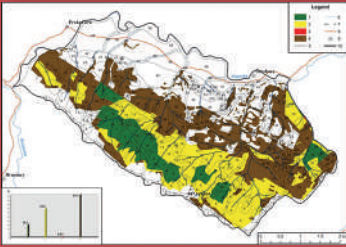


ISSN 2617 – 2909 (print)
ISSN 2617 – 2119 (online)

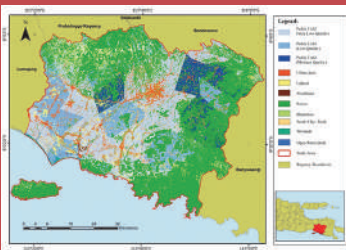
Geology, Geography and *Journal of* Geoecology

<http://geology-dnu.dp.ua>

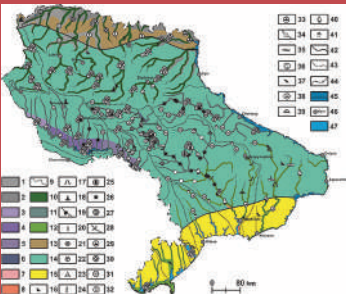
2022 /31(3)



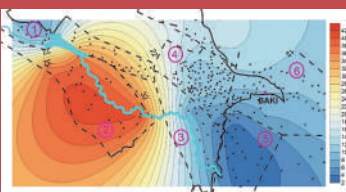
Zoning of
Hutsulshchyna
National Nature Park



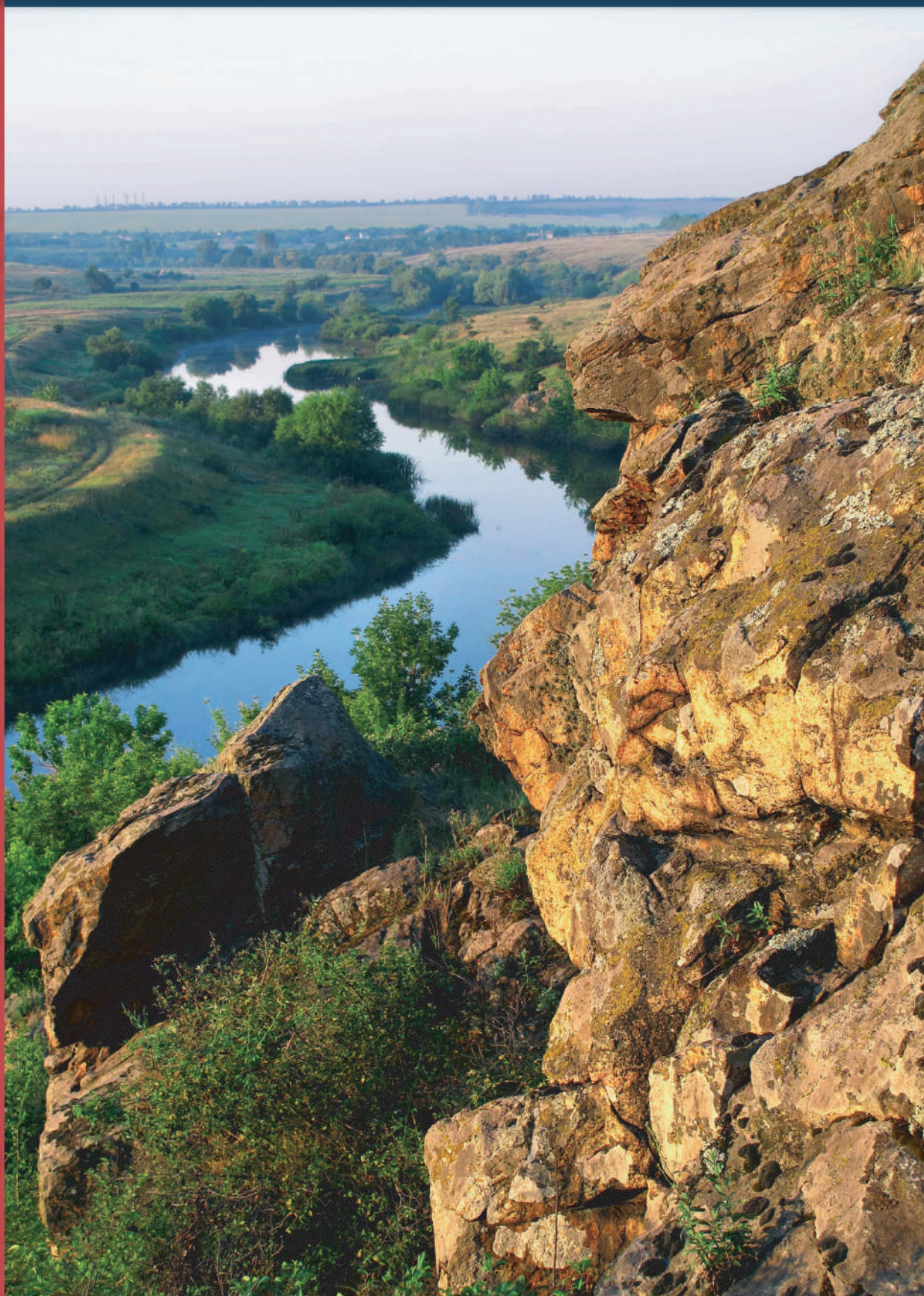
Soil quality
index map



Landscape technical
systems



Petroleum Geology



Geology, Geography and Journal of Geoecology

<http://geology-dnu.dp.ua>

2022 / 31(3)

