORMULATION
Yulia Melnikova, Katrine Lange, Andrea Zunino, Knud S. Cordua and Klaus Mosegaard

BAYESIAN FIRST ARRIVAL TRAVEL TIME TOMOGRAPHY BY INTERACTING MCMC
Thomas Romary, Alexis Bottero, Alexandrine Gesret, Nicolas Desassis and Mark Noble

SESSION 19: OPEN SESSION ON MATHEMATICS OF OIL RECOVERY (OSMOR)
Conveners: Sid-Ali Ouadfeul and Leila Aliouane

15:45 – 16:15

UPSCALING OF ANELASTIC VERTICALLY HETEROGENEOUS RESERVOIRS
Alexey Stovas

STOCHASTIC SIMULATION OF THE MORPHOLOGY OF FLUVIAL SAND CHANNEL RESERVOIRS
Alexandra Kuznetsova, José A. Almeida and Paulo Legoinha

16:15 – 16:45 Coffee Break

16:45 – 17:30

SORTING RESERVOIR MODELS ACCORDING TO FLOW CRITERIA: A NEW METHODOLOGY, USING FAST MARCHING METHODS AND MULTI-DIMENSIONAL SCALING
Gaétan Bardy and Pierre Biver
INTEGRATE SPATIAL FACIES CLUSTERING INFORMATION IN RESERVOIR MODELLING
Yupeng Li and Lihui Geng

PREDICTING AND MAPPING OF TIGHT OIL DISTRIBUTION OF YC FORMATION IN ERDOS BASIN, CHINA
Hongbing Xie, Qiulin Guo, Rili Gao and Ningsheng Chen
Monday, September 2th

Room 3 (Aula S107a)  Parallel Session

SESSION 5: MACHINE LEARNING IN GEOSCIENCE APPLICATIONS
Concerners: Vasily Demyanov and Mikhail Kanevski

10:00 – 11:15

LEARNING NEEDED COMPLEXITY IN STRUCTURAL MODELING USING PROCRUSTES ANALYSIS
Orhun Aydin and Jef Caers

COMPARISON OF MICRO X-RAY COMPUTER TOMOGRAPHY IMAGE SEGMENTATION METHODS - ARTIFICIAL NEURAL NETWORKS VS. SUPPORT VECTOR MACHINE
Swarup Chauhan, Wolfram Rühaak, Frieder Enzmann, Faisal Khan, Philipp Mielke, Michael Kersten and Ingo Sass

FUZZY PARAMETERIZATION OF A FILTRATION MODEL FOR A NON-HOMOGENEOUS SEDIMENTARY ROCK
Elena Savelyeva and Aleksander Rastorguyev

PERMAFROST IN A RANDOM FOREST
Michael Leuenberger, Mikhail Kanevski and Nicola Deluigi

KERNEL PRINCIPAL COMPONENT ANALYSIS USING DYNAMIC SIMILARITY KERNEL TO INTERPRET SEISMIC SIGNATURES OF THIN SHALY-SAND RESERVOIRS
Piyapa Dejtrakulwong, Tapan Mukerji and Gary Mavko

11:15 – 12:00 Coffee Break

12:00 – 13:00

A PARTICLE SWARM OPTIMIZATION FOR PARAMETER ESTIMATION OF A RAINFALL-RUNOFF MODEL
Frédéric Bardolle, Frédérick Delay, Francis Bichot, Nathalie Dorfliger and Gilles Porel

SEQUENTIAL WEIGHTS OF EVIDENCE MODELLING AS MACHINE LEARNING PROCESSES FOR PREDICTIVE PURPOSES IN NATURAL RESOURCE PREDICTION AND ENVIRONMENTAL ASSESSMENT
Qiuming Cheng

FUNCTIONAL DATA ANALYSIS FOR UNCERTAINTY QUANTIFICATION
Laureline Josset, David Ginsbourger and Ivan Lunati
LEARNING UNCERTAINTY FROM TRAINING IMAGES FOR RESERVOIR PREDICTIONS
Temitocles Rojas, Vasily Demyanov, Mike Christie and Darn Arnold

13:00 – 15:00 Lunch Break

SESSION 26: GEOSCIENCE DATA MODELS FOR PRACTICAL INTEROPERABILITY
Conveners: Helmut Schaeben, Santiago Martín Alfaáme and Fernando Pérez Cerdan
15:00 – 16:15

TOWARDS PRACTICAL INTEROPERABILITY WITH GST
Paul Gabriel, Jan Gietzel, Hai Ha Le and Helmut Schaeben

GMML: AN APPLICATION OF 3D GEOLOGICAL MODEL DATA EXCHANGE
Zixing Wu, Honggang Qu, Zhangang Wang, Hui Chen, Jingchao Li, Mao Pan, Yongbo Zhang and Xiaohong Wu

CONTROL THE SYSTEM, FREE THE DATA, FEED THE SCIENCE
Carl Watson

SWISS DATA MODELS FOR GEOLOGY – FROM 2D DATA TOWARDS GEOLOGICAL 3D MODELS
Cristina Salomé Michael, Nils Oesterling, Stefan Strasky and Roland Baumberger

GROUNDWATER FLOW MODEL "SAARLAND" – DATA EXCHANGE STRATEGY FOR A REGIONAL MODEL
Thomas Walter

16:15 – 16:45 Coffee Break

16:45 – 17:30

VIRTUAL RESEARCH ENVIRONMENT FOR COLLABORATION OF GEOGRAPHICALLY DISTRIBUTED GEOSCIENTISTS OF RUSSIAN ACADEMY OF SCIENCES IN THE FAR EAST OF RUSSIA
Vera V.Naumova

GEOLOGICAL 3D MODELING (PROCESSES) AND FUTURE NEEDS FOR 3D DATA AND MODEL STORAGE AT GEOLOGICAL SURVEY OF FINLAND
Eevaliisa Laine

REGISTRATION OF GEOLOGICAL DATA IN THE FIELD: THE OPEN SOLUTION MO2GEO FIELDMODULE
Lars Schimpf and Wolfgang Gossel
Monday, September 2th

Rey Pastor Hall

Plenary Session

11:15 - 12:00

POSTER SESSION I

SESSION 1: ADVANCES IN CLASSICAL STATISTICS RELEVANT TO THE GEO SCIENCES

NEW TECHNIQUES IN UNIVARIATE AND MULTIVARIATE STATISTICS APPLIED TO GOLD EXPLORATION IN THE AMAPARI AREA, AMAZON REGION, BRAZIL
Luis P. Braga, F. José da Silva and Claudio Gerhiem Porto

THE EXTRACTION OF LONG-TERM DISTRIBUTION TRENDS OF ORE-SOURCED GEOCHEMICAL ELEMENTS FROM AN DRILL CORE IN THE LOESS COVERED AREA
Xu De-yi, Pei Hong-wei, Liu Ning-qiang, Yuan Zhao-xian, Yang Jie, Xie Shu-yun and Cheng Qiu-ming

NEW TECHNOLOGIES AND APPLICATION OF LARGE-SCALE THREE-DIMENSIONAL MINERAL PREDICTION AND EVALUATION RESEARCH
Xiao Ke-yan, Li Nan, Zou Wei, Sun Li and Li Ying

SESSION 5: MACHINE LEARNING IN GEO SCIENCE APPLICATIONS

BLIND SOURCE SEPARATION: THEORY AND APPLICATION IN GEO SCIENCES
Xianchuan Yu

ALPINE PERMAFROST MAPPING WITH SUPPORT VECTOR MACHINES
Nicola Deluigi, Mikhail Kanevski, Christophe Lambiel and Michael Leuenberger

ANALYSIS OF THE PARAMETRIZATION NEEDS OF DIFFERENT LAND COVER CLASSIFIERS: THE CASE STUDY OF GRANADA PROVINCE (SPAIN)
Víctor Rodríguez Galiano and Mario Chica-Olmo

AUTOMATIC RAMAN SPECTRA PROCESSING
Isaac Hermosilla Rodríguez and Guillermo López-Reyes and Fernando Rull Perez

IDENTIFICATION OF SPATIAL MODELS OF THE SEASONAL VARIABILITY OF 180 IN RAINFALL OVER SPAIN USING GENETIC ALGORITHMS
Javier Heredia, Eulogio Pardo-Igúzquiza, Javier Rodríguez-Arévalo, Silvino Castaño, M.Fe Díaz-Teijeiro, José E. Capilla, Antonio Prado and Lara Bardasano
APPLICATION OF MULTIVARIATE ANALYSIS TECHNIQUES FOR THE IDENTIFICATION OF SULFATES FROM RAMAN SPECTRA
Guillermo Lopez-Reyes, Pablo Sobron, Catherine Lefevbre and Fernando Rull

SPACE MINERAL DATA PROCESSING BASED ON SENSITIVITY ANALYSIS METHODS OF HIERARCHICAL HYBRID FUZZY-NEURAL NETWORK
Xianchuan Yu, Yali Ren, Sha Dai, Dan Hu, Libao Zhang and Guian Wang

SESSION 8: FRACTALS, CHAOS AND COMPLEXITY IN THE EARTH SYSTEM

EXPERIMENTAL MODELS OF WETTING FRONTS IN SOILS: THE FRACTAL BEHAVIOUR OF WETTING FRONTS IN HETEROGENEOUS POROUS MEDIA
Pilar López González-Nieto, Ana Maria Tarquis and José Manuel Redondo

SESSION 14: HYDROGEOLOGY: FROM PROCESS UNDERSTANDING TO IMPROVED PREDICTIONS

NEW ANALYTICAL SOLUTIONS FOR PHREATIC DARCIAN FLOWS OVER NON-PLANAR BEDROCKS
Anvar R. Kacimov, Yurii Obnosov and Osman Abdalla

APPLICATION OF DATA-DRIVEN EVIDENTIAL BELIEF FUNCTION FOR SPATIAL GROUNDWATER-PRODUCTIVITY-POTENTIAL MAPPING
Saro Lee and Inhye Park

GROUNDWATER RECHARGE RATES FOR REGIONAL GROUNDWATER MODELING IN THE MANCHA ORIENTAL AQUIFER SYSTEM (SE SPAIN)
David Sanz, Santiago Castaño, Eduardo Cassiraga, Juan J. Gómez-Alday, Maria M. Odi-Lara and Andrés Sahuquillo

ANALYSIS OF GROUNDWATER MODEL RESULTS ASSOCIATED WITH SPATIAL DISCRETIZATION AND MODEL LAYER SIMPLIFICATION
J. Oriol Navarro, David Sanz, Eduardo Cassiraga, Santiago Castaño and Juan J. Gómez-Alday

HYDROGEOLOGICAL AND THERMAL MODELING OF AN UNDERGROUND MINING RESERVOIR
Clara Andrés, Almudena Ordóñez and Rodrigo Álvarez

