

# Accuracy Analysis of Determination the Vertical Displacements in Unstable Reference System

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## SUMMARY

Measurements of horizontal and vertical displacements are carried out mostly based on reference points identified as fixed. In surveying practice there may be some situations in which there is not possible to perform the measurements with reference to stable points or the difficulties in identification of points' stability can arise. Accuracy analysis based on the covariance matrixes have a special role in this process. In presented paper the covariance matrixes were determined. The authors took advantage of the method of determination the vertical displacements in the absence of stability of reference points. The paper presents results of the theoretical and empirical tests of this concept. Tests were carried out based on simulated data of foundation plate measurements. The conclusions, which came from the calculations, encourage not only to do more detailed analysis and tests but also to theoretical development of the presented method.