The main aim of the Journal of Geology, Geography and Geoecology is to publish high quality research works and provide Open Access to the articles using this platform. Collection of scientific works publishes refereed original research articles and reviews on various aspects in the field of geological, geographical and geoecological sciences. Journal materials designed for teachers, researchers and students specializing in the relevant or related fields of science. Journal included in the list of professional publications, you can publish the main results of dissertations for the degree of doctor and candidate of geological sciences. The scope of distribution: international scientific journal. All published articles will be assigned DOI provided by Cross Ref.

EDITORIAL BOARD

Editor-in-Chief:

Associate professor, Ph.D., **Manyuk Volodymyr**, Assoc. Prof. of Department of Earth Sciences, Oles Honchar Dnipro National University, Dnipro, Ukraine;
E-mail: vgeoman@gmail.com;
tel.: +067 947 45 04; +095 824 61 77.

Deputy Editors:

Professor, Dr. hab., **Andrzej Tomasz Solecki**, Scientific Head of the team of WS Atkins-Polska Sp. z o.o. experts preparing the report on uranium metallogeny, Institute of Geological Sciences University of Wrocław, Wrocław University, market and prospects in Poland for the Polish Ministry of the Environment, Poland; E-mail: andrzej.solecki@ing.uni.wroc.pl; tel. +48 600 96 63 61.

Professor **Şaşmaz Ahmet**, Dr. Sc. in environmental geochemistry and mining deposits, Head of Geology Department, Firat University, Elazığ, Turkey;
E-mail: sasmaz@gmail.com; tel. +90 424-2370000.

Executive Editor:

Professor, Dr. Sc., **Sherstyuk Natalya Petrivna**, Oles Honchar Dnipro National University, Head of Department of Earth Sciences, Faculty of Chemistry, Dnipro, Ukraine;
E-mail: sherstuknp@gmail.com; tel.+38-096-124-15-35.

Members of the editorial board:

Professor (mult.), Dr. hab., **Harald G. Dill**, Dr.h.c in economic geology (additional focal disciplines: applied sedimentology/ geomorphology, technical mineralogy), Gottfried-Wilhelm-Leibniz University, Mineralogical Department, Hannover, Germany. E-mail: h.geo.dill@gmx.de; tel. +49-(0) 511 643 2361.

Professor in Biostratigraphy-Micropaleontology, D.Sc., **Karoui – Yaakoub Narjess**, Carthage University, Faculty of Science of Bizerte (Department of Earth Science), Jarzoura, Bizerte, Tunisia E-mail: narjess.elkarouiyaakoub@fsb.rnu.tn.

Research Fellow **William A.P. Wimbledon**, Dept. of Earth Sciences, University of Bristol; Member Geological Society of London's Conservation Committee, Member of Berris-Asian (Jurassic-Cretaceous) Working Group (International Subcommission on Cretaceous Stratigraphy); E-mail: williamwimbledon@gmail.com

Professor in Geology, Dr.Sc., **José Bernardo Rodrigues Brilha**, University of Minho, Department of Earth Science, Braga, Portugal, E-mail: jose.brilha@gmail.com; tel. +351- 25-3604306.

Ph.D., MSc., **Afsoon Moatari-Kazerouni**, Geology Lecturer Geology Department – Rhodes University Grahamstown, Eastern Cape, South Africa, E-mail: afsoon.moatari@gmail.com; tel: +27 (0)46-603-8618

Professor in Geology, Dr.Sc., **Abderrazak El Albani**, Université de Poitiers, Laboratory IC2MP, Poitiers, France, E-mail: abder.albani@univ-poitiers.fr; tel. +33 (0)5.49.45 39 26

Associate Professor, **Ilya V. Buynovich**, Temple University, College of Science and Technology Department of Earth and Environmental Science, Philadelphia, USA, E-mail: coast@temple.edu, tel: 215-204-3635

Dr. Sc., **Sukach Vitaliy**, Head of Department of Geology and Geochemistry of Ore Deposits, M.P. Semenenko Institute of Geochemistry, Mineralogy and Ore Formation, National Academy of Sciences of Ukraine (IGMOF of NAS of Ukraine), Kyiv, Ukraine, E-mail: svital@ukr.net, tel.: +38 050 453 87 18

Professor of Soil Science and Farming Department, Doctor of Agricultural Sciences degree (Dr. habil.), **Kharitonov Mykola Mykolaiovych**, Dnipro State Agrarian and Economic University, Ukraine, Dnipro, Ukraine; E-mail: kharytonov.m.m@dsau.dp.ua; tel.+38-096-124-15-35

Prof., Dr. Sc., **Mokritskaya Tatiana**, Oles Honchar Dnipro National University, Ukraine; Faculty of Chemistry, E-mail: mokritska@i.ua; tel.: 098 257 70 19.

