

FOREWORD

Geodesy and Cartography is one of the scientific disciplines with a very broad spectrum of interests. Scientists who identify with this scientific discipline conduct research across all elements of the environment, both on Earth and in space. Collaboration with various specialists involves many branches of the economy and socio-economic life, and influences many aspects of society's development. This importance of Geodesy in various sectors of the economy is reflected in the establishment of the section on Applied Geodesy and Cadastre, in the current term of the Committee on Geodesy of the Polish Academy of Sciences.

The Geomatics, Landmanagement and Landscape Journal, the current issue of which you are about to read, fits perfectly with the interdisciplinary interests of researchers working in the broad field of geodesy and cartography. This issue consists of nine scientific papers covering a wide range of topics.

The first paper presents the use of multisource remote sensing data to classify and determine rock facies and properties. By examining the spectral signal, the authors analyse the Landsat and the Sentinel multispectral imagery.

The second paper deals with safety in mining. Using the Boukhadra iron mine as an example, the authors developed there a model for the distribution of supports in the galleries of underground mines in the example of. The classification of the rock mass based on the geomechanical model allowed the identification of suitable support systems. The obtained results can improve the stability of the mine workings by selecting the correct direction of the workings in relation to the discontinuity planes.

The authors of the third paper, using the example of the Atlas Tell Mountains in Algeria, presented a methodology for assessing active rock mass tectonics through a combination of drainage networks and geomorphic indices. An index of tectonic activity was determined based on a multi-criteria GIS analysis. The approach presented makes it possible to identify the most active regions associated with neotectonic activity.

The next paper addresses the use of remote sensing methods in GIS analyses. The possibilities of using geoinformatics tools for urban analysis, taking into account land changes over recent years, are presented using the example of Setif, a city in Algeria. Sentinel 2A and Landsat images from 2004 to 2021 were used for the study, which examined the growth of the urban area by identifying the most suitable areas for development.

The fifth paper relates to what has affected us all in recent years, namely the COVID-19 pandemic. The author, based on the examples of Kraków and Barcelona, carries out an analysis of “smart city” solutions, with particular emphasis on the period of the Covid-19 pandemic. According to the author, the pandemic has revealed the need to modify the use of ICT (Information and Telecommunications Technologies) in the functioning of cities. The paper also points to the provision of individual spaces for residents to live in during periods of prolonged isolation, and the improvement of communication, both direct and electronic, especially in socially important areas.

The sixth paper presents the application of principal component analysis and multiple regression to study settlement and compression, including geotechnical parameters – compression and recompression index, clayey sediments in the Tebessa region of Algeria. The selected input parameters in combination with the multiple regression analysis allowed the authors to identify the most important input parameters that effectively influence the soil density index and lead to obtaining the best model for estimating the compensation index.

In the seventh paper, the authors assess the feasibility of using the Alsat 2-A satellite imagery to map emergency situations in urban areas. The aim of the research was to use real-time imagery in the event of natural disasters. The research verified information obtained by remote sensing methods with field data.

The authors of the eighth paper provide an analysis of possible variants of the 1-dimensional transformation when there is a large number of excess observations. The study includes, among others, a transformation without weighting and a transformation with weighting depending on the distance between the adjustment points, both horizontally and vertically. In their conclusions, the authors determine the relationship between the weighting of the observations and the application of post-transformation corrections to the results of height transformation.

Finally, the ninth paper deals with landslide sites. a study of the parameters affecting the safety of landslide terrains was carried out in Souk Ahras in Algeria. The parameters affecting the safety factor were determined using the DoE, CCD, or RSM experiment design method. The final model obtained is applicable for the determination of reliable landslide safety factor values.

As you can see, the topics of the articles are very diverse, therefore I believe that every reader will find something of interest.

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