

23rd International Multidisciplinary Scientific GeoConference (SGEM 2023)

Water Resources. Forest, Marine and
Ocean Ecosystems

SGEM International Multidisciplinary Scientific GeoConference
Volume 22, Issue 3.1

Albena, Bulgaria
3 - 9 July 2023

Editors:

**Oleksandr Trofymchuk
Baiba Rivza**

ISBN: 978-1-7138-7941-1

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© (2023) by SGEM WORLD SCIENCE (SWS) Scholarly Society
All rights reserved.

Printed with permission by Curran Associates, Inc. (2023)

For permission requests, please contact SGEM WORLD SCIENCE (SWS) Scholarly Society
at the address below.

SGEM WORLD SCIENCE (SWS) Scholarly Society
10/11 Gerlgasse
Vienna 1030, Austria

Phone: +359 2 405 18 41

Fax: +359 2 405 18 65

sgem@sgem.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

CONFERENCE PROCEEDINGS CONTENTS

HYDROLOGY AND WATER RESOURCES

- 1. ANALYSIS AND ASSESMENT OF THE WATER SUPPLY SYSTEM OF THE TOWN OF BREGOVO, Dr. Maria Temelkova.....3**
- 2. ANALYSIS OF MICROPOLLUTANTS IN URBAN WATER RUN-OFF, Ing. Lenka Hrudková, PhD, Ing. Réka Wittmanová, PhD, prof. RNDr. Ivona Škultétyová, PhD, prof. Ing. Štefan Stanko, PhD, Ing. Jaroslav Hrudka, PhD11**
- 3. ANALYSIS OF THE FLOOD RISK IN THE PATLAGEANCA AREA NEAR CEATAL ISMAIL FROM THE DANUBE DELTA, Dr. Banescu A., Simionov M., Ress. Assist. Livanov O., Pindic P., Dr. Tudor M.....19**
- 4. ANALYSIS OF THE TRENDS, HYDROLOGICAL REGIME OF THE COMPLEX DAMS INFLOW AND THE WATER SUPPLY VULNERABILITY ALONG THE BLACK SEA, Assoc. Prof. Dr. Anna Yordanova, Assoc. Prof. Dr. Irena Ilcheva, Chief Assistant Dr. Krasimira Ljubenova, Chief Assistant Dr. Vesela Rainova, Chief Assistant Dr. Gergana Drumeva27**
- 5. APPLICATION OF ADVANCED TECHNOLOGIES IN SNOW HYDROLOGY RESEARCH TO SUPPORT WATER RESOURCES MANAGEMENT AND AGRICULTURE, Assoc. Prof. Dr. Olga Nitcheva, Assoc. Prof. Dr. Polyana Dobрева, Dr. Eng. Albena Vatrалova, Research Assist. Eng. Donka Shopova, Assoc. Prof. DSci Vesselin Koutev35**
- 6. ASSESSMENT OF PEAK FLOW VARIATION DUE TO LANDUSE CHANGE: VIT RIVER CASE STUDY, Dr. Silviya Stoyanova, Dr. Valeriya Yordanova, Dr. Vesela Stoyanova45**
- 7. COMPARISON OF NATIONAL, EUROPEAN AND BLACK SEA REGION FLASH FLOOD FORECASTING PRODUCTS FOR THE TERRITORY OF BULGARIA, Dr. Vesela Stoyanova, Dr. Georgy Koshinchanov, Dr. Silviya Stoyanova.....53**
- 8. GROWTH OF THE NORTH AMERICAN STURGEON (POLYODON SPATHULA) DURING THE POST-EMBRYONIC DEVELOPMENT PERIOD IN PROTECTED AREAS, Dr. Mioara Costache, Dr. Daniela Radu, Eng. Nino Marica, Dr. Mihail Costache, Eng. Mariana Cristina Arcade61**

