

# Usage of Robust Statistics in Geodetic Networks,

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## SUMMARY

Robust methods are considerable tools for analyzing data that are contaminated with outliers. These can be used to detect outliers and to provide resistant results in the presence of outliers. The most common form of regression analysis is the least squares estimation (LSE) method, which can achieve optimum results when data are included only normal distributed random errors. However, the problem with this estimator is its extreme sensitivity to deviations from the Gaussian model. When the observation set has more than one outlier it is a fact that the Baarda and Pope methods based on LSE method, are inefficient. In this case, robust methods are suggested to be used. In this study, the efficiencies of the robust estimators and conventional tests for outliers in the contaminated geodetic networks are examined using Monte-Carlo study. The reliabilities of these methods are measured by mean success rate. The results of simulation studies indicate that the MSRs of robust methods are mostly greater than the ones of Baarda's method. Therefore, robust methods should be used.

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