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Comparing the Performances of Real-Time Kinematic GPS and a Handheld
GPS Receiver under Forest Cover

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Abstract: In forestry, to facilitate re-finding, especially permanent sample plots or some sample points in forest inventory for control, precise position information is needed. Various techniques are used to increase the performance of basic GPS (Global Positioning System) measurements and to achieve more accurate positioning. These techniques are based on the principles of relative positioning, for which 2 or more receivers are used generally. For a forest inventory, the corrected coordinates should be provided in the field and at the moment of measurement. Therefore, real-time measurements are required. The cost of GPS receivers used for sensitive measurements through relative positioning techniques is fairly high. Before widespread usage, to determine the efficiency of them according to simple GPS receivers will be useful. In this study, both a handheld GPS receiver and the "Kinematic on the Fly" (KOF) technique, a special form of kinematic method, were used to perform measurements at 9 sampling points individually, and the results were compared. Since obtaining the real coordinates of the points measured through KOF and the handheld GPS receiver was not possible, these measurements were compared with each other, not with the real coordinates. For this reason, the precision of the measurements was determined. Small differences among the repeating measurements were considered the indicator of precision. The results obtained by the kinematic method are more precise.

Key Words: Forest inventory, GPS, Differential GPS, KOF

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