

The Effect of Session Duration in Determination of Point Movements with GNSS

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SUMMARY

Nowadays, GNSS(Global Navigation Satellite Systems) techniques are widely used to determine positions of geodetic points. Geodetic networks that have high accuracy can be established with these techniques.

In this study, the effect of session duration was investigated in determination of point movements with GNSS. For this purpose, a micro geodetic network that consists of 7 points was used in Selçuk University Campus area, 6 of these points were reference points and one of which was object point. A mechanism that allows virtual shifting at 1cm intervals on the object point was used. When collecting the GNSS data, the data record interval was taken as 5 seconds and the elevation mask was selected as 10 degrees. During the measurement, GNSS receiver set up on the mechanism at the object point was shifted to 1 cm intervals and GNSS data were collected for 2 hours on each point while receivers at the reference points were continuously collecting data. Coordinates of the reference points were determined based on CORS-TR (Continuously Operating Reference Stations-Turkey) network and the coordinates of the object point were calculated based on the reference points using 2-h, 30-min and 15-min observations. Leica Geo Office (LGO) v7.0 software was used in calculations. Root mean squares (rms), which were obtained from 2-h, 30-min, and 15-min GNSS measurements carried out successively on the mechanism, were compared with each other. Conclusively, it was seen that there were no significant differences between the 15-min session duration and the 2-h session duration in terms of rms in micro geodetic networks.