9. IDENTIFICATION OF TYPE-SPECIFIC REFERENCE HYDROMORPHOLOGICAL CONDITIONS OF BULGARIAN COASTAL WATERS IN SUPPORT TO MARINE ENVIRONMENTAL MANAGEMENT, Assoc. Prof. Dr. Nikolay Valchev, Dr. Bogdan Prodanov, Prof. Dr. Lyubomir Dimitrov, Dr. Nataliya Andreeva, Todor Lambev, Petya Eftimova	71
10. IMPACT ASSESSMENT OF THE NEW FISHING PORT ON THE HYDRO AND MORPHODYNAMIC REGIME IN CHERNOMORETS BAY, Petya Eftimova, Assoc. Prof. Dr. Nikolay Valchev, Dr. Nataliya Andreeva, Dr. Bogdan Prodanov, Prof. Dr. Lyubomir Dimitrov	79
11. MAXIMUM FLOWS OF RIVERS IN THE CENTRAL DANUBE PLAIN, Prof. Dr. Plamen Ninov, Assoc. Prof. Dr. Elena Bojilova	91
12. MODELING OF RANGELAND ECOSYSTEMS IN NORTHERN JORDAN, Professor Mohammad N. Alhamad, Shefaa M. Abdullah.....	99
13. NEURAL NETWORK-BASED MODELS FOR STRUMA RIVER FLOW FORECASTING, Assoc. Prof. Dr. Snezhanka Balabanova, Dr. Vesela Stoyanova, Dr. Valeriya Yordanova.....	107
14. ON SEA WAVES' PROPERTIES MEASURED IN BURGAS BAY TRANSITIONAL WATERS, BLACK SEA, Dr. Nataliya Andreeva, Assoc. Prof. Dr. Nikolay Valchev, Petya Eftimova	115
15. RAINWATER RETENTION AND USE AS AN IMPORTANT ELEMENT OF SUSTAINABLE WATER MANAGEMENT IN URBAN AREAS, Assoc. Prof. Dr. Iwona Klosok-Bazan, Dr. Joanna Boguniewicz-Zablocka, Mgr Roksana Nowak, Dr. Miroslava Gono	125
16. SEASONAL VARIATION OF THE PHYSICAL-CHEMICAL PARAMETERS ALONG DIVERSE SHALLOW LAKES FROM THE LOPATNA-MATITA-MERHEI INTERDISTRIBUTARY DEPRESSION, DANUBE DELTA, ROMANIA, Dr. Irina Catianis, Dr. Adriana Maria Constantinescu, Eng. Dumitru Grosu, Dr. Ana Bianca Pavel, Geol. Ion Stanescu	133
17. SMALL DOMESTIC WASTEWATER TREATMENT PLANTS IN RURAL AREAS IN THE CONDITIONS OF THE SLOVAK REPUBLIC, Dr. Réka Wittmanová, Dr. Jaroslav Hrudka, Andrea Raczková, prof. Štefan Stanko, prof. Ivona Škultétyová	141
18. SPATIAL AND MULTIANNUAL ALTERATION OF WAVE EXPOSURE ALONG THE BULGARIAN COAST AS INFERRED BY NUMERICAL MODELLING OF WAVE ENERGY TRANSPORT, Assoc. Prof. Dr. Nikolay Valchev, Dr. Nataliya Andreeva, Dr. Bogdan Prodanov, Dr. Nadezhda Valcheva, Petya Eftimova	149

19. SPECIFICS IN DETERMINATION AND PROVISION OF ECOLOGICAL FLOW IN THE RIVERBEDS AFTER COMPLEX AND SIGNIFICANT DAMS IN BULGARIA , Assoc. Prof. Dr. Irena Ilcheva, Assoc. Prof. Dr. Anna Yordanova, Prof. Dr. Plamen Ninov, Chief Assistant Dr. Krassimira Ljubenova, Eng. Kamelia Krumova	159
20. STATISTICAL ANALYSIS OF YANTRA RIVER FLOW , Assoc. Prof. Dr. Elena Bojilova	167
21. THE EFFECT OF THE SLATINA ALUMINUM FACTORY OPERATION ON THE WATER TABLE IN THE VICINITY OF THE OLT RIVER , Prof. Dr. Victorita Radulescu	175
22. THE PROBLEM OF SAFETY DRINKING WATER SUPPLY IN TBILISI , Dr. Nodar Tsivtsivadze, Assist. Prof. Dr. Giorgi Bregvadze, Assoc. Prof. Dr. Vazha Trapaidze, Assoc. Prof. Dr. Lamzira Lagidze, Nunu Tsintsadze	183
23. USE OF COPERNICUS METEOROLOGICAL DATA FOR THE PURPOSES OF HYDROLOGICAL MODELING , Dr. Georgy Koshinchanov, Dr. Silviya Stoyanova	191

