Usability of Cholesky Factorization Method in the Determination of Horizontal Deformations: a Case Study, Ermenek Dam

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SUMMARY

Last and the most important task of deformation analysis is evaluation of data and interpretation of results. Different methods are used in evaluations of measurements. In this study, Cholesky Factorization Method, which is one of the static evaluation methods used in the determination of deformations in the horizontal direction, is theoretically examined, using direction observations and ranging data measured in Ermenek Dam for two periods and deformation measurements were conducted by analytical method. Geodetic network consists of 13 reference points and 10 object points which were located on the crest. Evaluation was made separately both for direction observations and for direction observation + ranging data. With 95% statistical confidence, any deformation was not observed on 4,5,6, 7, 8, 9,13 reference points and 104, 502 object points in the evaluation according to direction observations and on 3, 6,7,8,9 reference points in the evaluation according to direction observation + ranging data. In the points exposed to deformation, movements were under 6mm. In the computations, a program prepared MATLAB 7.6.0 Release 13.0 M-File was used.