

Geomodel 2020: 22nd Conference on Oil and Gas Geological Exploration and Development

Gelendzhik, Russia
7 - 11 September 2020

ISBN: 978-1-7138-2363-6

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© (2020) by the European Association of Geoscientists & Engineers (EAGE)
All rights reserved.

Printed with permission by Curran Associates, Inc. (2021)

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

European Association of Geoscientists & Engineers (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: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

THE METHOD OF PATTERNS AS A TOOL FOR IMPROVING THE INTERPOLATION PROPERTIES OF A FAN FILTER WHEN PROCESSING NOISY SEISMIC DATA	1
<i>M.S. Denisov</i>	
DISTRIBUTION OF RESERVES AND RESOURCES OF HYDROCARBONS BY NATURAL SIZE IN THE JUNCTION ZONE BETWEEN WESTERN SIBERIA AND SIBERIAN PLATFORM.....	7
<i>E.A. Sidorchuk, S.A. Dobrynina, A.A. Suslov</i>	
CONCEPTUAL GEOLOGICAL MODEL OF RECONSTRUCTION OF SEDIMENTATION SETTINGS OF THE UPPER PALEOZOIC COMPLEX OF DEPOSITS OF THE NORTHERN USTYURT AND ADJACENT AREAS OF THE TURAN PLATE.....	12
<i>V.V. Maslov</i>	
EVOLUTION OF GEOLOGICAL STRUCTURE OF DOWNTHROWN BLOCK FORMATIONS AND SYSTEM OF ADDITIONAL APPRAISAL «STEP-BY-STEP»: THE CASE OF VOSTOCHNO-MESSOYAKHRSKOYE FIELD	18
<i>D.A. Ragozina, A.A. Spirin, E.A. Sherstoboev, A.S. Osipenko, V.V. Lyapin, K.D. Isakov, N.A. Glushchenko</i>	
INTEGRATED INTERPRETATION OF THE DATA OF REGIONAL GEOPHYSICAL STUDIES IN THE NORTHERN LAPTEV SEA	24
<i>Y.A. Vasilyeva, F.G. Gutorov</i>	
ON THE SOLUTION OF THE GRAVITY DIRECT PROBLEM FOR A PRISM WITH A SIMULATED ANNEALING APPROACH	29
<i>F.N. Abdoldina, A.N. Nazirova, Y.I. Dubovenko, G.K. Umirova</i>	
VARIATION IN THE CHEMICAL COMPOSITION OF GROUNDWATER IN THE APTIAN-ALB-CENOMANIAN DEPOSITS OF THE WEST SIBERIAN MEGABASIN	34
<i>A.R. Kurchikov, A.G. Plavnik, M.V. Itskovitch</i>	
APPLICATION OF DAMPING LAYERS FOR THE IDENTIFICATION OF THE EIGENMODES OF THE ANISOTROPIC WAVEGUIDE.....	39
<i>A.A. Nikitin, T.V. Zharnikov</i>	
THE PORE STRUCTURE AND IT'S EFFECT ON OIL-BEARING SANDSTONES PETROPHYSICAL CHARACTERISTICS IN THE LODOCHNOE DEPOSIT	44
<i>D.A. Cherdantseva, G.G. Kravchenko, L.A. Krasnoshchekova</i>	
A NEW LOOK AT THE OLD DEPOSIT OF THE GREATER CAUCASUS	49
<i>T.A. Yurkina, G.R. Gataulin</i>	
SIMULATION OF SEISMIC RESPONSES FROM OIL SATURATED FORMATIONS	54
<i>A.V. Shevchenko, V.I. Golubev, A.V. Ekimenko, I.B. Petrov</i>	
DEVELOPMENT OF A TECHNIQUE FOR EXTRACTING THREE-DIMENSIONAL FACIES BODIES («GEOBODY») BASED ON SEISMIC DATA AND ROUTINE ANALYSIS FOR GEOLOGICAL AND HYDRODYNAMIC SIMULATION OF THE TERRIGENOUS FORMATION PK1-3 OF THE EAST MESSOYAKHRSKOYE FIELD	59
<i>E.A. Kazantseva, A.S. Meledin</i>	

