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Jacek Paziewski and Dogan Ugur Sanli

Editorial to the Special Issue on the International Symposium on Applied Geoinformatics 2019

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Over the last years, we have observed significant technological developments in both instrumentation and algorithms aiming at capturing and processing geodetic and geospatial data. As a result currently most of the information about the Earth's shape and surface is retrieved with the use or with augmentation of satellite-based systems. With such cutting-edge advances, it is now feasible to meet high requirements of conventional geodetic and surveying applications. Considering the GNSS technology as an example, it is possible to determine the position with a degree of precision that was previously unachievable by traditional surveying methods. But more importantly, these developments stimulate a broad range of new applications, the creation of novel opportunities and the market for geodetic techniques.

In this respect the *International Symposium on Applied Geoinformatics (ISAG) 2019* has naturally become a crucial waypoint on the map of geodetic conferences and seminars. This symposium aimed to provide an international forum for the exchange of ideas and the creation of knowledge for the recent advances on various aspects of theories and applications of geodesy and geoinformatics. This Special Issue in the Journal of Geodetic Science gathers five peer-reviewed papers that advance the state-of-the-art and originate from the *International Symposium on Applied Geoinformatics* held at the Yildiz Technical University in Istanbul from 7 to 9 November, 2019.

Several studies contained in this Special Issue of the Journal of Geodetic Science are related to the advances in the theory of geodetic observation adjustment. Duchnowski and Wyszkowska (2020) deal with testing the normality of selected variants of the Hodges-Lehmann estimators. With the analyses based on the Monte Carlo method and Jarque–Bera test, the authors proved the normality of Hodges-Lehmann estimators. As shown by the authors, this, however, does not hold true for Hodges-Lehmann weighted estimators when a nonlinear functional model is applied and observations are of low accuracy. This contribution to adjustment theory is supported in the paper by Wyszkowska and Duchnowski (2020), who applied selected estimates, namely traditional least squares estimate, two M_{split} estimates, and robust estimates such as M-estimate and R-estimate, so as to empirically assess estimate biases. A complement to the adjustment and optimization theory is the study by Yetkin and Bilginer (2020), who, for the very first time, employed the Grey Wolf Optimization algorithm for computing calibration parameters of an Electronic Distance Measurement unit and for a robust estimation of a levelling network.

Toward the goal of filling some of the indoor positioning technology gaps, a paper by Uradzinski et al. (2020) describes advances in the positioning method that is based on a received signal strength indicator (RSSI) fingerprint database. With the conducted experiment, the authors reported an improvement in indoor positioning accuracy.

A novel contribution here is toward a classification of the specific trees using satellite imagery. The goal of the study by Tonbul et al. (2020) is to map the poplar cultivated areas using selected combinations of the Sentinel-2A image bands.

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Jacek Paziewski: University of Warmia and Mazury in Olsztyn Poland, E-mail: jacek.paziewski@uwm.edu.pl
Dogan Ugur Sanli: Yildiz Technical University Turkey, E-mail: usanli@yildiz.edu.tr

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