

Testing Height Accuracy in CORS-TR Technique

Ercenk Ata, Atinc Pirti and Ramazan Gursel Hosbas (Turkey)

Key words: Engineering survey; GNSS/GPS; Positioning

SUMMARY

GPS positioning has been actively used in mapping applications since 1980s. In the beginning, while local reference stations were using the necessary methods and techniques, a new and modern system that provides faster, more economical and accurate results has started to be used nationwide. This system, which is an abbreviation of English expression of Continuous Observing Reference Station words, is known as CORS (Continuously Operating Reference Stations) system. This system has reference points spread all over the country. Consistent GNSS receivers have been deployed at these known locations. The obtained data is transmitted to a control center via ADSL or GPRS / EDGE. Atmosphere and other errors are modeled in the control center and RTK / DGPS corrections are calculated in real time and sent to mobile GNSS receivers over GPRS / EDGE. In the CORS-TR system, a single-frequency GNSS receiver uses a DGPS dataset with decimeter accuracy, while a dual-frequency GNSS receiver uses an RTK dataset to determine a horizontal position of 1 to 10 centimeters. The accuracy of the height component in the GNSS system is lower than the horizontal position accuracy. This also applies to the CORS-TR technique. This work involves testing the validity of the CORS-TR technique. Heights will be determined and compared with the geometric and trigonometric leveling as well as the CORS-TR technique at the selected test points. In this study, the accuracy of the height determination by the CORS technique was obtained in centimeter values.