RESERVOIR FLOW CONNECTIVITY OF THE VARIOUS SEDIMENTOLOGICAL FACIES OF TOMSK AREA OILFIELDS	64
<i>V.L. Popov, A.V. Podnebesnykh, L.A. Krasnoshekova</i>	
PRACTICAL TESTING OF AN ADAPTIVE APPROACH TO PROCESSING AND INTERPRETATION WELL TESTING DATA IN ORDER TO BUILD SEISMIC MODELS.....	69
<i>E.A. Cherepanov, S.K. Turenko</i>	
DYNAMIC MODE DECOMPOSITION FOR VIRTUAL FLOW METERING	74
<i>A. Gryzlov, S. Safonov, M. AlKhalaf, M. Arsalan</i>	
INTEGRATION OF CRITERIA FOR NEURAL NETWORK INVERSION.....	79
<i>I.E. Osbornev, M.I. Shimelevich, E.A. Osbornev, S.A. Dolenko, E.A. Rodionov</i>	
DIELECTRIC SPECTROSCOPY IS A PERSPECTIVE METHOD FOR RESEARCHING THE PETROPHYSICAL CHARACTERISTICS OF ROCKS	84
<i>P.P. Bobrov, N.A. Golikov, A.V. Repin</i>	
CONSIDERATION OF THE IMPACT OF REACTIVATION OF NATURAL FRACTURES ON THE DEVELOPMENT EFFICIENCY	89
<i>V.A. Fadeeva, D.A. Polyakov, V.A. Pavlov, N.A. Povlukov, A.V. Stepanov, I.V. Samsonov, E.O. Tolkacheva</i>	
CLARIFICATION OF THE GEOLOGICAL STRUCTURE OF THE PRODUCTIVE FORMATIONS OF THE POKURSKY FORMATION OF THE VAN-YEGANSKY OIL AND GAS CONDENSATE FIELD.....	94
<i>M.I. Chikina, I.K. Matveeva, I.A. Bukharova, T.N. Smagina</i>	
AN INNOVATIVE APPROACH TO THE GEOLOGICAL MODELING OF HETEROGENEOUSLY SATURATED ACHIMOV DEPOSITS USING SEISMIC INVERSION: THE CASE OF EAST MESSOYAKHSKOYE FIELD BU21-3-1 RESERVOIR.....	99
<i>M.I. Lezhnina, D.A. Ragozina, A.S. Osipenko, K.D. Isakov, M.M. Akhmadiev, N.A. Glushchenko</i>	
APPROACH TO PROBABILITY ESTIMATION OF AVO CORRELATION WITH HC	104
<i>D.N. Myasoedov</i>	
INFLUENCE OF ADDITIONAL FACTORS ON POST-SEDIMENTATION TRANSFORMATION OF ROCKS DURING GENERATION AND ACCUMULATION OF HYDROCARBONS.....	109
<i>V.V. Tsarev, Y.G. Eremin, C.G. Skachek</i>	
THE INFLUENCE OF GEODYNAMIC EVOLUTION ON THE FORMATION OF THE CENOZOIC SEDIMENTARY COVER OF THE NORTH-EASTERN PART OF THE SAKHALIN SHELF	114
<i>A.Y. Makarova</i>	
IMPROVEMENT OF OPERATIONAL METHODS FOR RESEARCH OF OFFSHORE SEARCH AND EVALUATION AND EXPLORATION WELLS (ON THE EXAMPLE OF OFFSHORE FIELDS IN THE CASPIAN SEA).....	119
<i>K.G. Kagan</i>	
ASSESSMENT OF THE DEGREE OF INFLUENCE OF DRILLING FLUID MINERALIZATION ON LITHOLOGICAL AND PETROPHYSICAL CHARACTERISTICS OF ZEOLITE-BEARING ROCKS	124
<i>V.A. Zholudeva, D.L. Bakirov, R.V. Pustoshkin, E.V. Babushkin, S.M. Yulyakshin, M.M. Fattahov, I.R. Rahmatullin, V.G. Vaulin, A.A. Kunasov, V.V. Kolpakov</i>	