GROUNDWATER FLOW MODEL "SAARLAND" – DATA EXCHANGE STRATEGY FOR A REGIONAL MODEL
Thomas Walter

RATIONAL LANCZOS REDUCTION OF GROUNDWATER FLOW MODELS TO PERFORM EFFICIENT SIMULATIONS OF SURFACE-GROUND WATER RELATIONSHIPS IN SYSTEMS OF CONJUNCTIVE USE
Oscar D. Álvarez-Villa, Eduardo Cassiraga and Sahuquillo
EFFICIENT GENERATION OF EFFECTIVE MODES AND SPECTRAL MASKS TO BUILD A REDUCED GROUNDWATER FLOW MODEL USING THE EIGENVALUE METHOD WITH SELECTIVE COMPRESSION AND MODAL MASKING
Oscar D. Álvarez-Villa, Eduardo Cassiraga and Andrés Sahuquillo

TIME SERIES ANALYSIS OF GROUNDWATER HYDROGRAPHS - CASE STUDY FROM A HARDROCK AREA
Wolfgang Gossel and Ronny Laehne

ANALYSIS OF MINE GROUNDWATER REBOUND AT THE DONGWON COAL MINE IN KOREA USING GRAM MODEL
Sebeom Park, Yosoon Choi, Hwanjo Baek and Seung-Han Shin

THE USE OF REGRESSION ANALYSIS TO FIND THE EQUATIONS OF SORPTION OF HEAVY METALS FOR MIGRATION MODELLING
Irina Galitskaya and Gleb Batrak

IMPACT OF SEASONALITY AND LONG-TERM FLUCTUATIONS IN GROUNDWATER LEVELS ON ACCURACY OF HYDROGEOLOGICAL FORECASTS MADE BY THE NUMERICAL METHOD
Gleb Batrak, Stanislav Semenov, Stanislav Seleznev and Irina Galitskaya

A STUDY ON THE MONITORING AND PREDICTION OF WATER-ERODED DESERTIFICATION WITH REMOTE SENSING AND GEO-CA MODEL IN XIAOJIANG RIVER BASIN, CHINA
Zhifang Zhao, Wenchun Wu and Yujing Mao

MULTIVARIATE GEOSTATISTICAL SIMULATION FOR CHARACTERIZATION OF A QUATERNARY AQUIFER IN THE UPPER SALZACH VALLEY, AUSTRIA
Carmen Jandrisevits

APPLICATION OF STATE-OF-THE-ART GEOMATHEMATICAL METHODS - CASE STUDY SEEWINKEL, BURGENLAND AU
Istvan Gabor Hatvani, Norbert Magyar, Mathias Zessner, Jozsef Kovacs, Judit Madl-Szonyi and Alfred P. Blaschke

SESSION 19: OPEN SESSION ON MATHEMATICS OF OIL RECOVERY (OSMOR)

LITHOFACIES CLASSIFICATION FROM WELL-LOGS DATA USING THE MULTILAYER PERCEPTRON AND THE SELF-ORGANIZING MAP NEURAL NETWORKS
Sid-Ali Ouadfeul and Leila Aliouane

PERMEABILITY PREDICTION FROM WELL-LOGS DATA USING THE ARTIFICIAL NEURAL NETWORK
Leila Aliouane, Sid-Ali Ouadfeul and Amar Boudella

A COMPARATIVE STUDY OF SOME WELL-LOGS DATA FILTERS. APPLICATION TO ALGERIAN SAHARA
Leila Aliouane, Sid-Ali Ouadfeul and Amar Boudella
FRACTAL ANALYSIS OF AVO SEISMIC ATTRIBUTES FOR OIL/WATER CONTACT IDENTIFICATION
Sid-Ali Ouadfeul and Leila Aliouane

SEISMIC DATA INTERPRETATION IMPROVEMENT BY THE MULTISCALE ANALYSIS OF GRAVITY DATA USING THE WAVELET TRANSFORM. APPLICATION TO ALGERIAN SAHARA
Sid-Ali Ouadfeul and Leila Aliouane

AVO SEISMIC DATA INVERSION USING GLOBAL SIMULTANEOUS TECHNIQUE
Said Eladj, Sid-Ali Ouadfeul, Leila Aliouane, and Noureddine Djarfour

ACOUSTIC IMPEDANCE INVERSION OF SEISMIC DATA USING GENETIC ALGORITHM
Said Eladj, Noureddine Djarfour, Djalal Ferahtia and Sid-Ali Ouadfeul

SESSION 26: GEOSCIENCE DATA MODELS FOR PRACTICAL INTEROPERABILITY

INSPIRED GEODATA CLOUD SERVICES – GEOHAZARD USE CASE
Martin Podboj and Jasna Sinigoj
Tuesday, September 3th

Rey Pastor Room
Plenary Session

MATHERON LECTURE

9:00 – 10:00 KEYNOTE SPEECH

QUANTIFYING UNCERTAINTY FOR MINERAL AND ENERGY RESOURCE EXPLOITATION – SOURCES, RANDOMNESS, SCALE AND STRUCTURE
Professor Peter Dowd (Univeristy of Adelaide, Australia)
SESSION 17: MODELING OF ENERGY RESOURCES
Conveners: Ricardo A. Olea and Jef Caers

10:00 – 11:15

MOVING AWAY FROM RESOURCE CLASSIFICATION AS A MEASURE OF UNCERTAINTY
Ricardo A. Olea, James A. Luppens and Susan J. Tewalt

CBM PRODUCTION ANALYSIS AND FILTER SIMULATION FOR QUANTIFYING GAS DRAINAGE FROM COAL SEAMS
C. Özgen Karacan and Ricardo A. Olea

USE OF TANK EXPERIMENT DATA IN SURFACE-BASED MODELING
Siyao Xu, Andre Jung, Tapan Mukerji and Jef Caers

A DISTANCE-BASED GENERALIZED SENSITIVITY ANALYSIS FOR ENERGY RESOURCES MODELLING
Céline Scheidt, Darryl Fenwick and Jef Caers

COAL QUALITY ESTIMATION USING DATA FROM BLAST HOLES GEOPHYSICAL LOGGING WITH NON-RADIOACTIVE SOURCES
George Olufunmilayo Gasper, Vládia Cristina G. de Souza, Paulo Salvadoretti, João F. Coimbra Leite Costa

11:15 – 12:00 Coffee Break

12:00 – 13:15

THE RELATIONSHIP BETWEEN SKIN AND APPARENT WELLBORE RADIUS IN FRACTAL DRAINAGE AREAS
Tom Aage Jelmert

MODELING SEDIMENTARY STRUCTURES USING A BOUNDARY REPRESENTATION BASED ON NON UNIFORM RATIONAL B-SPLINES
Jeremy Ruiu, Guillaume Caumon, Sophie Viseur and Christophe Antoine

OPTIMIZED HISTORY MATCHING WITH STOCHASTIC IMAGE TRANSFORMING OF A DELTAIC RESERVOIR
M. Helena Caeiro, Amilcar Soares, Vasily Demyanov and Mike Christie
ES-MDA FOR ASSISTED HISTORY MATCHING AND UNCERTAINTY QUANTIFICATION
Duc Le and Albert C. Reynolds

PARETO-OPTIMALITY WITH APPLICATION TO UNCERTAINTY ASSESSMENT OF INDIVIDUAL WELL PERFORMANCE
Baehyun Min, Changhyup Park, Joe M. Kang, Sunghoon Chung, and Ilsik Jang

13:15 – 15:00 Lunch Break

15:00 – 16:00

PROBABILISTIC MODELING OF A DEEPWATER RESERVOIR
Yuhong Liu, Lianshuang Qi, Bill Keyser, Julio de la Colina, Robert Scamman and Victor Pusca

CONDITIONING 3D OBJECT BASED MODELS
Jeff B. Boisvert and Michael Pyrcz

VALUE OF INFORMATION ANALYSIS FOR DEPENDENT PROSPECTS
Jo Eidsvik

QUANTIFYING UNCERTAINTIES IN BASIN SIMULATION IN CASE OF PRUDHOE BAY FIELD
Dinara Shapabaeva

16:15 – 16:45 Coffee Break

SESSION 27: ADVANCES ON STOCHASTIC NON LINEAR METHODS AND INVERSE PROBLEMS FOR DYNAMIC MODELS
Convener: José A. Vargas-Guzmán

16:45 – 17:15

ESTIMATION OF PARAMETERS IN RANDOM DYNAMICAL SYSTEMS
Silke Konsulke, K. Gerald van den Boogaart, Felix Ballani Markus Franke and Martin Sauke

A FIVE-PARAMETER NON-LINEAR MODEL FOR DESCRIBING ELEMENT CONCENTRATION BEHAVIOR IN VERTICAL REGOLITH PROFILE OVER MINERAL DEPOSITS CAUSED BY MULTIPLICATIVE CASCADE MIGRATION PROCESSES
Qiuming Cheng

PREDICTION OF THE LOCALIZATION OF GOLD MINERALIZATION BASED ON THE ANALYSIS OF MULTIDIMENSIONAL STRUCTURES OF DIVERSE SEARCH CRITERIA IN THE POLAR URALS
Julia Ivanova
SESSION 7: PARAMETERIZATION OF SOIL SYSTEMS AT DIFFERENT SCALES

Conveners: Yakov Pachepsky, Fernando San José Martínez, Miguel Ángel Martín and Dai Yongjiu

10:00 – 11:15

FREQUENCY DISTRIBUTIONS AND SCALING OF SOIL TEXTURE AND HYDRAULIC PROPERTIES IN A STRATIFIED DEEP VADOSE ZONE NEAR MARICOPA, ARIZONA
Alberto Guadagnini, Shlomo P. Neuman, Marcel G. Schaap and Monica Riva

THE TERRESTRIAL MODELING SYSTEM
Yongjiu Dai, Duoying Ji, Wei Shangguan, Qian Zhang and Lili Wang

PARAMETERIZATION OF SOIL THERMAL DIFFUSIVITY VS MOISTURE CONTENT DEPENDENCIES AND MODELING SPATIAL HETEROGENEITY OF SOIL TEMPERATURE
Tatiana Arkhangelskaya

GEOMETRICAL QUANTIFICATION OF SOIL MACROPOROSITY WITH MORPHOLOGICAL FUNCTIONS FOR CT IMAGES OF INTACT SOIL COLUMNS
Fernando San José Martínez, Francisco J. Muñoz, Francisco J. Caniego and Fernando Peregrina

ESTIMATION OF MULTILAYERED SOIL PROPERTIES BY INVERSION OF A CROP MODEL USING SURFACE SOIL MOISTURE AND LAI: EVALUATION ON EXPERIMENTAL DATASETS
Samuel Buis, Sreelash K., Martine Guérif, Muddu Sekhar, Laurent Ruiz, Sat Kumar Tomer, Amit Sharma and Françoise Ruget

