

## FOREWORD

Dear readers, we present to you next issue of the Geomatics, Landmanagement and Landscape (GLL) journal, which as always, consists of various scientific articles dealing with a complex group of issues relating to space in its broadest sense.

The first article deals with Landscape Information Modeling (LIM) on the example of cubature, infrastructure and planning projects implemented with the use of Building Information Modeling (BIM). Increasingly popular among landscape architects and urban planners, the LIM practice is based on data that can be obtained from Geographic Information Systems (GIS). At the same time, new models of buildings in BIM technology are created. Thus, due to the growing popularity of BIM technology, there is a strong need to integrate data from both systems. Currently, the model for standardized data exchange does not allow for the recording of information about objects other than buildings and their equipment, and the elements of land development are treated in a very general way. Solving this problem requires using substitute object classes that are not relevant to the actual image of the model.

The second of the presented articles concerns a case study of measuring the geometry of dynamic objects using the laser scanning method. The article presents the results of analyzes of measurements of moving objects using the Total Station (TS) and Terrestrial Laser Scanning (TLS) methods. The subject of the research was the „Polinka” gondola lift on the Odra River in the city Wrocław (Dolnośląskie Region, Poland). The research included basic and control measurements. The results of the observation of the deflection of the cable car’s main ropes in the kinematic state at different load levels were compared. While the gondola lift was moving, the shape of the strand and the carrier rope is constantly changing. The research was aimed at showing whether it is possible to capture the shifts of the geometry of a moving object during continuous vibration of the ropes and while the gondola lift was in motion.

The next article deals with the capacity of the Sanna River bed in the conditions of the baseflow and control flow of the weir in Zaklików (Podkarpackie Region, Poland). The capacity calculations were performed in the conditions of flood water discharge, i.e. for the baseflow and control flow, determined in accordance with Polish law. The article presents the consequences of changes in the regulations regarding the definition of the type of structures for which baseflow and control flow are determined, which affect the determination of the probability of these flows for the analyzed weir. The calculations also took into account its technical condition, adopting the calculation variant for lack

of maintenance works and for the state after maintenance works, consisting in mowing vegetation on slopes and shaping the surface of the river bottom with removal of pits and shoals.

The systematic of division into section sheets adopted in the International Map of the World (IMW) is a binding standard in many countries. This division is used for most types of small-scale maps. Due to the scope of application, it is also often the basis for indexing orthophotos and data from laser scanning. Data appearing in central state resources cover entire countries. The need for quick spatial identification is a determinant of the availability of resources stored in these databases. The dynamic development of Open Source software in the fields of GIS is also an increasing area of research that scientists from around the world focus on – not only as a ready tool for conducting spatial analyzes, but also for searching for algorithmic solutions to meet the needs arising from the need to process larger and larger quantities of this kind of data. This constitutes the subject of the fourth article of this GLL issue.

The fifth article concerns the analysis of the state of preservation, spatial development and tourist use of residential and garden sites in the Janów commune (Śląskie Region, Poland). The aim of the article is to analyze and evaluate the state of preservation of the residential and garden sites in Janów and their current use. This commune – with enormous landscape and natural potential – has four palace and park sites entered in the register of monuments. They are located in the following towns: Bystrzanowice-Dwór, Czepurka, Złoty Potok and Żuraw. The background for the research is the history of the objects, the characteristics of their current state and the possibilities of their tourist use.

The last of the articles in this GLL issue deals with urban networks of air quality measurement nodes in so-called smart cities. The Internet of Things (IoT) technology in environmental protection is an innovative solution. Currently, all information on air quality is generally very scattered. The article describes the test stages of pre-implementation works, focusing on the presentation of the technical design of the measurement node and the assumptions of the IT model. The aim of the research was to create an urban network of air quality measurement nodes with granular measurements in the city, district or street area using a matrix construction tool connected to many identical measurement nodes arranged in the study area. The results of the study showed that a robust sensor hardware platform and the ISIMPIO IT platform were developed as a technology for processing data from sensors monitoring air quality. An edge server was also designed, which allowed e.g. for the implementation of integrated Python software and support for MQ Telemetry Transport (MQTT).

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