CALCULATION OF RESERVES IN THE BAZHENOV FORMATION. PROBLEMS AND SOLUTIONS.....	129
<i>M. Zubkov</i>	
INTEGRATED APPROACH TO THE RECONSTRUCTION OF PALEOTECTONIC STRESSES FOR 3D GEOMECHANICAL MODELING	135
<i>A.V. Bondarenko, A.V. Sidelnik</i>	
COMPLEX DATA ANALYSIS AS A TOOL FOR REMOVING UNCERTAINTIES DURING CONSTRUCTION SEISMOFACIAL MODEL OF THE UPPER PART OF THE PRODUCTIVE HORIZON YU1 LUGINETSKY DEPOSITS.....	141
<i>M.M.M. Amani, A.I. Evdokimova</i>	
FAULTS TRACKING ALGORITHM USING SEISMIC DATA BASED ON ROCK FAULTING SIMULATION	146
<i>I.I. Priezzhev</i>	
HYDROCARBON SYSTEMS OF THE CRIMEAN-CAUCASUS REGION (WESTERN SEGMENT) OF MESOZOIC AGE	151
<i>R.N. Mustaev, V.Y. Kerimov, N.S. Yandarbiev</i>	
HYDROCARBON SYSTEMS AND PREDICTED HYDROCARBON ACCUMULATIONS IN SEDIMENTARY BASINS OF THE BERING SEA	156
<i>V.Y. Kerimov, E.A. Lavrenova, S.A. Guryanov, R.N. Mustaev</i>	
ANGULAR PARAMETERS OF REFLECTING BOUNDARIES – FINDING AND WAYS TO USE THEM IN MODERN SEISMIC EXPLORATION	161
<i>V.I. Bondarev, S.M. Krylatkov, N.A. Krylatkova, A.N. Krilevskaya</i>	
GENETIC TYPIFICATION OF PALEOZOIC OILS IN SOUTH-EASTERN WESTERN SIBERIA BASED ON A COMPLEX OF GEOCHEMICAL STUDIES.....	167
<i>S.V. Fadeeva, I.V. Goncharov, V.V. Samoilenko, N.V. Oblasov, M.A. Veklich, A.E. Litvinova</i>	
GEOLOGICAL STRUCTURE OF THE JOINT ZONE OF THE NORTH-WEST CAUCASUS AND WEST-KUBAN TROUGH DUE TO OIL AND GAS PROSPECTS	172
<i>S.N. Platonov, T.A. Kozlova</i>	
EXAMINING STRAIN DISTRIBUTION USING GEOMECHANICAL RESTORATION TO PREDICT FRACTURED RESERVOIR.....	177
<i>S.V. Korpach</i>	
BASIN IMMERSION FOR THE NORTH-WEST OF TOMSK REGION	182
<i>V.A. Zubkov, I.V. Goncharov, V.V. Samoylenko, N.V. Oblasov</i>	
GEOLOGICAL AND GEOCHEMICAL STUDIES OF THE SOUTHERN REGIONS OF THE WEST SIBERIAN OIL AND GAS PROVINCE.....	187
<i>K.I. Dantsova, S.F. Khafizov</i>	
LINEAMENT ANALYSIS OF THE RESULTS OF GEOLOGICAL INTERPRETATION OF THE TERRITORY OF THE CASPIAN BASIN AND THE RELATIONSHIP OF THE NODES OF THE LINEAMENT INTERSECTION WITH OIL AND GAS	192
<i>K.I. Dantsova, L.V. Miloserdova, A.V. Osipov, A.V. Bondarev, L.I. Minligalieva</i>	
RELIABILITY ANALYSIS OF THREE-DIMENSIONAL GEOLOGICAL MODELS BASED ON THE RESULTS OF DRILLING PRODUCTION WELLS.....	197
<i>A.P. Fadeev, I.S. Sabelnikov</i>	