11:15 – 12:00 Coffee Break

12:00 – 13:15

DRAINAGE NETWORKS, SOIL LAYERING AND PARTICLE SIZE DISTRIBUTION: OUTCOMES OF THE BEDROCK LITHOLOGY
Joaquín Cámara, G. Hernando, Vicente Gómez-Miguel and, Miguel A. Martín

ENTROPIC ANALYSIS OF THE PEDOTAXA SPATIAL DISTRIBUTION IN EUROPE
Javier Caniego Monreal, Fernando San José Martínez, Juan J. Ibáñez Martí and Raúl Pérez-Gómez

A PACKING COMPUTATIONAL METHOD RELATING PARTICLE SIZE DISTRIBUTION AND VOID FRACTION IN GRANULAR MEDIA
Carlos García-Gutiérrez, Miguel A. Martín, Miguel Reyes and Francisco J. Taguas
CASCADE OF PROPPANT-SANDWICHED SILT BLOCKS AS A DOUBLE-CONTINUUM: FROM DISCOVERY TO MATHEMATICAL MODELING

QUALITATIVE AND QUANTITATIVE INVESTIGATION OF MICROSTRUCTURES WITHIN POROUS ROCKS BY USING VERY HIGH RESOLUTION X-RAY MICRO-CT IMAGING
Gerhard Zacher, Matthias Halisch, Thomas Mayer and Peter Westenberger

13:15 – 15:00 Lunch Break

15:00 – 15:15

SOIL HYDROLOGICAL PROPERTIES FOR FORECASTING MATHEMATICAL MODELS: SIGNIFICANCE OF THE SAMPLE DIMENSIONS
Evgey V. Shein, Aminat B.Umarova, Evgeny Y. Milanovskiy and A. V. Dembovetsky

SESSION 22: RECENT ADVANCES IN QUANTITATIVE METHODS APPLIED TO STRATIGRAPHY AND PALEONTOLOGY’
Conveners: Andrea Baucon and Carlos Neto de Carvalho

15:15 – 16:15

A NEW MATHEMATICAL APPROACH TO MODEL TROPHIC DYNAMICS OF MAMMALIAN PALAEOCOMMUNITIES. THE CASE OF ATAPUERCA-TD6
Guillermo Rodríguez-Gómez, Jesús Ángel Martín-González, Idoia Goikoetxea, Ana Mateos and Jesús Rodríguez

BASIN ANALYSIS OF LATE QUATERNARY BALTIC SEA SEDIMENTS
Jan Harff, Rudolf Endler, Sergey Kotov and Ricardo A. Olea

ICHNONETWORK ANALYSIS: new topologies of bio logic behaviour
Andrea Baucon and Fabrizio Felletti

COMMUNITY-ANALYSIS BASED ON SOCIAL NETWORK APPLICATIONS IN CANELAS FOSSIL SITE (MIDDLE ORDOVICIAN, PORTUGAL): RESOURCES PARTITIONING IN THE GIANT TRILOBITES ECOSPACE
Carlos Neto de Carvalho, Andrea Baucon, Manuel Valério and Helena Couto

16:15 – 16:45 Coffee Break
Tuesday, September 3th

Room 2 (Aula S108)  Parallel Session

SESSION 13: DEFORMATION MODELING, GEODYNAMICS AND NATURAL HAZARDS
Conveners: José Fernández and Pablo J. González

10:00 – 11:15

AN UPDATE GPS VELOCITY AND STRAIN RATE FIELDS FOR THE IBERIAN REGION
Mimmo Palano, Pablo J. González and José Fernández

3D COUPLED GEOPHYSICAL-PETROLOGICAL MODELLING OF THE CANARY ISLANDS AND NORTH-WESTERN AFRICAN MARGIN LITHOSPHERE
Javier Fullea, Antonio G. Camacho and José Fernández

INVESTIGATION OF ASEISMIC CREEP ON THE HAYWARD FAULT, CA, USING ADVANCED POLARIZED DINSAR METHODS
Kristy F. Tiampo, Pablo J. González, Sergey V. Samsonov and Samira Alipour

ON THE MATHEMATICAL TREATMENT OF SOME ELASTIC-GRAVITATIONAL MODELS
Jesús I. Díaz

11:15 – 12:00 Coffee Break

12:00 – 13:15

SOME INSIGHTS ABOUT VOLCANO DEFORMATION INTERPRETATION BASED ON FEM
María Charco and Pedro Galán del Sastre

MODELING OF THE GROUND DEFORMATION FIELD OF RESURGENT CALDERAS DETECTED VIA SPACEBORNE SAR INTERFEROMETRY
Pietro Tizzani, Maurizio Battaglia, Raffaele Castaldo, Francesco Casu, Riccardo Lanari, Andrea Manconi, Mariarosaria Manzo, Antonio Pepe, Susi Pepe, Eugenio Sansosti and Giovanni Zeni

SURFACE DISPLACEMENTS, DEFORMATIONS AND GRAVITY CHANGES DUE TO UNDERGROUND HEAT SOURCE
Ladislav Brimich and Igor Kohút

REINTERPRETATION OF TEIDE 2004–2005 GRAVITY CHANGES BY 3D LINE SEGMENTS APPROXIMATION
Peter Vajda, Ilya Prutkin and Jo Gottsmann

13:15 – 15:00 Lunch Break
SESSION 15: QUANTITATIVE HYDROLOGY: WORKING ACROSS SCIENTIFIC DISCIPLINES AND TIME-SPACE SCALES
Conveners: Leticia Rodríguez and Allen Batteman Pinzón

15:00 – 16:15

NUMERICAL ANALYSIS OF STREAM-GROUNDWATER INTERACTIONS IN A FLOODPLAIN FOLLOWING AN EMBANKMENT OPENING
Héctor Montenegro

MODELS OF PARALLEL LINEAR RESERVOIRS (PLR) WITH WATERSHED TRAVERSAL ALGORITHM (WTA) IN BEHAVIOUR RESEARCH OF HYDROLOGICAL PROCESSES IN CATCHMENTS
Jesús Mateo Lázaro, José Ángel Sánchez Navarro, Alejandro García Gil and Vanesa Edo Romero

MATHEMATICAL SIMULATION AND OPTIMIZATION OF PRE-DAMS FOR EUTROPHICATION CONTROL
Lino J. Alvarez-Vázquez, Francisco J. Fernández and Aurea Martínez

MATHEMATICAL MODELLING OF SEDIMENTATION IN RIVERS AND CANALS: AN OPTIMIZATION APPROACH
Aurea Martínez, Lino J. Alvarez-Vázquez, Carmen Rodríguez and Miguel E. Vázquez-Méndez

OPTIMAL DEVELOPMENT OF REGIONAL RAIN NETWORK USING ENTROPY AND GEOSTATISTICS
Hadi Mahmoudi-Meimand, Sara Nazif and Hasan-Ali Faraji-Sabokbar

16:15 – 16:45 Coffee Break

16:45 – 17:30

AN ANALYTICAL SOLUTION OF TIDE-INDUCED HEAD FLUCTUATIONS IN AN INHOMOGENEOUS COASTAL AQUIFER
Luis Guarracino and Leonardo B. Monachesi

EFFECT OF SPATIAL HETEROGENEITY ON RATE OF SEDIMENTARY O2 CONSUMPTION REACTION
Tanushee Dutta and Simonetta Rubol
Tuesday, September 3th

Room 3 (Aula S107a) Parallel Session

SESSION 3: COMPOSITIONAL DATA ANALYSIS APPLIED TO GEOCHEMISTRY
Conveners: Antonella Buccianti and Eric Grunsky

10:00 – 11:15

COMPOSITIONAL DATA: LAST ADVANCES IN THE ZERO PROBLEM
Josep A. Martín-Fernández and Javier Palarea-Albaladejo

MULTIVARIATE ANALYSIS OF THE UNITED STATES PORTION OF THE NORTH AMERICAN SOIL GEOCHEMICAL LANDSCAPES PROJECT – A COMPOSITIONAL APPROACH
Eric C. Grunsky, Lawrence J. Drew, David B. Smith and David M. Sutphin

COMPOSITIONAL ANALYSIS OF EMERGING CONTAMINANTS PRESENCE IN THE LLOBREGAT AQUIFER
Karim Tamoh, Lucila Candela and Juan J. Egozcue

DISCRIMINANT ANALYSIS OF PALAEOGENE BASALT LAVAS, NORTHERN IRELAND, USING SOIL GEOCHEMISTRY
Jennifer M. McKinley, Sam Roberson and Raimon Tolosana-Delgado

STRUCTURAL ANALYSIS OF THE NATIONAL GEOCHEMICAL SURVEY OF AUSTRALIA DATA
Johnny Lo, Ute Mueller, Patrice de Caritat and Eric Grunsky

11:15 – 12:00 Coffee Break

12:00 – 13:15

ANALYSIS OF TOTAL ABUNDANCES OF PHYTOPLANKTON IN A RIVER
Vera Pawlowsky-Glahn, Juan J. Egozcue and David Lovell

MODELLING WORLD ENERGY APPLYING SIMPLICIAL LINEAR DIFFERENTIAL EQUATIONS
Eusebi Jarauta-Bragulat, Carme Hervada-Sala and Juan J. Egozcue

ROBUST REGRESSION WITH COMPOSITIONAL RESPONSE: APPLICATION TO GEOSCIENCES
Karel Hron, Peter Filzmoser, Matthias Templ, K. Gerald van den Boogaart and Raimon Tolosana-Delgado

13:15 – 15:00 Lunch Break
SESSION 23: GEO-MATHEMATICAL MODELS OF FOLDS AND FOLDING
Conveners: Juan I. Soto, Josep Poblet and Fernando Bastida

15:00 – 16:15

THE GEOMETRY OF GEOLOGICAL FOLDS (invited)
Richard J. Lisle

2D DISCRETE ELEMENT MODELLING OF CONTRACTIONAL FOLDS IN COVER SEQUENCES WITH COMPLEX MECHANICAL STRATIGRAPHIES
Stuart Hardy

NON-EQUILIBRIUM THERMODYNAMICS OF FOLDING IN GEOMATERIALS
Martin K. Paesold, Tim Dodwell, Ali Karrech, Andrew P. Bassom, Alison Ord and Bruce E. Hobbs

MECHANICS OF FOLD DEVELOPMENT IN PURE AND SIMPLE SHEAR
Maria-Gema Llorens, Paul D. Bons, Albert Griera and Enrique Gómez-Rivas

16:15 – 16:45 Coffee Break

16:45 – 17:15

ANALYTICAL AND NUMERICAL INVESTIGATION OF 3D MULTILAYER DETACHMENT FOLDING
Naiara Fernández and Boris J.P. Kaus

3D GEOMETRY OF AN ACTIVE SHALE-CORED ANTICLINE IN THE WESTERN SOUTH CASPIAN BASIN
Idaira Santos Betancor, Juan I. Soto, Lidia Lonergan, Ismael Sánchez-Borrego and Carlos Macellari
Tuesday, September 3th