Prof., Dr. Sc., **Reynard Emmanuel**, Prof. of physical geography at the University of Lausanne, Faculty of geosciences, Switzerland; E-mail: emmanuel.reynard@unil.ch;

Associate Prof., Dr.Sc., **Afroz Ahmad Shan**, Assoc. Prof. of Structural Geology with the Faculty of Science, Department of Petroleum Geology University of Brunei Darussalam, Brunei; E-mail: afroz.shah@gmail.com;

Prof., Dr. Sc., **Gerasimenko Natalia**, Department of Earth Sciences and Geomorphology Taras Shevchenko National University of Kyiv, Kyiv, Ukraine; E-mail: n.garnet2@gmail.com

Ajin R.S., M. Sc. Hazard analyst, Idukki District Emergency Operations Centre (Idukki-DEOC), Idukki District Disaster Management Authority (Idukki DDMA), Department of Disaster Management, Government of Kerala, Painavu, Idukki, Kerala (State), INDIA, tel. +91-9061762170, E-mail: ajinares@gmail.com, ajinares@hotmail.com

Associate professor, PhD **Anatolii Melnychuk**, Assoc. Prof. of Department of Economic and Social Geography Taras Shevchenko Kyiv National University, Kyiv, Ukraine; E-mail: melan97@ukr.net

Prof., Dr. Sc., **Baranov Volodymyr**, Head of Lab. Invest. Structural changes in rock, Senior Researcher Institute of Geotechnical Mechanics of NAS of Ukraine, Department of Geology and exploration of mineral deposits SHEI "National Mining University," Ukraine; E-mail: baranov-va@rambler.ru; tel.: +38 097 506 43 73.

Prof., Dr. Sc. **Berezovsky Anatolii**, Dean of Mining - Processing Faculty, Kriviy Rig Technical University, Ukraine; E-mail: berez@mail.ru. tel.: +38 098236 84 27.

Associate professor, Ph.D., **Maniuk Vadym**, Assoc. Prof. of Department of Geography Oles Honchar Dnipro National University, Dnipro, Ukraine; E-mail: zapovidna.sich@gmail.com; tel.: +38 098 290 80 69; +38 066 270 14 48.

Professor, Dr. Sc., **Kroik Anna Arkadyevna**, Oles Honchar Dnipro National University, Dnipro, Ukraine; E-mail: no-name2001@yandex.ru; tel.: +38 095 149 65 50.

Professor, Dr. Sc., **Prikhodchenko Vasiliy Fedorovich**, Dean of the Faculty of exploration, Head. Department of Geology and mineral exploration National TU Dnipro Polytechnic; Dnipro, Ukraine; E-mail: pvfpvf@meta.ua; tel.: +38 056 24 7 33 52.

Professor, Dr. Sc., **Lurie Anatolii**, V.N. Karazin Kharkiv National University, Ukraine; E-mail: hydrogeology@karazin.ua; tel.: +38 067 579 89 41.

Prof., Dr. Sc., **Zelenska Lyubov Ivanivna**, Oles Honchar Dnipro National University, Head of Department of geography, Dnipro, Ukraine; E-mail: lyubov.zelenska@gmail.com; tel.: +38 067 56067 02

Prof., Dr. Sc., **Shevchyuk Viktor Vasyliievych**, Taras Shevchenko National University of Kyiv, Ukraine; E-mail: kzg@univ.kiev.ua; tel.: +38 050 656 33 20.

Prof., Dr. Sc., **Baranov Petro M.**, Oles Honchar Dnipro National University, Ukraine; Faculty of Chemistry, E-mail: baranov_pn@bk.ru; tel.: +38 097 291 68 13.

Literary editors: P.V. Bradbeer, M.O. Tikhomyrov.

Cover design: Vadym V. Manyuk.

Text Layout: Vadym V. Manyuk.

Information about publication: Journal of Geology, Geography and Geoecology. (ISSN 2617-2909 (print), ISSN2617-2119 (online). Complete information on the requirements for the publication of copyright articles in the collection can be found on the website of the journal www.geology-dnu.dp.ua or by addressing the **Editor-in-Chief** Volodymyr Manyuk at vgeoman@gmail.com.

In accordance with the Order of the Ministry of Education and Science of January 15, 2018, №32 «Journal of Geology, Geography and Geoecology» December 18, 2018 is included in category A «List of professional publications of Ukraine» by specialties 103 (Earth Sciences) and 106 (Geography)

Approved by the Decision of the Scientific Council of the Oles Honchar Dnipro National University, 72 Gagarin ave., Dnipro, 49010, Ukraine.