GHOST WAVE ELIMINATION USING HYDROPHONE NEAR FIELD DATA IN THE MARINE SEISMIC DATA PROCESSING	203
<i>E.V. Valkova, A.S. Kornev, R.R. Nagaev, A.Y. Nikulnikov, S.V. Gorbachev, T.V. Nurmuhomedov, R.V. Vekshin</i>	
FACTORS THAT DETERMINE THE FORMATION AND PRESERVATION OF ACCUMULATIONS OF LIQUID HYDROCARBONS AT DEPTHS OF MORE THAN 5 KM.....	208
<i>S.F. Khafizov, A.V. Osipov, K.I. Dantsova, A.S. Monakova, A.V. Barshin</i>	
THE METHOD OF CORRELATION OF THE PASHISKY HORIZON DEPOSITS IN THE CENTRAL PART OF THE ORENBURG REGION BASED ON THE COMBINED SELECTION OF ELECTROMETRIC FACIES AND LITHOTYPES OF ROCKS	213
<i>M.G. Ayrapetyan, A.A. Farukshin, E.Y. Blinkova</i>	
FAR EAST SEAS OF RUSSIA: GEOLOGICAL RISKS, PROBLEMS OF HYDROCARBON BASE DEVELOPMENT, AND WAYS TO OVERCOME THEM	218
<i>B.V. Senin, M.I. Leonchik</i>	
PRODUCTION PERFORMANCE OF MULTILATERAL WELL EQUIPPED WITH ICDS TO CONTROL WATER CONING IN VISCOUS OIL RESERVOIR: CASE HISTORY	223
<i>D. Sleptsov, I. Ishimov, Y. Golovatskiy, A. Gryaznov</i>	
OPTIMIZATION OF FIELD DEVELOPMENT PLAN BY HORIZONTAL WELLS WITH MULTI-STAGE HYDRAULIC FRACTURING USING THE METHOD OF PLANNING AN EXPERIMENT AND EFFICIENCY MATRIX.....	229
<i>V. Syrtlanov, Y. Golovatskiy</i>	
COMPARISON OF THE EFFICIENCY OF ROBUST SOLVERS FOR AUTOMATED PREDICTION OF GEOLOGICAL AND GEOPHYSICAL PARAMETERS	234
<i>A.Y. Degterev</i>	
THE GEOLOGICAL UNCERTAINTIES EVALUATION FEATURES OF LATE STAGE DEVELOPMENT DEPOSITS IN LOWER CRETACEOUS OIL AND GAS BEARING FORMATIONS OF WESTERN SIBERIA.....	239
<i>A.A. Farukshin, M.G. Ayrapetyan, A.M. Zharkov</i>	
ANALYSIS OF GEOLOGICAL FACTORS THAT INFLUENCED THE FILLING OF HYDROCARBON TRAPS IN THE LICENSE AREAS OF THE UVAT DISTRICT OF THE TYUMEN REGION.....	244
<i>O.V. Elisheva, M.M. Kudryavtseva</i>	
WATER-OIL CONTACT ESTIMATION WITHOUT PENETRATING IT BY FIRST EXPLORATION WELL	250
<i>M.A. Karpov, L.M. Surguchev, A.I. Ermolaev</i>	
COMPARISON OF PHASE SPECTRA OF SIGNALS IN THE 4D METHOD AND VSP	255
<i>A.A. Shevchenko, B.S. Esinov, A.E. Korolev</i>	
APPLICATION OF QFWI AND QPSDM TECHNIQUES FOR IMPROVEMENT OF SEISMIC IMAGE BELOW GAS CLOUD AND FAULTS CLARIFICATION ON SAKHALIN OFFSHORE.....	261
<i>V. Korobkin, E. Novikov, M. Nakatsukasa, M. Petrova</i>	
GEOLOGICAL STRUCTURE AND HYDROCARBON POTENTIAL OF THE SEDIMENTARY BASIN OF THE EAST SIBERIAN SEA SHELF	266
<i>R.A. Mamedov</i>	

