



UNIVERSITY OF AGRICULTURE
IN KRAKOW

Geomatics, Landmanagement and Landscape

Scientific journal founded in 2012 at the University of Agriculture in Krakow

GLL *Geomatics,
Landmanagement
and Landscape*



No. 2 • 2024

Krakow

Scientific Editor

Prof. dr hab. inż. Urszula Litwin

Editorial Board

Urszula Litwin (Krakow, Poland) – chair, Jacek M. Pijanowski (Krakow, Poland) – vice-chair,
Bülent Bayram (Istanbul, Turkey), Kazimierz Bęcek (Wroclaw, Poland; Darussalam, Brunei), Henryk Antoni
Bryś (Krakow, Poland), Bohdan Cherkes (Lviv, Ukraine), Ryszard Cymerman (Olsztyn, Poland),
Oleksandr Dorozhynskyy (Lviv, Ukraine), Tadeusz Gargula (Krakow, Poland), Krzysztof Gawroński
(Krakow, Poland), Riheb Hadji (Sétif, Algeria), Beata Hejmanowska (Krakow, Poland), Józef Hernik (Krakow,
Poland), Volodymyr Hlotov (Lviv, Ukraine), Oleg Iwanczuk (Lviv, Ukraine), Jarosław Janus (Krakow, Poland),
Thomas Kersten (Hamburg, Germany), Michał Kędziński (Warsaw, Poland), Marko Komac (Ljubljana,
Slovenia), Wiesław Kosek (Warsaw, Poland), Theo Kötter (Bonn, Germany), Eckart Lange (Sheffield, UK),
Pingsheng Leng (Beijing, China), Hans-Joachim Linke (Darmstadt, Germany), Yun Liu (Beijing, China), Holger
Magel (Munich, Germany), Zbigniew Piasek (Krakow, Poland), Weidong Qu (Beijing, China), Walter Seher
(Vienna, Austria), Gernot Stöglehner (Vienna, Austria), Silvia Tobias (Birmensdorf, Switzerland), Janusz Uriasz
(Szczecin, Poland), Walter de Vries (Munich, Germany), Janusz Walo (Warsaw, Poland), Zofia Więckowicz
(Wroclaw, Poland), Franciszek Woch (Puławy, Poland)

Topic Editors

Geomatics: Andrzej Kwinta (University of Agriculture in Krakow)
Landmanagement: Jacek M. Pijanowski (University of Agriculture in Krakow)
Landscape: Julia Gorzelany (University of Agriculture in Krakow)
Statistics Editor: Agnieszka Bitner-Fiałkowska (University of Agriculture in Krakow)
Secretary Editor: Halina Stachura
Open Acces Editor: Karol Król, Przemysław Kłapa

Copy-editing, proof-reading, DTP: Publishing House of the University of Agriculture in Krakow
Supported by the Society for Rural Development
The issue contains peer-reviewed papers

Edition of the publications is financed from the fund of the Rector of the University of Agriculture and the fund
of the statutory activities of the Faculty of Environmental Engineering and Geodesy (UR) in Krakow

The journal indexed in the databases Arianta, BazTech, EBSCO (CAB Abstracts with Full Text), ICI Journals Master
List, DOAJ – Directory of Open Access Journals, ERIH Plus, PBN – Polska Bibliografia Naukowa, Google Scholar

Copyright © Publishing House of the University of Agriculture in Krakow, Krakow 2024

ISSN 2300-1496



Editor-in-Chief

Dr hab. inż. Andrzej Wałęga, prof. URK

Publishing House of the University of Agriculture in Krakow
31-425 Krakow, al. 29 Listopada 46
Tel.: (+48) 12 662 51 57 or 12 662 51 59
E-mail: wydawnictwo@urk.edu.pl
wydawnictwo.urk.edu.pl
E-mail: gll@urk.edu.pl
gll.urk.edu.pl

Editor sheets 15.00. Printing sheets 14.00. Issue 150 copies

CONTENTS

Foreword.....	5
<i>Sławomir Mikrut</i> The use of modern photogrammetric techniques in the inventory of historical monuments – focus on the Potocki Palace in Krzeszowice	7
<i>Sławomir Mikrut</i> The use of artificial intelligence methods for analyzing images obtained through low-altitude photogrammetry technology to calculate the volume of mass in open-pit mines	21
<i>Chabbi Karima, Rabah Zennir, Boubaker Khallef</i> Assessment of the quality of the ecological environment of an area with tourist potential using the remote sensing ecological index: Case of El Kala National Park (Algeria)	31
<i>Khaoula Bedri, Mohamed Aguid Bachar Assed, Hassan Taib, Riheb Hadji, Nabil Defaflia, Mira Filali</i> Blast design and improvement of the quality of fragmentation in the aggregate quarries. Case study: Djebel Bouzegza C01	53
<i>Mohamed-Sadek Messis, Azeddine Mebarki, Abdelaaziz Merabti</i> Mapping of annual and frequency rainfall in the Chelif catchment area (Northwestern Algeria)	67
<i>Lahcene Hadjhafsi, Fateh Toufik Benaissa, Ali Redjem, Kadri Derradji</i> Residential building forms and energy efficiency in the Saharan climate: the case of Adrar, Algeria	85
<i>Kahina Loumi, Ali Redjem</i> Combining AHP with GIS for mapping the vulnerability to forest fire risk	99
<i>Abdeldjebar Touahri, Salah Sahraoui, Sana Benmansour, Mohammed Hadjkouider</i> Tectono-sedimentologic and lithostratigraphic control in Aures Region: Case study Djebel Metlili, Batna, Algeria	111
<i>Rafika Senouci, Belkacem Dib, Salim Dehimi</i> Creating of urban spaces: between legislation and application. A case study of land use plan N°06 in the city of Batna	125

<i>Agnieszka Chłosta-Sikorska, Szymon Sikorski</i> Nowa Huta – between the countryside and the city. Part 2. Economic and political transformation, and a new perspective on Nowa Huta's place in the landscape of Małopolska	141
<i>Robert Szewczyk</i> The development of flood zones	153
<i>Monika Maria Siejka, Monika Maria Mika, Marcin Cyrwus, Mariusz Górak</i> The impact of the COVID-19 pandemic on the activity of residential real estate market in small cities – case study of Nowy Targ, Poland	163
<i>Nawel Touaibia, Djamel Telaidjia</i> The geography of retail trade and services in Annaba's city, Algeria	177
<i>Abdeldjalil Mouerri, Riheb Hadji, Farid Zahri, Younes Hamed, Brahmi Serhane</i> Multidisciplinary evaluation of geological, geotechnical, geomechanical, and hydrogeological parameters for assessing slope stability in the Aures Mountain Quarry	195