



## **Comparison of Different Methods of the Datum Determination in Control Networks**

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### **Abstract**

Establishment of the geodetic control networks and observations in regular epochs is a commonly used method for detection of displacement and structures health monitoring. Determination of the reference coordinate system and the appropriate adjustment technique are the critical parts of the network analysis. Results mainly depend on the determination of the reference coordinate system. They can be chosen either by minimum, inner or weighted constraints.

This paper is focused on the comparison of these methods for determination of the reference coordinate systems in control networks and their effects on the detection of displacement. The results reveal that weighted constraint adjustment method is superior to other methods when the weights are selected based on the rate of displacement.

**Keywords:** Datum determination, Control Networks, Minimum constraints, Inner constraints, Weighted constraints, Detection of displacement