



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*

A decorative graphic element consisting of a horizontal line with a stylized arrowhead pointing to the right, positioned below the 'GLL' text.

No. 2 • 2015

Krakow

Editor-in-Chief

Prof. dr hab. Józef Bieniek

Scientific Editor

Prof. dr hab. Urszula Litwin

Scientific Board

Urszula Litwin (Krakow, Poland) – chair, Jacek M. Pijanowski (Krakow, Poland) – vice-chair,
Henryk Bryś (Krakow, Poland), Bohdan Cherkes (Lviv, Ukraine),
Ryszard Cymerman (Olsztyn, Poland), Oleksandr Dorozhynskyy (Lviv, Ukraine),
Tadeusz Gargula (Krakow, Poland), Krzysztof Gawroński (Krakow, Poland), Beata Hejmanowska
(Krakow, Poland), Jozef Hernik (Krakow, Poland), Volodymyr Hlotov (Lviv, Ukraine),
Jarosław Janus (Krakow, Poland), Thomas Kersten (Hamburg, Germany), Marko Komac (Ljubljana, Slovenia),
Wiesław Kosek (Krakow, Poland), Theo Kötter (Bonn, Germany), Eckart Lange (Sheffield, UK),
Hans-Joachim Linke (Darmstadt, Germany), Pingsheng Leng (Beijing, China), Yun Liu (Beijing, China),
Holger Magel (Munich, Germany), Walter Seher (Vienna, Austria), Katarzyna Sobolewska-Mikulska (Warsaw,
Poland), Gernot Stoglehner (Vienna, Austria), Karl-Friedrich Thöne (Dresden, Germany),
Zofia Więckowicz (Wrocław, 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-Plesińska (University of Agriculture in Krakow)
Statistics Editor: Agnieszka Bitner-Fiałkowska (University of Agriculture in Krakow)
Secretary Editor: Halina Stachura
Open Acces Editor: Karol Król

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 BazTech, ARIANTA, AGRIS, CABI, AGORA, Index Copernicus

Copyright © Publishing House of the University of Agriculture in Krakow, Krakow 2015

ISSN 2300-1496



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@ur.krakow.pl
www.wydawnictwo.ur.krakow.pl
E-mail: gll@ur.krakow.pl
www.gll.ur.krakow.pl

Editor sheets 7. Printing sheets 6.75. Issue 350 copies

CONTENTS

Foreword.....	5
<i>Devendra M. Amatya, Agnieszka Cupak, Andrzej Wałęga</i> Influence of time of concentration on variation of runoff from a small urbanized watershed	7
<i>Tadeusz Gargula</i> The proposition of a new damping function for outliers in the adjustment process	21
<i>Wiesław Kosek, Agnieszka Wnęk, Maria Zbylut-Górska</i> Corrections to sea level anomalies data due to geocenter motion	33
<i>Karol Król, Lenka Szomorowa</i> The possibilities of using chosen JQuery Javascript components in creating interactive maps	45
<i>Urszula Litwin, Izabela Piech, Dawid Rakowski</i> Digital terrain model as a basis for determining the floodland of the Prądnik river	55
<i>Renata Ostrowska</i> The assessment of agricultural use of mountain village grasslands – on the example of their spatial arrangement	63
<i>Małgorzata Wilczkiewicz, Magdalena Wilkosz-Mamcarczyk</i> Revitalization – definition, genesis, examples	71

FOREWORD

The scientific journal *Geomatics, Landmanagement and Landscape* challenges the stereotype about The University of Agriculture in Krakow as a scientific and research institute oriented exclusively towards agricultural, forest and veterinary sciences. Great credit for the change in the way our University is perceived goes to its researchers of the Faculty of Environmental Engineering and Land Surveying, who have contributed to creating this journal. And the authors publishing here play crucial role in showing how important is the integration of interdisciplinary research, even when it encompasses the different fields of sciences.

In the current issue of the *Geomatics, Landmanagement and Landscape* the problems related to geodesy and cartography (understood as part of technical sciences), hydrology and revitalization (classified as branches of engineering, environmental protection and land reclamation) have been presented. This issue also discussed questions concerning spatial management as part of the agricultural, forest, veterinarian and technical and economic sciences. The results of the presented studies, related to computation of the corrections to sea level anomaly data due to centre of Earth mass variations, and to using the software tools such as jQuery JavaScript components to create interactive maps, are examples proving that reliable geodesic data are essential in any kind of scientific research, studies and engineering projects in environmental engineering broadly understood. The data allow among other things to localize the flood risk areas on the basis of Digital Terrain Model. And analysis of flood risk requires using hydrological methods, which was shown in an article about the assessment of the influence of time of concentration on maximum flow in an urbanized watershed. The authors of the paper on revitalization have described the examples of cities, districts and post-industrial areas which thanks to the revitalization processes have been transformed from vacant places and wastelands into objects with new, attractive functions. Yet another article looks at the agricultural use of lands in a mountain village and it tries to prove the agricultural usefulness of grasslands due to the character of mountain agriculture based on livestock and pasture farming. This short characteristics of the published articles of Polish authors shows how diverse are the problems addressed in GLL.

I am convinced that the readers will find here the ideas that would inspire them to their own research, scientific cooperation with researchers from other academic institution, from Poland and abroad, and that it will lead not only to new publications, but also to projects and research implementations.

*Prof. dr hab. inż. Bogusław Michalec
Deputy Dean for full time studies
in the Faculty of Environmental Engineering and Land Surveying
University of Agriculture in Krakow*