USABILITY OF GNSS TECHNIQUE FOR CADASTRAL SURVEYING

Reha Metin Alkan[1,*], İ. Murat Ozulu[2], Veli İlçi[2], F. Engin Tonbuş[2], Murat Şahin[2]

[1] İTÜ
[2] Hitit University
[*] Corresponding Author alkanr@itu.edu.tr

What is undoubtedly essential to do in this regard is to identify the overall aspects of this value and keep records with the use of information systems. In this context, information about the ownership and boundary of a real property is specifed with cadastral measurement. When the fact that not only the real persons but also many countries have boundary conflicts, which result in serious legal problems and even wars among countries, the significance of the issue can easily be understood. As is known, the authority to carry out cadastral measurements is the General Directorate of Land Registers and the first facility has completed the % 99 part of the facility cadastre. However, it does not come to mean that operations have been accomplished. Actually, there are plenty of endeveours in many fields. All these works are carried out either by related Official Cadastrel Units or Licenced Offices. In those studies, traditional surveys have been conducted with the use of conventional terrestrial methods, i.e. using a theodolite or for a couple of decades total station, EDM, steel band and etc. . Nevertheless, GNSS systems (especially GPS and GLONASS), which hold many advantages over classical measurement methods, have began to be used all around the world recently. GNSS systems are competing with traditional techniques in almost all fields of surveying applications including cadastral surveying. Although the GNSS systems have considerably facilitated the measurements, there are still some limitations in their applications. One of the most essential requirements of the system is that any GNSS antenna has to have a clear view of the sky. However, it is difficult to use sattellite-based systems in densely housed areas, woodlands, and similar places. Even though some of these problems have been solved with the use of secondary and tertiary GNSS systems together with GPS (GPS+GLONASS, GPS+GLONASS and etc.), conventional surveying techniques are required in some instances. This study provides not only a review but also an explanation of the advantages, disadantages, and benefits of the GNSS measurement systems, which are increasingly used and widespread in almost any areas. The employability of the above-mentioned methods for cadastral measurements in our country and their benefits were analyzed within the frame of the existing Scale Maps and Map Information Production Regulation.

Keywords Cadastral Survey, Cadastre, GNSS