Rey Pastor Hall  

Plenary Session

POSTER SESSION II

11:15 - 12:00

**SESSION 3: COMPOSITIONAL DATA ANALYSIS APPLIED TO GEOCHEMISTRY**

COMPOSITIONAL ANALYSIS IN THE STUDY OF MINERALIZATION BASED ON STREAM SEDIMENT DATA  
Renguang Zuo

DO CODA PRINCIPLES IMPROVE INTERPRETATION OF GEOCHEMICAL DATA FOR MINERAL PROSPECTIVITY ANALYSIS?  
Patrice de Caritat, Eric Grunsky and Alan Mann

**SESSION 7: PARAMETERIZATION OF SOIL SYSTEMS AT DIFFERENT SCALES**

INCLUDING THE SELFSIMILARITY OF THE PARTICLE SIZE DISTRIBUTION IN THE DEVELOPMENT OF PDEOTRANSFER FUNCTIONS  
Carlos García-Gutiérrez, Joaquín Cámara and Miguel A. Martín

UPSCALING PDEOTRANSFER RESULTS TO PARAMETERIZE NUMERICAL MODELS OF FLOW AND TRANSPORT IN FIELD SOILS  
Yakov A. Pachepsky, Alexander M. Yakirevich, Andrey K. Guber and Timothy J. Gish

**SESSION 13: DEFORMATION MODELING, GEODYNAMICS AND NATURAL HAZARDS**

EARTH MODELS AT THE LOW ANDARAX RIVER VALLEY (SE SPAIN) BY MEANS OF CROSS-CORRELATION OF AMBIENT NOISE  
Abigail Jiménez, Antonio García-Jerez, Enrique Carmona, Francisco Sánchez-Martos and Francisco Luzón

SPATIOTEMPORAL FILTERING OF CONTINUOUS GPS DATA  
Kristy F. Tiampo, Pablo J. González, Sergey V. Samsonov and José Fernández

SPATIOTEMPORAL ANALYSIS OF GROUND DEFORMATION AT CAMPI FLEGREI CALDERA, ITALY, OBSERVED BY ENVISAT AND RADARSAT-2 INSAR DURING 2003-2013  
Sergey V. Samsonov, Pablo J. González and Kristy F. Tiampo

THE 2012 KILAUEA VOLCANO, HAWAII, SLOW-SLIP EVENT CAPTURED BY CGPS AND SATELLITE RADAR INTERFEROMETRY  
Pablo J. González, Sergey V. Samsonov and Mimmo Palano
GEOLOGICAL STRUCTURES AND LANDSLIDES MODELING
Valentina B.Svalova

ANTHROPOGENIC AND NATURAL GROUND DEFORMATION OBSERVED IN BOLOGNA REGION, ITALY
Sergey V. Samsonov, Pablo J. González and Kristy F. Tiampo

3D IMAGE OF THE 1997-99 ACTIVE DISTRIBUTE MAGMA SOURCE AT LONG VALLEY CALDERA, CA, VIA JOINT INVERSION OF INSAR AND GRAVITY MEASUREMENTS
Pietro Tizzani, Antonio G. Camacho, José Fernández and Francesco Casu

OBSERVATION AND DETECTION OF UNDERGROUND CELLARS IN THE DUERO BASIN BY GNSS, LIDAR AND GROUND PENETRATING RADAR TECHNIQUES
Miguel A. Conejo-Martín, Tomás R. Herrero-Tejedor, Enrique Pérez-Martín, Javier Lapazaran-Izargain, Jaime Otero-García, Juan F. Prieto-Morín and Jesús Velasco Gómez

SESSION 15: QUANTITATIVE HYDROLOGY: WORKING ACROSS SCIENTIFIC DISCIPLINES AND TIME-SPACE SCALES

THE SYSTEM OF CHEMICAL ELEMENTS DISTRIBUTION IN THE HYDROSPHERE
Vyacheslav D. Korzh

MAPPING OF FLOOD-PLAIN BY PROCESSING OF ELEVATION DATA FROM REMOTE SENSING
Viviana Aguilar Muñoz

QUANTITATIVE ESTIMATION OF SUBSURFACE RUNOFF IN THE SOUTHERN AREA OF JAPAN
Tokuo Kishii

INVESTIGATION OF THE RIVERBED CLOGGING WITH MULTIVARIATE DATA ANALYSIS
Balázs Trásy, József Kovács, Tibor Németh, Csaba Szabó and Péter Scharek

SESSION 17: MODELING OF ENERGY RESOURCES

PARAMETERIZATION OF CHANNELIZED TRAINING IMAGES: A NOVEL APPROACH FOR MULTIPLE-POINT SIMULATIONS OF FLUVIAL RESERVOIRS
Mohamed M. Fadlelmula, Serhat Akin and Sebnem Duzgun

GEOSTATISTICAL AVO DIRECT FACIES INVERSION
Leonardo Azevedo, Pedro Correia, Rubén Nunes and Amílcar Soares
SESSION 22: RECENT ADVANCES IN QUANTITATIVE METHODS APPLIED TO STRATIGRAPHY AND PALEONTOLOGY

ICHNONETWORK ANALYSIS OF DECAPOD RADIATION: THE PERMIAN-TRIASSIC SUCCESSION OF NURRA (SARDINIA, ITALY)
Andrea Baucon, Ausonio Ronchi and Fabrizio Felletti

MULTIFRACTALS AND CAPACITY DIMENSION AS MEASURES OF DISTURBANCE PATCH DYNAMICS IN DAEDALUS ICHNOFABRICS
C. Neto de Carvalho and Andrea Baucon

HOLOCENE SEDIMENTARY PROCESSES AND QUANTITATIVE TEXTURAL ANALYSIS OF THE WEST BENGAL SUNDARBANS
Rory Patrick Flood and Julian David Orford

SESSION 23: GEO-MATHEMATICAL MODELS OF FOLDS AND FOLDING

GRAVITY-INSTABILITY PROCESSES AND MASS-TRANSPORT COMPLEXES DURING FOLDING: THE CASE OF A SHALE-CORED ANTICLINE IN THE WESTERN SOUTH CASPIAN BASIN
Idaira Santos Betancor, Lidia Lonergan, Juan I. Soto and C. Macellari

STOCHASTIC MODELLING OF THE 3D GEOMETRY OF A FAULTED AND FOLDED DEEP CARBONATE AQUIFER: LOMA DE ÚBEDA (SOUTHERN SPAIN)
Javier Heredia, Eulogio Pardo-Igúzquiza and Antonio González-Ramón
Wednesday, September 4th

Rey Pastor Room  Plenary Session

9:00 – 10:00 KEYNOTE SPEECH

FROM COMPUTER GRAPHICS TO MULTIPLE-POINT GEOSTATISTICS
Gregoire Mariethoz (School of Civil and Environmental Engineering, Australia)
Wednesday, September 4th

Rey Pastor Room

Parallel Session

SESSION 2: FRONTIER GEOSTATISTICS
Convener: J. Jaime Gómez-Hernández

10:00 – 11:15

GEOSTATISTICS: A COMMON LINK BETWEEN MEDICAL GEOGRAPHY, MATHEMATICAL GEOLOGY, AND MEDICAL GEOLOGY
Pierre Goovaerts

A QUANTITATIVE COMPARISON OF MULTIPLE-POINT ALGORITHMS USING AN ANALYSIS OF DISTANCE METHOD
Xiaojin Tan, Pejman Tahmasebi and Jef Caers

GEOSTATISTICAL HISTORY MATCHING CONDITIONED TO SEISMIC DATA
Amílcar Soares, Leonardo Azevedo, Sara Focaccia and Joao Carneiro

FAST MULTIPLE POINT GEOSTATISTICAL SIMULATION USING A MULTI-SCALE APPROACH
Pejman Tahmasebi and Jef Caers

HANDLING SOFT PROBABILITIES IN MULTIPLE POINT STATISTICS SIMULATION WITH DIRECT SAMPLING TECHNIQUE
Pierre Biver, Gregoire Mariethoz, Julien Straubhaar, Tatiana Chugunova and Philippe Renard

11:15 – 12:00 Coffee Break

12:00 – 13:15

SEMI-VARIOGRAM MODEL INERENCE USING THE MEDIAN BOOTSTRAP STATISTICS
Eulogio Pardo-Igúzquiza, Ricardo A. Olea and Peter A. Dowd

PRAGMATIC BAYESIAN KRIGING FOR NON-STATIONARY AND MODERATELY NON-GAUSSIAN DATA
Konstantin Krivoruchko and Alexander Gribov

ASSESSING UNCERTAINTY FOR CONTAMINATION MAPPING USING SPATIAL BOOTSTRAP
Ana Horta and Amílcar Soares

3D MULTIPLE-POINT STATISTICS FOR FACIES SIMULATION USING 2D AND 1D CONCEPTUAL MODELS
Julien Straubhaar, Philippe Renard and Alessandro Comunian
SIMULATION OF EARTH TEXTURES BY CONDITIONAL IMAGE QUILTING
Kashif Mahmud, Pejman Tehmasebi, Gregoire Mariethoz, Jeff Caers and Andy Baker

13:15 – 15:00 Lunch Break

15:00 – 15:30

GEORGES MATHERON AND THE PROBABILITY APPROACH
Jean Serra

COMBINING VARIOUS APPROACHES IN GEOSTATISTICAL RESERVOIR MODELLING: METHODS AND BENEFITS
Nicolas Jeannée and Matthieu Bourges

SESSION 4: DATA ASSIMILATION IN GEOSCIENCES
Conveners: Laurent Bertino and Hans Wackernagel

15:45 – 16:15

UPDATING OF UNCERTAINTY IN FRACTURED RESERVOIRS DRIVEN BY GEOLOGICAL SCENARIOS
A. Jung, Darryl Fenwick and Jeff Caers

COUPLING THE ENSEMBLE KALMAN FILTER AND DIRECT SEQUENTIAL SIMULATION
Ana Horta, J. Jaime Gómez-Hernández and Amílcar Soares

SEISMIC STOCHASTIC INVERSION AND ENSEMBLE KALMAN FILTERING: A GEOSTATISTICAL PERSPECTIVE
Olivier Dubrulè

16:15 – 16:45 Coffee Break

16:45 – 17:30

PROCESS-LIKE MODELING OF SEDIMENTARY BODIES IN CLASTIC SEDIMENTS: A SMART WAY TO ASSIMILATE MORE CONSTRAINTS IN RESERVOIR MODELS
Gérard J. Massonnat and Francis Morandini

CORRECTED KRIGING UPDATE FORMULAE FOR BATCH-SEQUENTIAL DATA ASSIMILATION
Clément Chevalier, Xavier Emery and David Ginsbourger