SOILS

24. DYNAMICS OF GRASSLANDS SOIL PRODUCTIVITY UNDER THE ALTITUDINAL INFLUENCE. CASE STUDY OF THE SUREANU MOUNTAINS AREA IN ROMANIA , Prof. Dr. Ionel Samfira, Assoc. Prof. Dr. Nicolae Marinel Horablaga, Assoc. Prof. Dr. Costel Barliba, Christiana Istrate-Schiller, Prof. Dr. Gheorgeh David.....	201
25. EFFECT OF HERBICIDE APPLICATION ON THE PRODUCTION OF SHOOT AND ROOT BIOMASS AND ON THE EFFECTIVENESS OF BIOLOGICAL NITROGEN FIXATION IN WHITE SWEET CLOVER (MELILOTUS ALBUS MEDIK.) , Ing. Antonín Kintl, Ing. Igor Huňady, Ing. Julie Sobotková, Ing. Zuzana Kubíková, Ph.D., Ing. Jakub Elbl, Ph.D.....	209
26. EFFECT OF VARIABLE RATE APPLICATION OF FERTILIZERS ON THE NITROGEN USE EFFICIENCY , Assoc. Prof. Dr. Vojtěch Lukas, Dr. Renata Placatová, Dr. Vítězslav Krček, Dip. Ing. Beáta Šusliková, Dr. Jakub Elbl	217
27. EFFECT OF INTER-ROW DISTANCE ON SOME QUANTITATIVE AND QUALITATIVE INDICATORS OF WHITE MUSTARD (SINAPIS ALBA L.) SEEDS , Ing. Antonín Kintl, Ing. Igor Huňady, Doc. Ing. Vojtěch Lukas, Ing. Martin Brtnický, Ing. Jakub Elbl, Ph.D.....	225

28. ELEMENTS OF CORRECT FERTILIZATION OF THE MEADOWS IN THE HIGH PLAIN AREA OF BANAT ROMANIA, Prof. Dr. Ionel Samfira, Assoc. Prof. Dr. Nicolae Marinel Horablaga, Prof. Dr. Gheorghe David, Assoc. Prof. Dr. Costel Barliba, Alina Laura Agapie.....	231
29. ESTABLISHING MELIORATIVE MEASURES OF SOILS WITHIN THE I.F. RAICSICS MIHAILO DRĂGAN FARM, SÂNICOLAU MARE, TIMIȘ COUNTY, ROMANIA, Assoc. Prof. Duma Copcea, Anișoara Claudia; Assoc. Prof. Dr. Mihut, Casiana Doina; Assoc. Prof. Dr. Cozma, Antoanela Lena; Assoc. Prof. Dr. Mazare, Veaceslav; Assoc. Prof. Dr. Mircov, Vlad	239
30. LIGNIN AND LIGNOCELLULOSE-BASED ORGANOMINERAL COMPLEX FOR ORGANIC AGRICULTURE, Ress. Assist. Anna Andersone, Dr.sc.ing. Sarmite Janceva, MSc. Natalija Zaharova, Ress. Assist. Agrita Svarta, Dr. habil. chem. Galina Telysheva	247
31. LIMITING FACTORS AND MEASURES TO RESTORE SOIL FERTILITY IN THE TOWN OF BILED, TIMIȘ COUNTY, Assoc. Prof. Dr. Casiana Mihuț, Assoc. Prof. Dr. Anișoara Duma Copcea, Assoc. Prof. Dr. Antoanela Cozma, Assoc. Prof. Dr. Vlad Dragoslav Mircov, Assoc. Prof. Dr. Daniela Scedei	257
32. PHYSICAL-CHEMICAL CHARACTERIZATION OF THE SOILS IN THE AREA OF DOMASNEA MUNICIPALITY CARAS SEVERIN COUNTY, Assoc. prof. Adalbert Okros, Assoc. prof. Casiana Doina Mihut, Assoc prof. Andrea Alina Dragoescu, Assoc. prof. Codruta Chis, Assoc. prof. Simona Nița.....	263
33. STRATEGIES FOR MONITORING PLANT WATER STRESS, Prof. Dr. Viliam Bárek, Assoc. Prof. Dr. Ján Horák, Prof. Dr. Dušan Igaz, Ing. Oliver Obročník, Ing. Dr. Vladimír Kišš	273
34. STUDIES ON THE IDENTIFICATION OF THE MAIN SOIL PROPERTIES IN SAG, TIMIS COUNTY, ROMANIA, Assoc. Prof. Duma Copcea, Anișoara Claudia; Assoc. Prof. Dr. Mihut, Casiana Doina; Assoc. Prof. Sirbu, Corina Constanta; Assoc. Prof. Dr. Okros, Adalbert; PhD. Mazăre, Romina.....	281
35. THE EFFECTS OF SOIL TILLAGE AND CROP ROTATION ON GHG EMISSIONS FROM CLAY SOIL: CASE STUDY FROM LATVIA, Ph.D. Kristine Valujeva, PhD Candidate Jovita Pilecka-Ulcugaceva, Mg.sc.env. Inga Grinfelde.....	287
36. THE IMPORTANCE OF CROPS AND CROP RESIDUES IN PREVENTING THE SOIL LOSS BY WATER EROSION OUT OF THE VEGETATION SEASON, Assoc. Prof. Dr. Elena Aydın, MSc. Viktor Dózsa	295
37. THE SOILS OF THE REMETEA MARE LOCALITY FOR A SUSTAINABLE USE, Assoc. Prof. Dr. Casiana Mihuț, Assoc. Prof. Dr. Anișoara Duma Copcea, Assoc. Prof. Dr. Veaceslav Mazăre, Assoc. Prof. Dr. Adalbert Okros, PhD. Romina Mazăre	303