PREDICTION OF VOLUMETRIC PETROPHYSICAL MODEL COMPONENTS USING CORE AND LOG DATA BASED ON KOLMOGOROV NEURAL NETWORKS WITH FULL FUNCTIONAL ACTIVATION FUNCTIONS.....	271
<i>I.I. Priezzhev, D.A. Danko</i>	
PS CONVERTED WAVES PROCESSING AND DEPTH MIGRATION WITH DETAILED VP/VS MODEL BUILDING ON OBC MULTICOMPONENT DATA	276
<i>A.V. Kopytov, V.S. Korobkin, K.Y. Kudryavtsev, M.Y. Romanenko</i>	
APPLICATION OF X-RAY COMPUTED MICROTOMOGRAPHY TO ESTIMATE VOID SPACE AND ASSESS THE CONDITIONS OF ITS FORMATION IN A BITUMINOUS SHALE DOMANIK DEPOSITS TIMAN-PECHORA PROVINCE	281
<i>O.M. Prischepa, V.S. Nikiforova, A.Kh. Ibatullin</i>	
MULTI-SCALED LINEAMENT ANALYSIS FOR FRACTURED GEOLOGICAL MEDIUM FRACTAL PROPERTIES DETECTION	286
<i>V.V. Masjukov, O.S. Yurchenko</i>	
THE SHELF OF THE WEST SIBERIAN ARCTIC - THE BASIS OF THE ECONOMY OF THE RUSSIAN FEDERATION IN THE XXI CENTURY	291
<i>A.M. Brekhuntsov, I.I. Nesterov</i>	
SPECIALIZED APPROACHES IN USAGE OF THE DRILLING CUTTINGS TO INCREASE THE INFORMATIVITY OF GEOLOGICAL DATA BASED ON THE RESULTS OF DRILLING WELLS.....	297
<i>P.Y. Kulikov, R.A. Garipov, I.M. Gusev, Y.B. Taldykin, I.V. Panchenko</i>	
APPLICATION OF HYBRID COMBINATION TECHNOLOGY GENETIC ALGORITHM USING WELL-LOG DATA FOR MULTIMINERAL MODELING WITH COMPUTING OF CHANGES IN EACH MINERAL ENDPOINT	302
<i>V. J. Rudenko, I. V. Babakov, I. I. Priezzhev</i>	
FEATURES OF THE EARTH DEGASSING AND GAS HYDRATES DISTRIBUTION IN THE BLACK SEA	307
<i>V.I. Bogoyavlensky, A.S. Yanchevskaya</i>	
DEPTH MIGRATION BASED ON WELL DATA.....	312
<i>R.V. Chernov</i>	
MINOR AND JUNIOR OIL COMPANIES PROBLEMS IN RUSSIA	317
<i>A.M. Astakhov, S.M. Astakhov</i>	
PROSPECTS FOR EXPANDING THE HYDROCARBON BASE ON THE BASIS OF COMPLEX NEW SEISMIC METHODS AND WELL DATA	323
<i>E.V. Anokhina, V.M. Bryksin, G.N. Erokhin, V.K. Chegesov</i>	
JOINT USAGE OF WHOLE CORE IMAGES OBTAINED IN DIFFERENT FREQUENCY RANGES FOR THE TASKS OF AUTOMATIC LITHOTYPE DESCRIPTION AND MODELING OF ROCKS' PETROPHYSICS PROPERTIES.....	328
<i>I.A. Seleznev, V.V. Abashkin, A.A. Chertova, D.O. Makienko, S.B. Istomin, D.V. Romanov, A.F. Samokhvalov</i>	
DETERMINATION OF THE MATERIAL COMPOSITION OF THE BAZHENOV FORMATION BASED ON FREQUENCY DISPERSION ACCORDING TO HIGH-FREQUENCY ELECTROMAGNETIC SOUNDING	333
<i>E.Yu. Temnikova, A.A. Fedoseev, V.N. Glinskikh</i>	