JOINT CONDITIONING TO PIEZOMETRIC HEAD AND GROUNDWATER TEMPERATURE DATA WITH AUGMENTED STATE ENSEMBLE KALMAN FILTER
Wolfgang Kurtz, Harrie-Jan Hendricks Franssen and Harry Vereecken
Wednesday, September 4th

Room 1 (Aula S109)  Parallel Session

SESSION 10: RADAR REMOTE SENSING FOR THE DETECTION, MONITORING AND MODELLING OF GROUND INSTABILITIES
Convener: Gerardo Herrera García

10:00 – 11:15

STUDY OF SUBSIDENCES ON AQUIFERS HAVING UNDERGONE EXTRACTION AND RECHARGE CYCLES
Pablo Ezquerro Martín, Juan Carlos Ibáñez Carranza, Gerardo Herrera García, Miguel Marchamalo Sacristán and Rubén Martínez Marín

MULTI-TEMPORAL EVALUATION OF LANDSLIDE-INDUCED MOVEMENTS AND DAMAGE ASSESSMENT IN SAN FRATELLO (ITALY) BY MEANS OF C- AND X-BAND PSI DATA
Silvia Bianchini, Deodato Tapete, Andrea Ciampalini, Federico Di Traglia, Chiara Del Ventisette, Sandro Moretti and Nicola Casagli

NON LINEAR PS TIME SERIES: ANALYSIS AND POST-PROCESSING FOR LANDSLIDES STUDIES
Davide Notti, Claudia Meisna, Francesco Zucca and Alessio Colombo

SUBSIDENCE NUMERICAL MODELING DUE TO GROUND WATER EXTRACTION INTEGRATING ADVANCED DINSAR, IN SITU MONITORING AND GEOTECHNICAL DATA: MURCIA CASE STUDY
Serena Tessitore, Gerardo Herrera, José A. Fernández-Merodo, Roberto S. Tomàs, Juan M. Sánchez, Jordi J. Mallorqui, Joaquín Mulas, Geraint Cooksley, Massimo Ramondini and Domenico Calcaterra

OBSERVATION MINING INDUCED SURFACE DEFORMATION USING C AND L – BANDS SAR – CASE STUDY UPPER SILESIAN COAL BASIN (POLAND)
Marek Graniczny, Zbigniew Kowalski, Anna Piatkowska and Maria Przyłucka

11:15 – 12:00 Coffee Break

12:00 – 13:15

IMPROVING THE CAPABILITY FOR DISSOLUTION-INDUCED SUBSIDENCE DETECTION BY INTEGRATING DINSAR DISPLACEMENT MAPS AND GROUND EXPLORATION TECHNIQUES
Jorge P. Galve, Carmen Castañeda, Francisco Gutiérrez, Domingo Carbonel, Jesús Guerrero, Verónica Rodríguez, Rogelio Linares, Carles Roqué, Mario Zarroca and Mehrnoosh Ghadimi
USING MODERN SENSOR DATA AND ADVANCED NUMERICAL MODELLING FOR SLOW LANDSLIDES MOTION FORECASTING
José A. Fernández Merodo, Juan C. García Davalillo and Gerardo Herrera

INTEGRATION OF EARTH OBSERVATION AND GROUND BASED HR DATA IN THE CIVIL PROTECTION EMERGENCY CYCLE: THE CASE OF THE DORIS PROJECT
Paola Pagliara, Giuseppe Basile, Angelo Corazza, Pierluigi Cara, Andrea Duro, Bruno Manfré, Roberta Onori, Chiara Proietti and Vincenzo Sansone

LANDSLIDE PHYSICAL PROCESSES ANALYSED THROUGH NUMERICAL OPTIMIZATION MODELING OF DINSAR DATA AND INCLINOMETRIC MEASUREMENTS: THE CASE STUDY OF IVANCICH LANDSLIDE (ASSISI, CENTRAL ITALY)
Raffaele Castaldo, Piernicola Lollino, Pietro Tizzani, Francesca Ardizzone, Fabiana Calò, Fausto Guzzetti, Riccardo Lanari, Michele Manunta and Mariarosaria Manzo

ADVANCED INSAR TECHNIQUES TO SUPPORT LANDSLIDE
Fernando Bellotti, Marco Bianchi, Davide Colombo, Alessandro Ferretti and Andrea Tamburini

13:15 – 15:00 Lunch Break

15:00 – 15:15

COMPARATIVE ANALYSES OF MULTI-FREQUENCY PSI GROUND DEFORMATION MEASUREMENTS
Javier Duro, José R. Sabater, David Albiol, Francisco Sánchez and Oscar Mora

SESSION 9: REMOTE SENSING A CHANGING WORLD
Conveners: Peter Atkinson and José Fernandez

15:15 – 16:15

MONITORING OF URBAN-DAMAGING LANDSLIDES WITH SATELLITE RADAR MISSIONS: ARCOS DE LA FRONTERA (SPAIN)
Guadalupe Bru, José Fernández, Pablo J. González and Kristy F. Tiampo

A SPATIOTEMPORAL REMOTE SENSED ASSESSMENT OF PEAT COVERED AREAS USING AIRBORNE RADIOMETRICS
Jennifer McKinley, Antoinette Keaney and Alastair Ruffell

TEMPORAL EVOLUTION OF GROUND DEFORMATION PROCESSES RELEVANT TO THE CENTRAL MEDITERRANEAN REGION VOLCANIC ISLANDS DETECTED VIA THE SBAS-DINSAR TECHNIQUE
Susi Pepe, Francesco Casu, Claudio De Luca, Riccardo Lanari, Mariarosaria Manzo, Antonio Pepe, Eugenio Sansosti, Giuseppe Solaro and Pietro Tizzani
MODELLING NET PRIMARY PRODUCTIVITY AND HYDROLOGICAL QUANTITIES IN GOKSU BASIN, TURKEY USING SPATIAL MODELLING AND REMOTE SENSING TECHNIQUES
Cenk Dönmez, Suha Berberoglu and Ahmet Çilek

16:15 – 16:45 Coffee Break

16:45 – 18:00

MULTIVARIATE VARIOGRAM AND MADOGRAM: TOOLS FOR QUANTIFYING DIVERSITY/DISSIMILARITY IN SPATIOTEMPORAL DATA
Phaedon Kyriakidis, Dimitra Kitsiou and Dimitris Kavroudakis

SPATIAL AND TEMPORAL VARIATION OF MODIS NDVI IN SEMI-ARID MEDITERRANEAN WOODLANDS: INVESTIGATING CLIMATIC THRESHOLDS FOR ANNUAL PLANT PRODUCTIVITY
Alzira Ramos, Pedro Pinho, Cristina Branquinho and Maria João Pereira

A SPACE-TIME MODEL FOR REMOTE SENSING OF VEGETATION PHENOLOGY
Petrutza C. Caragea, Jeganathan Chockalingam, Wendy Meiring and Peter M. Atkinson

SPATIO-TEMPORAL INTERACTIONS FOR DAILY MAPPING OF PM10 WITH MODIS AND METEOROLOGICAL DATA
Piero Campalani, Simone Mantovani and Peter Baumann

DOWNSCALING HYDROCLIMATIC VARIABLES OVER MURRAY-DARLING BASIN USING A GEOSTATISTICAL APPROACH
Gregoire Mariethoz, Sanjeev Kumar Jha, Mathew McCabe and Jason Evan
Wednesday, September 4th

Room 2 (Aula S108) Parallel Session

SESSION 6: SPATIOTEMPORAL ANALYSIS: STRUCTURAL COMPLEXITY AND EXTREME BEHAVIOUR
Convener: José Miguel Angulo

10:00 – 11:15

LOCAL CLUSTERING IN SPATIO-TEMPORAL POINT PATTERNS (invited)
Jorge Mateu

ASSESSING INTERPLOATION ERRORS FOR SPACE-TIME MONITORING DATA (invited)
Raquel Menezes, Luis Margalho and Ines Sousa

SPACE-TIME PREDICTION OF EXTREME EVENTS BY USING MATHEMATICAL LOGIC MODELING OF CAUSE-EFFECT RELATIONS
Susanna Sirotinskaya

SPATIO-TEMPORAL MODELING OF AFTERSHOCKS: CASE STUDY OF IBERO-MAGHREBIAN SEQUENCES
Mohamed Hamdache, Abdelhak Talbi and José A. Pelaez

11:15 – 12:00 Coffee Break

12:00 – 13:15

STATISTICAL COMPLEXITY ANALYSIS OF SPATIOTEMPORAL DYNAMICS (invited)
José M. Angulo and Francisco J. Esquivel

SPATIOTEMPORAL ANALYSIS OF EARTHQUAKE OCCURRENCES USING A MULTiresOLUTION APPROACH (invited)
Orietta Nicolis

THE USE OF REMOTE SENSING DATA IN A COLOMBIAN ANDEAN BASIN FOR RISK ANALYSIS
Olga Lucía Ocampo López and Jorge Julián Vélez Upegui

INFORMATION THEORY AND THE ANALYSIS OF UNCERTAINTIES IN THE CONTEXT OF STRUCTURAL GEOLOGICAL MODELLING
J. Florian Wellmann and Klaus Regenauer-Lieb

13:15 – 15:00 Lunch Break
15:00 – 15:45

MODELING DAILY RAINFALL TIME-SERIES USING MULTIPLE POINT GEOSTATISTICS
Fabio Oriani, Philippe Renard, Julien Straubhaar and Gregoire Mariethoz

NON-PARAMETRIC SEPARABILITY TEST FOR SPATIO-TEMPORAL POINT PROCESS APPLIED TO THE ANALYSIS OF WILDFIRES IN GALICIA
Isabel Fuentes-Santos, Wenceslao Gonzalez-Manteiga, Jorge Mateu and Manuel F. Marey-Pérez.