FOREST ECOSYSTEMS

- 38. BROAD-LEAF FOREST HABITAT SUITABILITY FOR WOODPECKERS AND EVALUATION OF ECOSYSTEM SERVICES, LATVIA**, Bc. silv. Karina Beinarovica, Prof. Dr. Inga Straupe313
- 39. CAN TIMBER IMPORT IN LATVIA FROM RUSSIA AND BELARUS BE REDUCED?**, Ph.D. Aija Pilvere, Prof. Irina Pilvere, Dr. Aleksejs Nipers.....321
- 40. STOCKS OF CHEMICAL ELEMENTS IN LITTERFALL IN BEECH (FAGUS SYLVATICA L.) FORESTS IN WESTERN STARA PLANINA**, Assoc. Prof. Dr. Violeta Dimitrova, Assoc. Prof. Dr. Sonya Damyanova, Assist. Prof. Dr. Dimitar Dimitrov329
- 41. THE IMPORTANCE OF POPLAR SPECIES IN THE ECOLOGICAL PROCESS OF STRONGLY POLLUTED INDUSTRIAL WATERS**, Assoc. Prof. PhD. Maria Mihaela Moatar, Prof. PhD. Dorin Dumitru Camen, Lecturer PhD. Petru Ioan Dragomir, Lecturer PhD. Carolina Ștefan, Eng. Petre Alexandru Panici335
- 42. TIMBER EXPORT TRENDS AND POTENTIAL IN LATVIA**, Ph.D. Aija Pilvere, Prof. Irina Pilvere343
- 43. TOTAL PHENOLIC CONTENT, FLAVONOID CONTENT AND ANTIOXIDANT POTENTIAL OF BILBERRY (*Vaccinium myrtillus* L.) FROM U.P. V HIGIGEL**, Lecturer. Dr. Petru Ioan Dragomir, eng. Beatrice Otilia Saiti, Prof. dr. Camelia Tulcan, Assoc.prof. dr. Maria Mihaela Moatar, Prof.dr. Dorin Dumitru Camen.....351

MARINE AND OCEAN ECOSYSTEMS

- 44. 3-DIMENSIONAL ORBITING GIMBAL WITH A HEAD TRACKING SYSTEM FOR REMOTELY OPERATED SUBMARINES PERFORMING PRECISE UNDERWATER OPERATIONS**, Jakub Karbowski, Hanna Kuczevska.....361
- 45. EVALUATION THE MINERAL CONTENT OF NORI SEAWEED, AVAILABLE ON THE ROMANIAN MARKET**, Lecturer Dr. Eng. Liana Maria Alda, Assoc. Prof. Dr. Eng. Despina-Maria Bordean, Prof. Dr. Eng. Simion Alda, Lecturer Dr. Eng. Diana Moigradean, Prof. Dr. Eng. Marcel Danci.....369
- 46. LOSS OF NATURAL SEABED AND BENTHIC HABITATS ALONG THE BULGARIAN BLACK SEA COAST AS A CONSEQUENCE OF INFRASTRUCTURE DEVELOPMENT**, Dr. Bogdan Prodanov, Prof. Dr. Valentina Todorova, Prof. Dr. Lyubomir Dimitrov, Dr. Radoslava Bekova.....375