MIGRATION BY PRO (PARAMETER EXPANSION OF REFLECTIONS) METHOD OFFERING AN ALTERNATIVE VIEW FOR INTERPRETATION	338
<i>I.M. Mramorova, G.A. Kidrasova, V.S. Matveichuk</i>	
LANDSLIDE THREATS DURING THE OIL AND GAS RESOURCES DEVELOPMENT IN THE BLACK SEA AND OTHER REGIONS OF THE WORLD OCEAN	343
<i>V. Bogoyavlensky, R. Nikonov</i>	
IMPROVING THE DYNAMIC CHARACTERISTICS OF A SEISMIC IMAGE BY APPLYING MODERN METHODS OF INTERPRETATION SUPPORT AND PROCESSING ON THE EXAMPLE OF A FIELD IN EASTERN SIBERIA	348
<i>S.O. Suslov, N.S. Zhuravko, R.A. Filatov, E.R. Uzbekov, O.S. Berkimbay, A. Mukhatzhanov, A.S. Sorokin, V.A. Fagereva</i>	
STUDY OF VELOCITY MODEL BUILDING APPROACHES FOR NEAR SURFACE AND DEEP HORIZONS. TIMAN PECHORA PROVINCE CASE STUDY	354
<i>R.A. Filatov, N.S. Zhuravko, N.R. Galiev, S.O. Suslov, Y.M. Zakharov</i>	
RESULTS OF MONITORING CHANGES IN THE KARST FAILURE IN THE TULA REGION BASED ON REMOTE SENSING FROM AN UAV	360
<i>I.V. Bogoyavlenskiy</i>	
CASE STUDY OF COMPLEX VELOCITY MODEL BUILDING IN EAST SIBERIA	365
<i>N.S. Zhuravko, R.A. Filatov, D.A. Shulykin, V.I. Svyazhina, A.L. Zherlygin, O.S. Berkimbay, A.S. Sorokin, D.A. Slutskiy</i>	
PASSIVE SEISMIC MONITORING STUDY OF THE EARTH DEGASSING IN THE ARCTIC	371
<i>V. Bogoyavlensky, R. Nikonov, G. Erokhin, V. Bryskin</i>	
DEEP ELECTROMAGNETIC RESERVOIR MAPPING WHILE DRILLING TECHNOLOGY APPLICATION FOR EASTERN SIBERIA HORIZONTAL EXPLORATION WELL	376
<i>K.V. Pushnikov, A.I. Trusov, R.R. Safin, D.S. Leontyev, A.N. Mingazov, N.A. Ryabova</i>	
SHALLOW TRANSIENT ELECTROMAGNETIC METHOD APPLICATION TO STUDY THE YAMAL PENINSULA PERMAFROST ZONE.....	381
<i>N.V. Misurkeeva, I.V. Buddo, A.S. Smirnov, I.A. Shelokhov</i>	
INFORMAL FORECASTING OF TOC ON THE MINERALOGICAL COMPOSITION OF OIL SHALES	387
<i>B.N. Enikeev</i>	
COMPOSITIONAL SQUARE TREES AND THE PRINCIPLE OF CONTINUOUS MIXING	392
<i>B.N. Enikeev</i>	
AUTOMATIC FAULTS IN SEISMIC DATA DETECTION AND 3D-SYNTHESIS BASED ON NEW MATHEMATICAL FOURIER-SPLINE FUNCTIONS APPROXIMATION	398
<i>A.S. Gorshkov</i>	
ADDITIONAL SOURCES OF HYDROCARBON PRODUCTION WITHIN THE VOSTOCHNO-URENGOYSKY LICENSE AREA.....	403
<i>K.A. Belova, N.Yu. Natchuk</i>	
OIL AND GAS ZONING OF THE JURASSIC-CRETACEOUS FORMATIONS BASED ON GEOLOGICAL AND GENETIC RESEARCH.....	408
<i>M.A. Sibilev, A.V. Lobusev, V.A. Bochkarev, M.A. Lobusev, N.V. Dorofeev, N.S. Sibileva, E.V. Kireev</i>	

A TECHNIQUE FOR RECOGNIZING FRACTURED MEDIA BASED ON SEISMIC RECORDS FOR STUDYING FRACTURED RESERVOIRS IN THE TIMAN-PECHERSK OIL AND GAS PROVINCE 413

I.I. Semerikova, S.V. Ladeyshikov

Author Index