EARTHQUAKE PRECORSORY SIGNAL ANALYSIS OF ALARM-BASED FORECASTING MODELS
Abdelhak Talbi and Mohamed Hamdache

SESSION 21: MINERAL AND ENERGY RESOURCES FOR PLANET EARTH: EVALUATION, EXTRACTION AND OPTIMAL MANAGEMENT
Convener: Peter Dowd

15:45 – 16:15

IMPROVING MINERAL PROSPECTIVITY MAPS APPLYING SUPPORT VECTOR MACHINE ON RESTORED DATA: THE KUPFERSCHIEFER CASE
Pablo Mejía-Herrera, Jean-Jacques Royer and Jürgen Hartsch

MILLING RESULT PREDICTION
Stephan Matos Camacho, Thomas. Leißner, Petya Atanasova, Andre Kamptner, Martin Rudolph, Urs A. Peuker and K. Gerald van den Boogaart

16:15 – 16:45 Coffee Break

16:45 – 18:00

COMPOSITIONAL BLOCK COKRIGING
Raimon Tolosana-Delgado, Ute Mueller, K. Gerald van den Boogaart and Clint Ward

EFFICIENT PLANNING AND MODELING FOR MODERN DEWATERING CONCEPTS IN UNCONSOLIDATED ROCK UNDER GEOLOGICAL UNCERTAINTY
Jörg Benndorf and Michael Struzina

UNCERTAINTY ASSESSMENT OF THE OREBODIES GEOMETRY BY USING BLOCK INDICATOR SIMULATION
Julia Carvalho, Pedro Correia, Sofia Menezes, Cláudia Peixoto and Amilcar Soares
KRIGING ON AFRICA WITH SPECIAL REFERENCE TO THE CONGO CRATON USING THE GONDWANA DATABASE
Christien Thiart, Alfred Stein and Maarten de Wit

A GEOSTATISTICAL STUDY ON TERTIARY COAL FIELDS IN TURKEY
Firat Atalay, A. Erhan Tercan, Bahtiyar Ünver, Mehmet Ali Hindistan, Güneç Ertunç, Suphi Ünal and Yasin Killioglu
SESSION 18: NEW DEVELOPMENTS IN OIL AND GAS DISCOVERY MODELING
Convener: Gordon M Kaufman

10:00 – 11:15

A FURTHER INVESTIGATION OF LOCAL NONPARAMETRIC ESTIMATION TECHNIQUES IN SHALE GAS RESOURCE ASSESSMENT
Emil D. Attanasi, Timothy C. Coburn and Philip A. Freeman

THE NORTH AMERICAN SHALE RESOURCE – CHARACTERIZATION OF SPATIAL AND TEMPORAL VARIATION IN PRODUCTIVITY
Qudsia Ejaz and Francis O’Sullivan

A PYRAMID SCHEME: INTEGRATING PETROLEUM SYSTEMS ANALYSIS INTO PROBABILISTIC PETROLEUM RESOURCE ASSESSMENTS
Kirk G. Osadetz and Zhuoheng Chen

APPLICATION AND COMPARISON OF DISCOVERY MODEL AND OTHERS IN PETROLEUM RESOURCE ASSESSMENT
Qiulin Guo, Wei Yan and Zhuoheng Chen

APPLICATION OF A LEAST SQUARE NON-PARAMETRIC DISCOVERY PROCESS MODEL TO COLORADO GROUP MIXED CONVENTIONAL AND UNCONVENTIONAL OIL PLAYS, WESTERN CANADA SEDIMENTARY BASIN
Zhuoheng Chen, Kirk G. Osadetz and Gemai Chen

11:15 – 12:00 Coffee Break

12:00 – 13:15

POSSIBILITY AS A COMPLEMENT TO PROBABILITY IN QUANTIFYING GEOLOGICAL SCENARIO UNCERTAINTY: A DEEP-WATER RESERVOIR CASE STUDY
Lewis Li and Jef Caers

USE OF PROSPECT AND DISCOVERY P10/P90 RATIOS FOR CONSTRAINING THE SIZE BY RANK ESTIMATES FROM OIL AND GAS DISCOVERY MODELING: RESULTS FROM THE EVALUATION OF THE NORWEGIAN PETROLEUM DIRECTORATE’S DISCOVERY DATABASE
Richard Sinding - Larsen, Per Blystad and Gunnar Søiland

THE ROLE OF ASSET VALUATION IN EXTRACTIVE INDUSTRIES
David Laughton
HANDLING SEISMIC ANOMALIES IN MULTIPLE SEGMENT PROSPECTS WITH GRAPHICAL MODELS
Gabriele Martinelli, Espen Langlie and Charles Stabell

RELIABILITY ANALYSIS OF LEAST SQUARES ESTIMATION OF A NON-PARAMETRIC DISCOVERY PROCESS MODEL
Mi Shi-yun and Zhang Qian

13:15 – 15:00 Lunch Break

SESSION 16: QUANTITATIVE ENVIRONMENTAL GEOLOGY
Conveners: Juan A. Luque Espinar, Juan Grima Olmedo and Mario Chica Olmo

15:00 – 16:15

GEOLOGICAL AND GEOMORPHIC FACTORS AND QUANTITATIVE ANALYSIS OF RURAL SETTLEMENT PATTERN OF THE NORTH OF RUSSIA
Olga N. Trapeznikova

QUANTITATIVE RISK MANAGEMENT OF GROUNDWATER CONTAMINATION BY NITRATES USING INDICATOR GEOSTATISTICS
Mario Chica-Olmo, Eulogio Pardo-Igúzquiza, Juan A. Luque-Espinar, Víctor Rodríguez-Galiano and Lucía Chica-Rivas

ANALYSIS OF GROUNDWATER MONITORING DATA SETS WITH NON-DETECT OBSERVATIONS. APPLICATION TO THE PLANA DE SAGUNTO (VALENCIA, SPAIN) GROUNDWATER BODY
Juan Grima, Juan A. Luque-Espinar, Juan Ángel Mejía Gómez and Ramiro Rodríguez

RELIABILITY OF PROBABILITY PLOTS FOR THE DETERMINATION OF BACKGROUND VALUES IN GROUNDWATER
Thomas Walter

GEOLOGICALLY CONSTRAINED GROUNDWATER MONITORING NETWORK OPTIMIZATION IN HALLE (GERMANY): A CASE STUDY WITH SALTWATER INTRUSION ALONG A FAULT SYSTEM
Thomas Horschig, Ronny Laehne, Michael Falkenhagen and Wolfgang Gossel

16:15 – 16:45 Coffee Break

16:45 – 17:45

A RADON RISK MAP OF GERMANY BASED ON THE GEOGENIC RADON POTENTIAL
Peter Bossew
A SPATIAL STATISTICAL APPROACH FOR SEDIMENTARY GOLD EXPLORATION – A PORTUGUESE CASE STUDY
Pierre Goovaerts, Teresa Albuquerque and Margarida Antunes

HYDROLOGICAL MODELING OF THE STEPPE WETLAND “LAGUNAS DE PUEBLA DE BELEÑA” (GUADALAJARA; SPAIN) BY VISUAL BALAN
Silvia Martínez Perez, Antonio Sastre Merlin, Paula Navarro Garrido and Eugenio Molina-Navarro
Wednesday, September 4th

Rey Pastor Hall

Plenary Session

POSTER SESSION III

11:15 - 12:00

SESSION 2: FRONTIER GEOSTATISTICS

GEOSTATISTICAL COMPLEX ANALYSIS OF QUANTITATIVE DATA OF PLACER DEPOSITS OF HEAVY MINERALS
Anna Bochneva

THE IMPROVEMENT OF LOCAL SINGULARITY ANALYSIS TECHNOLOGY
Daojun Zhang

GEOMETRIC AND STATISTICAL MODELING OF FRACTURES IN THE 3D DISTURBED ZONE OF A CLAYSTONE AROUND A CYLINDRICAL GALLERY (MEUSE-HAUTE MARNE UNDERGROUND RESEARCH LABORATORY, FRANCE)
Rachid Ababou, Israel Cañamón and Adrien Poutrel

SESSION 4: DATA ASSIMILATION IN GEOSCIENCES

USING ENSEMBLE SMOOTHER TO EVALUATE PARAMETER UNCERTAINTY OF A HYDROLOGICAL MODEL IN YANQI BASIN
Li Ning, Dennis Mclaughlin, Kinzelbach Wolfgang, Li Wenpeng and Dong Xinguang

SESSION 6: SPATIOTEMPORAL ANALYSIS: STRUCTURAL COMPLEXITY AND EXTREME BEHAVIOUR

PATTERN DESCRIPTION WITHIN THE GLOBAL LONG-TERM ESA CII SOIL MOISTURE DATA SET
Angelika Xaver and Wouter A. Dorigo

SESSION 9: REMOTE SENSING A CHANGING WORLD

A METHOD OF MIXED PIXEL DECOMPOSITION FOR HYPERSPECTRAL IMAGERY BASED ON SECOND-ORDER POLYNOMIAL POST NONLINEAR MIXING MODEL
Jindong Xu, Guian Wang, Jianguang Li, Dan Hu, Libao Zhang and Xianchuan Yu

BARE EARTH DEM EXTRACTION FROM AIRBORNE LIDAR DATA FOR TRACING QUATERNARY FAULT EXTENSIONS
Jong Gyu Han and Sung Ja Choi
SESSION 10: RADAR REMOTE SENSING FOR THE DETECTION, MONITORING AND MODELLING OF GROUND INSTABILITIES

GEOSTATISTICAL ANALYSIS OF PSI RADAR DATA: A METHODOLOGY TO ASSESS SERVICEABLE LIMIT STATE OF BUILDINGS
Margarita P. Sanabria, Carolina Guardiola-Albert, Roberto Tomás, Geraint Cooksley and Gerardo Herrera

CHARACTERIZATION OF SLOW LANDSLIDES ACTIVITY THROUGH ANALYSIS OF MULTI-BAND SAR IMAGES AND THEIR RELATIONSHIP WITH THE DAMAGE OBSERVED IN TENA VALLEY (CENTRAL PYRENEES, SPAIN)

CROSS-VALIDATION OF SAR COSMO-SKYMED DATA FOR LANDSLIDE RESEARCH: THE PALERMO PROVINCE (ITALY) CASE STUDY
Serena Tessitore, D. Di Martire, A. Novellino, M. Ramondini, D. Calcaterra

WEB APPLICATION FOR DYNAMIC LANDSLIDE HAZARD MAPS PROGNOSIS IN SLOVENIA
Mitja Požar, Jasna Sinijov, Marko Komac, Mateja Jemec-Auflic and Matija Kričič

ESTABLISHING THE STABILITY STATUS OF LEVEES IN THE NETHERLANDS USING RADAR INTERFEROMETRY
Raluca Lansoschi, Hansje Brinker and Pauline Kruiver

SESSION 16: QUANTITATIVE ENVIRONMENTAL GEOLOGY

OPTIMIZATION MESH OF THE GEOTECHNICAL INVESTIGATION APPLIED TO THE DIAGNOSIS OF THE QUALITY OF THE BASEMENT (ALGERIAN EXPERIENCE)
Gheris Abderrahim

ECOLOGICAL REMEDIATION VOLUME (ERV) IN COASTAL AQUIFERS AFFECTED BY SEAWATER INTRUSION. METHODOLOGY AND APPLICATION IN THE OROPESA–TORREBLANCA PLAIN (MASUB 080.110)
Arianna Renau-Pruñonosa, Ignacio Morell, David Pulido and Jorge Mateu

INTERPOLATION FOR 3D GEOMETRY ANALYSIS OF WETLANDS: RABASA LAKES (ALICANTE, SPAIN)
África de la Hera, Enrique López-Pamo, Esther Santofimia, Raquel Morales, Juan J. Durán and José M. Murillo

USING VARIOGRAM TOOLS ON WOOD X-RAY COMPUTED TOMOGRAPHY IMAGES TO ANALYZE THE TREE RESPONSE TO HIDROGEOMORPHIC PROCESSES
Carolina Guardiola-Albert, Juan A. Ballesteros-CanoVAS, Markus Stoffel and Andrés Díez-Herrero

SMARTPHONES AND APPS: AN NEW INNOVATIVE TOOL IN EARTH SCIENCE
Pedro A. Robledo Ardila, Toni Bibiloni, Jose L Cantón and Esperanza Palmer

EROSION MODELING IN TURKEY USING SPATIAL INFORMATION SYSTEMS
Ahmet Cilek, Suha Berberoglu, Mike Kirkby and Brian Irvine

DATA ARCHIVES: DEVELOPMENT AND APPLICATION IN ENVIRONMENTAL MANAGEMENT
Konstantin V. Alexeev

APPLICATION OF DRASIC METHODOLOGY FOR EVALUATION OF GUARANI AQUIFER VULNERABILITY: STUDY CASE IN RIBEIRAO BONITO, SP, BRAZIL
Rafael Gonçalves Santos, Mara Lúcia Marques, Gabriela Trigo Ferreira and José Ricardo Sturaro

INFORMATIVE TRACE-ELEMENT FEATURES OF CASSITERITE FROM TIN MINERALIZED ZONES AND BRECCIAS IN THE RUSSIAN FAR EAST: APPLICATION OF THE PATTERN RECOGNITION METHOD
Nina Gorelikova, Irina Chizhova and Filipp Balashov

TWO DIFFERENT BEHAVIOR OF THE SANDSTONE FROM MOUNT NEMRUT AFTER THE ACCELERATED WEATHERING TESTS
Amer Topal and Burcu Ertas Deníz

SESSION 21: MINERAL AND ENERGY RESOURCES FOR PLANET EARTH: EVALUATION, EXTRACTION AND OPTIMAL MANAGEMENT

USE OF CAUSE-EFFECT ANALYSIS FOR THE STUDY OF MINERAL RESOURCES IN THE POOR-EXPLORED REGION
Susanna Sirotinskaya

A REVISED ΔLOGR METHOD FOR SHALE PLAY RESOURCE POTENTIAL EVALUATION, - AN EXAMPLE FROM DEVONIAN DUVERNAY FORMATION, WESTERN CANADA SEDIMENTARY BASIN
Zhuoheng Chen, Kirk Osadetz, Yexin Liu, Kezhen Hu and Bing Xuand Quilin Guo

“HORSE-SHOE” CU-AU PORPHYRY OREBODY MODELING BASED ON BLASTHOLE DATA USING UNFOLDING TECHNIQUE
Mohamad Nur Heriawan, Loya Jirga and Anton Perdana

PLACER DEPOSIT: FROM MODELING TO EVALUATION
Nikolay Laverov, Irina Chizhova and Elena Matveeva

APPLICATION OF THREE-DIMENSIONAL MODELING IN JIAMA (GYAMA) COPPER POLYMETALLIC DEPOSIT, TIBET, CHINA
Tang Juxing

FACTOR ANALYSIS FOR METAL GRADE EXPLORATION AT PALLANCATA VEIN IN PERU

Jorge E. Gamarra, Ricardo Castroviejo and Jesús Domínguez
Thursday, September 5th

Rey Pastor Room

Plenary Session

KEYNOTE

9:00 – 10:00 KEYNOTE SPEECH

UNIFIED PRINCIPLES FOR NONLINEAR NON-STATIONARY FIELDS IN GEOSCIENCES
José A. Vargas Guzmán (Aramco, Saudi Arabia)
Thursday, September 5th

Rey Pastor Room

SESSION 25: MATHEMATICS OF PLANET EARTH
Conveners: Willi Freeden and Zuhair Nashed

10:00 – 11:15

MATHEMATICAL MODELLING OF VOLCANIC PLUMES
Robert McKibbin

A MULTISCALE REGULARIZATION TECHNIQUE FOR TENSORIAL SGG DATA
Helga Nutz

MODELING THE STRESS FIELD IN GEOTHERMAL RESERVOIRS
Matthias Augustin

MODELING AND SIMULATION OF FOREST FIRE SPREADING
Sarah Eberle

SIGNAL ANALYSIS BY MEANS OF MULTI-SCALE METHODS
Christian Blick

11:15 – 12:00 Coffee Break

12:00 – 13:15

STATISTICAL MODEL OF THE EARTH’S MANTLE VISCOSITY
Alex N. Chetyrbotskii

THEORETICAL ADVANCES IN THE FIXED-BOUNDARY GRAVIMETRIC BOUNDARY VALUE PROBLEM
Gregorio Díaz, Jesús I. Díaz and Jesús Otero

THE FINITE POINTSET METHOD (FPM) AND AN APPLICATION IN SOIL MECHANICS
Jörg Kuhnert and Isabel Ostermann

MODELLING ICE DYNAMICS AND THE RELATIONSHIP BETWEEN ICE VISCOSITY AND WATER CONTENT USING AN INVERSE METHOD
Jaime Otero, Martin Rueckamp, Angelika Humbert, Francisco J. Navarro and Javier J. Lapazaran

GEOSTATISTICAL ESTIMATION OF THE CRUSTAL THICKNESS INFERRED FROM THE GEOMETRY OF MONOGENETIC VOLCANOES (CENTRAL MEXICO CASE)
Raúl Pérez-López, Carolina Guardiola-Albert and Jose Luis Macías

13:15 – 15:00 Lunch Break
SESSION 11: GEOGRAPHIC INFORMATION SYSTEMS/GEOINFORMATICS

Conveners: Robert Marschallinger and Eric Grunsky

10:00 – 11:15

ESTIMATION OF INFORMATION LOSS WHEN MASKING CONDITIONAL DEPENDENCE AND CATEGORIZING CONTINUOUS DATA: FURTHER EXPERIMENTS ON A DATABASE FOR SPATIAL PREDICTION MODELLING IN NORTHERN ITALY
Andrea G. Fabbri, Simone Poli, Antonio Patera, Angelo Cavallin and Chang-Jo Chung

FLOOD HAZARD ANALYSIS IN THE CANARY ARCHIPELAGO, SPAIN
Miguel Llorente Isidro and Luís Lain Huerta

USING OF VARIATIONAL METHODS IN GEOLOGICAL MAPPING TASKS
Andrey N. Sidorov, Andrey G. Plavnik, Andrey A. Sidorov and Mikhail S. Shutov

A REGIONAL-SCALE GIS OF PRECIOUS METAL DEPOSITS OF THE MAGADAN REGION (NORTHEAST OF RUSSIA)
Irina Golubenko, Sergei Lyamin, Boris Palymsky, Nikolai Goryachev and Ivan Litvinenko

INFORMATION TECHNOLOGIES FOR MODELING AND COMPLEXIFICATION IN GEOSCIENCES
Evgeniya Cheremisina, Vladimir I. Galuev, Svetlana Malinina and Nadegda Pimanova

11:15 – 12:00 Coffee Break

12:00 – 13:00

GEOPROCESSING TOOL REGENERAT – CHARACTERIZATION OF MINERAL RESOURCE QUALITY OF RENEWABLE SEDIMENT DEPOSITS
Heinz Reitner, Sebastian Pfeiderer, Thomas Untersweg, Maria Heinrich, Irena Lipiarska, Piotr Lipiarski, Julia Rabeder and Ingeborg Wimmer-Frey

ANIMATION OF GROUNDWATER FLOW WITH STRING
Isabel Ostermann and Torsten Seidel

3D-GIS ANALYSIS FOR MINERAL RESOURCES EXPLORATION IN LUANCHUAN, CHINA
Gongwen Wang, Yinglong Hao, Yuanxing Cao and Jianan Qu
BUILDING ORE-BODY SOLID MODELS BY 3D ISO-SURFACES
Li Zhang-lin, Wu Chong-long, Zhang Xia-lin; Weng Zheng-pin and Liu Gang

13:00 – 15:00 Lunch Break
SESSION 12: QUANTITATIVE METHODS IN GEOMORPHOLOGY AND LAND SURFACE PROCESSES
Convener: Francisco Gutiérrez

10:00 – 11:15

NUMERICAL KARST: SPATIO-TEMPORAL MODELLING OF KARST SYSTEMS
Eulogio Pardo-Igúzquiza, Juan J. Durán, Carolina Guardiola-Albert, Juan Antonio Luque, Sergio Martos, Pedro Robledo and Juan L. Plata

TWO-DIMENSIONAL HYDRAULIC MODELLING AND ANALYSIS OF MORPHOLOGICAL CHANGES IN THE PALANCIA RIVER (SPAIN) DURING THE FLOOD OF OCTOBER 2000
Beatriz Nácher Rodríguez, Ignacio Andrés-Doménech, Carles Sanchís Ibor, Francisca Segura Beltrán, Francisco J. Vallés Morán and Eduardo Albentosa Hernández

LINE-GEOMETRY-BASED INVERSE DISTANCE WEIGHTED INTERPOLATION (L-IDW): GEOSCIENTIFIC CASE STUDIES
Wolfgang Gossel and Michael Falkenhagen

SIMULATION OF SUCCESSIVE BRAIDED RIVER DIGITAL ELEVATION MODELS WITH MULTIPLE-POINT STATISTICS
Guillaume Pirot, Philippe Renard and Julien Straubhaar

OBJECT-BASED LANDSLIDE CLASSIFICATION IN VHR SATELLITE IMAGERY: APPLICATION TO THE 2010 MADEIRA ISLAND FLASH-FLOODS
Sandra Heleno, Maura Lousada, Maria Pereira and Pedro Pina

11:15 – 12:00 Coffee Break

12:00 – 13:15

QUANTITATIVE METHOD ON HISTORICAL RECONSTRUCTION OF COASTAL GEOMORPHOLOGICAL CHANGE ON WAVE-DOMINATED COAST - A CASE STUDY OF POMERANIAN BAY, SOUTHERN BALTIC SEA
Junjie Deng, Jan Harff and Joanna Dudzinska-Nowak

KARST NETWORK GEOMETRY AND TOPOLOGY: AUTOMATIC CLASSIFICATION OF NETWORK GEOMETRY
Philippe Renard, David Bernasconi, Andrea Borghi, Pauline Collon-Drouaillet and Cécile Vuilleumier
APPLICATION OF STOCHASTIC THEORY FOR NATURAL HAZARD FORECASTING (LANDSLIDE CASE STUDY)
Alexey Victorov

LINFO - A VISUAL BASIC PROGRAM FOR ANALYSIS OF SPATIAL PROPERTIES OF LINEAMENTS
A.C. Dinesh, Vipin Joseph Markose and K. S. Jayappa

SINKHOLE CHARACTERIZATION BY MEANS OF THE TRENCHING TECHNIQUE AND GEOPHYSICAL SURVEYS (GPR, ERT)
Domingo Carbonel, Verónica Rodríguez, Francisco Gutiérrez, James McCalpin, Carles Roqué, Rogelio Linares, Mario Zarroca, Jesús Guerrero, Jorge P. Galve and Mehrnoosh Ghadimi

13:15 – 15:00 Lunch Break
SESSION 24: MATHEMATICAL GEOSCIENCES AND PLANETARY GEOLOGY
Conveners: Vera Pawlowsky-Glahn and Jesús Martínez Frías

10:00 – 11:15

FRISER-IRMIX DATABASE: A WEB-BASED SUPPORT SYSTEM WITH IMPLICATIONS IN PLANETARY MINERALOGICAL STUDIES, GROUND TEMPERATURE MEASUREMENTS AND ASTROBIOLOGY
Jesús Martínez-Frías, María Serrano Rubio, F. Javier Martín-Torres, M. Paz Zorzano, José A. Rodríguez-Manfredi, Javier Gómez-Elvira and REMS team

A MATHEMATICAL ALGORITHM TO SIMULATE THE GROWTH AND TRANSFORMATION OF FRAMBOIDAL PYRITE: CHARACTERIZATION OF THE BIOGENIC INFLUENCE IN THEIR SIZE DISTRIBUTIONS
Raúl Merinero Palomares, Rosario Lunar Hernández, Francisco-Javier González-Sanz, Luis Somoza Losada and Jesús Martínez-Frías

WHAT CAN IAMG OFFER TO THE PLANETARY SCIENCES?
Jesús Martínez-Frías and Vera Pawlowsky-Glahn

COMPUTATIONAL SIMULATIONS OF METEOR IMPACTS AS TOOLS FOR ANALYZING AND EVALUATING MANAGEMENT ISSUES RELATED TO CRISIS SCENARIOS
Jesús Martínez-Frías and Alain Leppinette-Malvite

DOMAINING BI-MODAL DATA SETS GEOSTATISTICALLY USING A DIRECTIONAL NEIGHBORHOOD SEARCH
Steffen Brammer

11:15 – 12:00 Coffee Break

12:00 – 13:15

DETERMINATION OF PLANETARY SURFACE COMPOSITIONS BY EXOSPHERE OBSERVATION AND MODELLING
Helmut Lammer, Peter Wurz, Helberg I.M. Lichtenegger and Josep A. Martín-Fernández

COMPOSITIONAL DATA METHODS TO ANALYZE MARTIAN SURFACE MATERIALS
Josep A. Martín-Fernández, Christoph Kolb and Helmut Lammer
IN-SITU RAMAN ANALYSIS OF THE PRECIPITATION MINERAL SEQUENCE OF SULPHATE MINERALS USING SMALL DROPLETS
Fernando Rull, Francisco Sobrón, Julia Guerrero, Jesús Medina, Gloria Venegas, Fernando Gázquez and Jesús Martínez-Frías

MARTIAN SURFACE TEMPERATURE AND SPECTRAL RESPONSE FROM THE MSL REMS GROUND TEMPERATURE SENSOR
F. Javier Martín-Torres, Jesús Martínez-Frías, M. Paz Zorzano, María Serrano Rubio, Teresa Mendaza, Vicky Hamilton, Eduardo Sebastián, Carlos Armiens, Javier Gómez-Elvira, the REMS team and the MSL Science Team

13:15 – 15:00 Lunch Break
POSTER SESSION IV

SESSION 11: GEOGRAPHIC INFORMATION SYSTEMS/GEOSCIENCE

SHEE PROGRAM, A TOOL FOR DISPLAY, ANALYSIS AND INTERPRETATION OF HYDROLOGICAL PROCESSES IN WATERSHEDS
Jesús Mateo Lázaro, José Ángel Sánchez Navarro, Alejandro García Gil and Vanesa Edo Romero

FLOOD RISK ANALYSIS IN THE CANARY ARCHIPELAGO, SPAIN
Miguel Llorente Isidro and Luis Laín Huerta

APPLICATION OF DECISION TREE MODEL AND GIS FOR THE GROUND SUBSIDENCE HAZARD MAPPING NEAR ABANDONED UNDERGROUND COAL
Saro Lee and Inhye Park

DEVELOPMENT OF NEW MULTI-PLATFORM GEOSCIENCE INFORMATION SYSTEM OF KOREA USING HTML5 AND OPEN SOURCE TOOLS
JongGyu Han and YeonKwang Yeon

GEOLOGICAL MAP CONSTRUCTION AND THREE-DIMENSIONAL TERRITORY MODELING THROUGH THE USE GIS INTEGRO
Mikhail Finkelstein, Alexander Shumikhin and Maxim Churilin

A HEALTH RISK ANALYSIS AND ASSESSMENTS FOR THE ASBESTOS EXPOSURE AREA USING GIS AND SPATIALLY WEIGHTED REGRESSION MODE
Jaehong Hwang

COMPARISON OF METHODS FOR DEPTH TO GROUNDWATER CALCULATION IN HARD ROCK AREAS
Ronny Lähne, Dorothee Altenstein and Wolfgang Gossel

A NEW GIS PROGRAM TO SUPPORT MINE RECLAMATION PLANNING
Boyoung Park, Yosoon Choi, Sung-Min Kim, Jangwon Suh, Sungchan Oh, Hyeong-Dong Park and Wa-Ra Go

SOIL EROSION AND SEDIMENT YIELD MODELING AT THE SAMGWANG MINE IN KOREA USING GIS
Jinyoung Song, Yosoon Choi, Sung-Min Kim, Hyeong-Dong Park and Wa-Ra Go

GEO-MODELLING FOR GEO-MONITORING: TECHNIQUES AND IMPLEMENTATION WITH WEB-GIS
Anna Lyubimova
MATHEMATICAL METHODS OF THE DATA ANALYSIS IN A PROSPECTING DATABASE FOR GEOLOGICAL MAPPING
Oleg Mironov

FUNCTION CONDITIONED QUALITIES OF LAND DIGITAL MODELS, ASSESSMENT CRITERIA
Šárka Hošková-Mayerová and Václav Talhofer

SPATIOTEMPORAL DATA MODEL FOR MULTI-FACTOR GEOLOGICAL PROCESS ANALYSIS WITH CASE STUDY
Gang Liu, Xiang Que, Xiaonan Hu, Shanjun Tian, Jiacheng Zhu and Xin Li

SESSION 12: QUANTITATIVE METHODS IN GEOMORPHOLOGY AND LAND SURFACE PROCESSES

STREAM LENGTH-GRADIENT INDEX MAPPING AS A TOOL FOR LANDSLIDE IDENTIFICATION
Jorge P. Galve, Daniela Piacentini, Francesco Troiani and Marta Della Seta

SURFACE INSIGHTS OF STRUCTURAL RELIEF DISTRIBUTION MODEL WITHIN MADRID BASIN FROM FLUVIAL AND TERRAIN MORPHOMETRIC INDEX
Julio Garrote and Guillermina Garzón

DIGITAL MAPPING OF EPIKARST THICKNESS USING GEOPHYSICS AND TERRAIN ANALYSIS
Sergio Martos-Rosillo, Juan Antonio Luque-Espinar, Eulogio Pardo-Igúzquiza, Carolina Guardiola-Albert, Juan José Durán Valsero, Pedro Agustín Robledo-Ardila, Antonio Pedrera Parias and Carlos Gata Maya

SESSION 24: MATHEMATICAL GEOSCIENCES AND PLANETARY GEOLOGY

OPTIMAL ORBITING OF TERRESTRIAL PLANETS AND OPTIMAL SHAPE OF A SELF-GRAVITATING AND ROTATING CELESTIAL BODY
Anvar R. Kacimov

SPECTRAL SIGNATURE ANALYSIS FOR ANOMALY DETECTION IN THE CENTRAL VOLCANIC RANGE, COSTA RICA. IMPLICATIONS IN PLANETARY GEOLOGY
Juan G. Rejas-Ayuga, Rubén Martínez-Marín, Miguel Marchamalo-Sacristán, Javier Bonatti and Jesús Martínez-Frías

THE GENERAL LAWS OF CHEMICAL ELEMENTS COMPOSITION DYNAMICS IN THE LITHOSPHERE AND HYDROSPHERE
Vyacheslav D. Korzh
SESSION 25: MATHEMATICS OF PLANET EARTH

ESTIMATING AIRFLOW TURBULENCE LENGTH SCALES FROM GAS TRACER DATA
Robert McKibbin and Aimee Harris

MATHEMATICAL MODELLING OF GEOCHEMICAL PROCESSES APPLIED TO CENOZOIC IBERIAN VOLCANICS: A REVIEW
Raúl Benito and Jesús Martínez-Frías

DECORELLATION OF GRAVIMETRIC DATA
Sandra Möhringer

DISTRIBUTION OF TEMPERATURE TO BORDER ASTENOSPHERE - LITHOSPHERE (MATHEMATICAL MODEL)
Alex N. Chetyrbotskii

ANALYSIS ON TEMPERATURE FIELD OF NORTH ANCHOR FOUNDATION PIT OF RUNYANG BRIDGE DURING ARTIFICIAL FREEZING CONSTRUCTION
Youliang Chen and Peng Wang

GEOCHEMICAL SIMULATION ALGORITHM APPLIED TO LAVA FLOW HAZARD IN EL HIERRO ISLAND
José M. Morales, Laura Becerril, Inés Galindo, Luis Laín and Nieves Sánchez

ITERATIVE SPARSE RECOVERY OF THE GRAVITATIONAL FIELD FROM EXTREMELY SCATTERED DATA
Roger Telschow
Thursday, September 5th

Room 1 Rey Pastor  Plenary Session

DISCUSSION BOARD

15:00 – 16:15

GEOMATHEMATICS AND PLANETARY HABITABILITY: FROM EARTH TO MARS

Moderator:
Dr. Frits Agterberg (Secretary General IAMG)

Participants:
Dr. Helmut Lammer (Austrian Academy of Sciences, Austria)
Dr. Jesús Martínez Frías (CSIC, Spain)
Dr. Quiming Chen (York University, Canada)
Dr. Fernando Rull (UVA, Spain)
Dra. Mari Paz Zorzano (INTA, Spain)
Dra. Elena González-Toril (INTA, Spain)
STUDENT CHAPTER’S SESSION

17:00 – 19:00

INTRODUCTION TO SESSION AND OVERAL VIEW OF STUDENT CHAPTERS OF IAMG
Orhun Aydin (Stanford University, USA)

IAMG STANFORD STUDENT CHAPTER
Orhun Aydin (Stanford University, USA)

IAMG FREIBERG STUDENT CHAPTER
Sebastian M. Ernst (Freiberg University, Germany)

IAMG NANCY STUDENT CHAPTER
Pablo Mejía (Nancy School of Geology, France)

IAMG CUG-SCC STUDENT CHAPTER
Video conference

IAMG SCHOLARSHIPS
Katherine Eve (Geophysics & Geochemistry Journals landline)